Major Requirements

Completion of or enrollment in the following four courses is required in order to declare the major:
- AAS 4A-4B, Africa: History and Culture; and AAS 5A-5B, Black Life and Culture. 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

To complete the major, students must take a cluster of eight courses focused on a specific area of concentration. Five of the eight courses must be selected from African American Studies departmental course offerings. The remaining three courses may be taken from other departments.

The list of area collaboration 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 30 upper division units at Berkeley and have attained senior standing with a GPA of 3.6 or higher in all University work, as well as a 3.6 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, AAS 4B, AAS 5A, or AAS 5B and five upper division courses in the Department of African American Studies. In order to complete the minor program, courses should be chosen to reflect one of the specified areas of concentration. A list of areas representing current faculty fields of expertise and the courses students may take to complete the minor program is available in the department office.

Consistent with Letters and Science requirements, a GPA of 2.0 is required in courses applied to the minor program. At least five courses in the minor must be taken for a letter grade. Students may petition to have transfer credits accepted, but transfer students must take a minimum of three upper division courses from the Department of African American Studies.

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, Berkeley 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 interest; GRE taken within the last five years (scores must be reported by the Educational Testing Service); and 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, in 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 pertain to 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 power, self-determination, mutual cooperation, and aesthetic and creative expression. Issues of identity construction, marginality, territory, and the universal role of race in the organization 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. Applicant records must also demonstrate proficiency in a foreign language at the undergraduate level comparable to Berkeley’s language requirement.

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 residence for all Ph.D. programs. Academic residence 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 course work 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 course work with a minimum GPA of 3.3, 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. Prerequisites: Subject A and 1A. For first-time freshmen. Credit/no credit grading only. Recommended for students whose SAT or ACT scores are below standard. (F,SP) Staff

R1B. Freshman Composition. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Subject A and 1A. For first-time freshmen. Credit/no credit grading only. Recommended for students whose SAT or ACT scores are below standard. (F,SP) Staff

R prefix=language/course for business majors
C prefix=course satisfies R&CE requirement
H prefix=course satisfies R&S requirement
AC prefix=course satisfies American cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award

Aerospace Studies (Air Force ROTC)

(See Military Officers’ Education Program)

African American Studies

(College of Letters and Science)

Department Office: 660 Barrows Hall, (510) 642-7084
Chair: Percy Hintzen, Ph.D.

Professors

William Banks, III, Ed.D., University of Kentucky.
- Counseling psychology, black social institutions
- Black politics, public policy
- Professor Emeritus, Yale University. Political sociology, social change
- Michel S. Laguerre, Ph.D., University of Illinois. Caribbean anthropology
- Reginald Jones, Ph.D. (Emeritus)
- Margaret B. Wilkerson (Emeritus), Ph.D., University of California, Berkeley. Black theater, Lorraine Hansberry

Associate Professors

Walid Clark, Ph.D., University of California, Berkeley. African American politics, anthropology
- Jocelyne Guibault, Ph.D., University of Michigan. Caribbean music studies, popular music, cultural studies (Music)
- Walid E. Martin, Jr., Ph.D. University of California, Berkeley. Recent U.S. black, cultural, intellectual history
- Horace Mitchell, Ph.D., Washington University, St. Louis, Missouri. Counseling psychology
- Marcus King, Ph.D., M.I.A. Columbia University. (Art Practice)
- Tyler E. Stovall, Ph.D., University of Wisconsin, Madison. French history (History)
- Menn ha-T’im, Ph.D. University of Illinois. Feminist theory, film theory and production, comparative literary and art theory, cultural politics, Third World arts and politics

Acting Assistant Professor

Brandi Catanese, Ph.D., Stanford University. African American performance

Lecturer

Silvestor Henderson, M.A. San Francisco State University. Music

Affiliated Professors

Ruth Wilson Gilmore, Ph.D. Rutgers University. Race, gender, labor and social movements, uneven development, politics and culture, the U.S., California, the African Diaspora (Geography)
- Jocelyne Guibault, Ph.D., University of Michigan. Caribbean music studies, popular music, cultural studies (Music)
- Walid E. Martin, Jr., Ph.D. University of California, Berkeley. Recent U.S. black, cultural, intellectual history
- Horace Mitchell, Ph.D., Washington University, St. Louis, Missouri. Counseling psychology
- Marcus King, Ph.D., M.I.A. Columbia University. (Art Practice)
- Tyler E. Stovall, Ph.D., University of Wisconsin, Madison. French history (History)
- Menn ha-T’im, Ph.D. University of Illinois. Feminist theory, film theory and 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 interdisciplinary and prepares students to use and develop analytical approaches to the critical issues associated with the African diaspora.

In preparation for declaring a major in African American studies, students should complete the Reading and Composition requirement and freshman/sophomore seminars. African American Studies offers lower division courses that satisfy the American Cultures and College of Letters and Science breadth requirements. For a list of current semester freshman/sophomore seminars and other courses with selected topics, consult the description of courses for the current semester available at the department office.
emphasis on literary interpretation. Satisfies the second half of the Reading and Composition requirement. (F,SP) Staff

4A. 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 gender relations in all campus departments. (F,SP)

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. (SP)

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 genesis, development, and scope of African American culture, approached through an examination of selected art forms, historical themes, and intellectual currents. (F,SP) Staff

5B. African American Life and Culture in the United States. (4) Three hours of lecture and one hour of discussion per week. Emphasis on the 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. (SP) Banks

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 the contemporary 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 Geography C15 and Women’s Studies C15.

C17AC. Cultural Identity in African History. (4) Four hours of lecture per week. This course will examine the major themes pertaining to identity in America: race, class, and gender—many forms of struggle and majority groups can assume. The focus is on individual struggle and its outcome as reported and perceived by the masses. Members of three minority aggregates are considered: African Americans, Asian Americans (so called), and Chicano/Latino Americans. The choice of these three has to do with the different historical members of these aggregates. Such differences have produced somewhat different approaches to struggle. This course satisfies the American cultures requirement. (F) Hintzen

28AC. Globalization and Minority American Communities. (3) Three hours of lecture per week. An examination of the movement of individuals, ideas, ideologies, and institutions between minority American communities in the U.S. (African Americans, Asians, Chicanos) and their cultures of origin, in the 19th and 20th centuries. The course will utilize the concepts of “migration,” “diaporia,” “otherness,” “multiculturalism,” and “global village” and will draw largely on scientific and historical perspectives. This course satisfies the American cultures requirement. (F) Hintzen

29AC. Theater and Culture Identity. (4) Three hours of lecture and one hour of discussion per week. This course will explore the ways in which American theater and drama have contributed to the social perception of group identity, and will introduce students to cultural perspectives as presented in theater. Plays written by Chicanos/Latinos, European American, African American, and Asian American women and men will provide basic texts for the course. This course satisfies the American cultures requirement. (F)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as a 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 guest 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) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter an expert in the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminars are designed for juniors but may be taken by sophomores with the consent of the instructor. (F,SP)

98. Directed Group Studies for Freshmen and Sophomores. (1-4) Course may be repeated for credit. Enrolment 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. Enrolment 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

100. Introduction to African American Studies. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Reading and composition requirement. This course, taught by different instructors, will introduce students to the study of African American history, culture, and community scholars/organic intellectuals to the development of the discipline. (SP) Staff

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

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 differ from year to year, basic public policy methodology will be introduced each year. (F,SP) Banks

111. Race, Class, and Gender in the United States. (3) Three hours of lecture per week. Prerequisites: Reading and composition requirement. Emphasis on social history and comparative analysis of race, class, and gender relations in American society. Examinations of race relations and gender, race relations and family, and the world of work. (SP) Banks

112A. Political and Economic Development in the Third World. (4) Four hours of lecture per week. An examination of the structural and actual manifestations 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 intranational perspective. (F,SP) Hintzen

112B. Political and Economic Development in the Third World. (4) Three hours of lecture and one hour of discussion per week. A critical appraisal of the theoretically based policies employed by Third World nations in their attempts at transition to modernized developed socio-political and economic systems and an examination of the international and intranational impediments to Third World development. The focus will be on actual examples that represent the diversity of developing countries. (SP) Hintzen

116. Colonialism, Slavery and African American Life Before 1865. (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 political, economic, demographic and cultural factors shaping African American life and culture prior to 1865. (F) Taylor

117. African Americans in the Industrial Age, 1865-1970. (4) Three hours of lecture and one hour of discussion per week. With emphasis given to the organization of labor after slavery, this course will explore the history of African American cultural, institutions and protest traditions from the Civil War to the Civil Rights Movement. (SP) Taylor

25AC. Male and Ethnic in American Culture. (3) Two hours of lecture and one hour of discussion per week. This course examines the interplay of ethnicity and male gender in three groups, Italians, Puerto Ricans, and African Americans. Interdisciplinary in approach, the course will reveal the complexities of gender, class, and race in the social quilt of American life. This course satisfies the American cultures requirement. (SP) Banks

26. Black Music and Musicians in American Culture. (2) One and one-half hours of lecture per week. Examines the impact of African American music, and the artists who produce it, on American culture in the 20th century. (F,SP) Banks
12. African American Families in American Society. (3) Three hours of lecture per week. Prerequisites: 5B or 101A, or upper division coursework in sociology. The historical roles and functions of families in the development of black people in America from slavery to the present.

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

14. Political Philosophy of Martin Luther King, Jr. (3) Three hours of lecture per week. Using the thought and actions of Martin Luther King, this course examines the major events of the Civil Rights Movement. Readings include original works by King as well as secondary sources with a special emphasis on African American religion, nonviolence, and integration. Also listed as Religious Studies C175. (F,SP) Henry Laguerre

124. Political Philosophy of Martin Luther King, Jr. (3) Three hours of lecture per week. Using the thought and actions of Martin Luther King, this course examines the major events of the Civil Rights Movement. Readings include original works by King as well as secondary sources, with a special emphasis on African American religion, nonviolence, and integration. Also listed as Religious Studies C175. (F,SP) Henry Laguerre

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 historically, this period began with the United States Supreme Court decision of May 17, 1954. Brown v. Board of Education. Readings consist of an introduction to the scholarly secondary literature on African American women’s history. Lectures and discussions will examine the readings, 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 Hendricks

126. African American Women’s History. (4) Three hours of lecture 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 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 African American women’s history. Readings consist of a book on the various aspects of the Voting Rights Act of 1965. This course seeks 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 Hendricks

131. Caribbean Societies and Cultures. (3) Three hours of lecture per week. Comparative study of Spanish, Dutch, English, and French-speaking Caribbean sociocultural analysis of Caribbean localities in the context of the development of the plantation system, urban dynamics, ethnic politics, family structures, and ecology of African Caribbean religions. (SP) Laguerre

132. Psychology of African American People: Current Issues. (3) Three hours of lecture per week. Prerequisites: African 5B or 101A, or upper division coursework in psychology. Examines psychological research relevant to African American people. Emphasis on understanding the concerns, methods and conclusions regarding African Americans offered by African American psychological theories, which origins to the present. Also listed as Psychology C105.

135. Caribbean Cultural History. (3) Three hours of lecture per week. An examination of the history and cultural evolution of the Caribbean, including the development of the plantation system, urban dynamics, ethnic politics, family structures, and ecology of African Caribbean religions. (SP) Laguerre

136AC. The Minority Question in American Society. (3) Three hours of seminar per week. Formerly 136. Minority status is ascribed to some ethnic groups, a stigma imposed on them by the dominant system of power as a result of prevalent discriminatory practices of the state. This seminar examines the social construction of the minority as a chronic minor, the conditions under which such a practice by state apparatus is made possible, the negative impact of this practice on minority identity formation, and the struggle for minority empowerment and liberation. The technology of the reproduction of the minority status of Anglo women, Mexican-Americans, African Americans, Asian-Americans, and Dominican-Americans is analyzed in its multiple forms in the context of multicultural and differentiated citizenship. Theoretical models that explain the mechanisms of the mode of incorporation, containment, and expansion of ethnic minority groups in the multicultural state system are reviewed showing their strengths and weaknesses. The course satisfies the American cultures requirement. (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, Native 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: Examination of the theoretical premises. Special attention will be given to the role 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.” (SP) Henry Taylor Hendricks

139. Selected Topics of African American Social Organization and Institutions. (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) Staff

140A. Third World Cinema. (4) Three hours of lecture, plus two hours of viewing/discussion per week. Prerequisites: Reading and composition requirement. Also listed as Theater C183A. Students will present for the chorus on the basis of individual auditions. Also listed as Music C143A. (F,SP) Henderson

140B. The Cross-Cultural Images of American Minorities in Film. (4) Three hours of lecture and two hours of viewing/discussion per week. Prerequisites: Reading and composition requirement. Also listed as Theater C183B. Students will present for the chorus on the basis of individual auditions. Also listed as Music C143A. (F,SP) Henderson

142A. World Television. (4) Three hours of lecture, plus two hours of viewing/discussion per week. Prerequisites: Reading and composition requirement. Also listed as Theater C183A. Students will present for the chorus on the basis of individual auditions. Also listed as Music C143A. (F,SP) Henderson

142C. Scenario and Film Criticism. (3) Three hours of lecture per week. Prerequisites: Completion of reading and composition requirement of Theater C142B or equivalent. The development of scenarios and critical writing for motion pictures, with specific attention directed toward subject-matter concerned with ethnic groups in the United States. A workshop approach is emphasized, with limited enrollment, and seminar discussions of the projects involved.

C143A. Performance: An African American Perspective. (3) Three hours of lecture per week. Prerequisites: 143A or consent of instructor. 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. Also listed as Theater C183B.

C143B. Research-Performance Laboratory. (3) Three hours of lecture per week. Prerequisites: 143A or consent of instructor. 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. Also listed as Theater C183B.

C143C. Black Theatre Workshop. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 143A or equivalent or consent of instructor. Study and production of the works of African American writers. The play will be studied within its social and historical context. Students will be introduced to the various aspects of theatre production. Also listed as Theater C183C.

144. Introduction to Cultural Studies. (4) Three hours of lecture per week. Prerequisites: Reading and composition requirement. Also listed as Theater C183A. Students will present for the chorus on the basis of individual auditions. Also listed as Music C143A. (F,SP) Henderson

145. Gospel Chorus. (2) Course may be repeated for credit. Three hours of ensemble and one hour of sectionals per week. A course that will focus on the performance of choral music of the African American gospel musical 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 one performance each semester. Students will be selected for the chorus on the basis of individual auditions. Also listed as Music C143A. (F,SP) Henderson

146. History of the African American Music Theatre. (3) Course may be repeated for credit subject to acceptance of petition. Three hours of lecture per week. Prerequisites: Dramatic Art 120, senior standing, or consent of instructor. This course will cover the origins and development of musical theatre productions, created, and performed by African Americans, with a view towards elucidating the dynamic role that African American musical theatre has played in the development of the mainstream African American musical theatre. Also listed as Theater C133.

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 of Theater C142B or equivalent. The development of scenarios and critical writing for motion pictures, with specific attention directed toward subject-matter concerned with ethnic groups in the United States. A workshop approach is emphasized, with limited enrollment, and seminar discussions of the projects involved.
151B. 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 pre-dominant themes, structural tendencies, socio-historical context. (F,SP)

151B. 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 pre-dominant themes, structural tendencies, socio-historical context. Also listed as Theater C131B. (SP)

152A. African American Essays: The Nature and Tradition. (3) Three hours of lecture per week. Prerequisites: Reading and composition requirement. Discussion and analysis of the historical development, use, achievement, and experimentation in the essay form of African Americans. (F)

C152C. African American Dramatic Literature: Forms and Styles. (3) Three hours of lecture/laboratory per week. Introduction to play analysis with emphasis on the primary theatrical form of styles chosen by African American playwrights and the thematic consequences. Plays will be analyzed both as literature and as theatrical production; e.g., laboratory will include attendance at plays and performance of plays. Also listed as Theater C132.

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. 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. Course explores the literature of 19th-century African American women, an explorating field in American literary discourse. Also listed as Women's Studies C153A. (F)

C153B. Contemporary Images of African American Women in Literature. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Reading and composition requirement. An introduction to Negritude and racial consciousness in the creative and political writings of African Americans and the portrayal of the African American woman in Western literature. Also listed as Women's Studies C153B. (SP)

154. Negritude: French African Literature. (4) Three hours of lecture per week. Prerequisites: Reading and composition requirement. An introduction to Negritude and racial consciousness in the creative and political writings of African Americans and the portrayal of the African American woman in Western literature. Also listed as Women's Studies C153B. (SP)

158A. Poetry for the People: The Writing and Teaching of Poetry. (4) Four hours of seminar per week, plus composition requirement. Prerequisites: 156AC plus consent of instructor. The focus of this course is on the writing of poetry, and students undertake an intensive study of 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 traditions, and complete 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 annual workshops in Poetry for the People venues. This course satisfies the Arts and Literature 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 regular and active supervision of the instructor, for students who completed 156AC during the previous year and 158A in the previous fall. They serve as student teacher poets for 156AC. The focus of 158B is on the teaching of poetry. Each student poet is responsible for a group of seven to ten students, and, under the direct supervision of the instructor, helps the students in his/her group learn to read, criticize, and produce poetry. This course satisfies the American cultures requirement. (SP)

159. Special Topics in African American Literature. (1-4) Course may be repeated for credit. One to four hours of lecture per week. Prerequisites: Reading and composition requirement, plus those set by instructor. 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 readings within the contexts of their articulation from the 1930s through 1980s, from dependence through independence and neo-colonialism or post-colonial writing. (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 1956 to the present. From Genet’s The Blacks through Aido’s Anowa, the perspective of analysis engages theory with practice. Based on a research-to-performance method, the course is designed to produce a one-act play derived from current research efforts. (Clark)

162. Caribbean Literature by Women Authors: Marasa. (4) Three hours of lecture per week. This course in literary histories of twinning in African Diaspora discourse as a means of overcoming binary oppositions in contemporary writing by women authors from the Caribbean. Includes novels and testimonial literature by authors from the Creole, English, French, Portuguese, and Spanish Caribbean—namely, contemporary works by Merle Hodge, Jean Rhys, Simone Schwartz-Bart, Carolina de Jesus, and Rosario Ferre. (F,SP) Clark

163. African Literature by Women. (4) Three hours of lecture per week. Prerequisites: Reading and composition requirement. An introduction to writings by women authors from Eastern, 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 narratives. (SP) Clark

192A-192B. Senior Thesis. (3-3) Three hours of research per week. Prerequisites: Senior standing and two of the three courses required in the major. Research paper or suitable research project done under the direct supervision of an advisor. Student must be approved by faculty sponsor no later than the preceding semester in which the course is to be taken. For departmental Honors, students must attain a C grade or better in each part of the sequence. Applications and details at departmental adviser’s office. This sequence is required for the major. (F,SP) Staff

H195A-H195B. Senior Honors Thesis. (3.3) Regular individual meetings with faculty sponsor. Students must enroll for both semesters of the sequence. Prerequisites: Senior standing and 3.3 GPA overall and in major. The student will complete a primary research and writing project based on study of an advanced topic with faculty sponsor. Fulfills department thesis requirement. Application and details at departmental adviser’s office. Students must enroll for both semesters 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 Curriculum section of this catalog. Must be taken on a pass/not passed basis. Supervised field work in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. Independent study form available in department office. (F,SP) Staff

198. Directed Group Studies for Undergraduates. (1-4) Course may be repeated for credit. Enrollment is restricted; see the Introduction to Courses and Curriculum section of this catalog. Must be taken on a pass/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 students with a broad background of the various methodological techniques appropriate for interdisciplinary research on the African Diaspora.

201B. Qualitative Research Methods for African American Studies. (4) Four hours of seminar per week. A review of competing epistemologies in qualitative research of African Americans. (SP) Small

201C. Quantitative Research Methods in the Study of the African Diaspora. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 201A and introductory statistics. This course is designed for graduate students who wish to become experts in quantitative research methods. There is a special emphasis on survey research techniques and procedures. Each student will be expected to have a project in 201A designed for survey research techniques and procedures. Students will concentrate on the phases of the project that require questionnaire construction, interviewing, data processing, and data analysis. (Hintzen)

240. Special Topics in Cultural Studies of the Diaspora. (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 availability. (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

250. Black Intellectuals: Social and Cultural Roles. (4) Three hours of seminar per week. The course will examine the development of an intellectual group in African American life from the 18th century to the present. Implicit in the examination is consideration of the social and cultural roles, writers, scholars, artists, and other thinkers have played in American and African American culture. (SP) Banks

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 dominant themes of this course include
25A. Major Figures in African Diaspora Life and Culture: Lorraine Hansberry. (4) Three hours of seminar per week. This course will explore the social and artistic vision of playwright and essayist Lorraine Hansberry through the exploration of her writings on American and African culture, focusing on her life, development, and career. The seminar will also discuss the impact of her works on American and African societies.

25B. Diaspora, Citizenship, and Transnationality. (4) Three hours of seminar per week. This seminar analyzes the social construction and reproduction of diasporic communities in the U.S., Canada, and Europe. It examines the relational context of the diaspora to the homeland and explores the process of transnational migration and the production of diasporic subjectivities. The seminar will focus on the relationship between identity and citizenship, the role of transnational migration and the production of diasporic subjectivities, and the implications of transnational migration for the formation of new identities.

25C. Major Figures in African Diaspora Life and Culture: Disrupting, Ideologies, Recovering Diasporas: Maryse Conde. (4) Three hours of seminar per week. This course will focus on the critical work of Caribbean writers and thinkers, with an emphasis on Maryse Conde. The seminar will explore the critical work of Maryse Conde, a leading figure in the Caribbean literary world, and the impact of her work on the development of critical race theory.

25D. Identity Politics in the Caribbean and Africa. (4) Three hours of seminar per week. This seminar will examine the political and social dimensions of identity politics in the Caribbean and Africa, focusing on the role of gender, race, and ethnicity in shaping identity and political discourse. The seminar will also explore the role of colonialism and post-colonialism in shaping identity politics in the Caribbean and Africa.

25E. Globalization and Caribbean Modernity. (4) Three hours of seminar per week. This seminar will examine the social construction of the modern Caribbean subject, the transnationality of the Caribbean, and the localization of the globalization process. The seminar will focus on the role of globalization in shaping the modern Caribbean subject and the transnationality of the Caribbean, and the localization of the globalization process.

25F. Racialization, Racisms, and Race: Concepts and Theories. (4) Three hours of lecture per week. The seminar will explore the social, cultural, and political dimensions of race and racism, focusing on the role of racialization in shaping social and political relations. The seminar will also explore the role of racialization in shaping the social and political relations in the Caribbean and Africa.

25G. Cultural and Ideological Context in Which They Developed. (SP) This seminar will focus on the ideological and cultural context in which critical race theory emerged, with an emphasis on the role of colonialism and post-colonialism in shaping critical race theory.

25H. Power, Domination, and Ideology. (4) Three hours of seminar per week. This seminar will focus on the relationship between power and ideology, focusing on the role of critical race theory in shaping our understanding of power and ideology. The seminar will also explore the role of critical race theory in shaping our understanding of power and ideology.

25I. Comparative and Critical “Race” and Ethnic Relations. (4) Three hours of lunch per week. This seminar will focus on the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25J. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25K. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25L. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25M. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25N. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25O. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25P. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25Q. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25R. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25S. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25T. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25U. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25V. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25W. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25X. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25Y. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

25Z. Critical Race Theory. (4) Three hours of seminar per week. This seminar will explore the role of critical race theory in shaping our understanding of race and ethnicity, focusing on the role of critical race theory in shaping our understanding of race and ethnicity.

26A. Major Figures in African Diaspora Life and Culture: Lorraine Hansberry. (4) Three hours of seminar per week. This course will focus on the social and artistic vision of playwright and essayist Lorraine Hansberry through the exploration of her writings on American and African culture, focusing on her life, development, and career. The seminar will also discuss the impact of her works on American and African societies.

26B. Major Figures in African Diaspora Life and Culture: Literary Methodologies: Toni Morrison. (4) Three hours of seminar per week. This course will focus on the role of literary methodologies in shaping our understanding of African diaspora life and culture, with an emphasis on the role of Toni Morrison in shaping our understanding of African diaspora life and culture.

26C. Major Figures in African Diaspora Life and Culture: Disrupting, Ideologies, Recovering Diasporas: Maryse Conde. (4) Three hours of seminar per week. This course will focus on the role of Maryse Conde in shaping our understanding of African diaspora life and culture, with an emphasis on the role of Maryse Conde in shaping our understanding of African diaspora life and culture.

Advisers: Dr. de Lumen, Mr. Doner.
Agricultural and Resource Economics

College of Natural Resources

Department Office: 207 Giannini Hall, (510) 642-3345
Chair: Anthony C. Fisher, Ph.D.

Professors
Peter Berck, Ph.D. Massachusetts Institute of Technology. Natural resources, applied microeconomics
Alan de Janvry, Ph.D. University of California, Berkeley. Agricultural economics
Anthony C. Fisher, Ph.D. Columbia University. Natural resource economics, environmental and resource economics, microeconomics
J. Keith Gliess, Ph.D. University of Wisconsin, Madison. Forest economics and management
W. Michael Hanemann, Ph.D. Harvard University. Resource economics, applied microeconomics
Ann E. Krueger, Ph.D. Princeton University. International trade policy
Guido H. Kriberg, Ph.D. Brown University. Theoretical and applied microeconomics
Larry S. Kap, Ph.D. University of California, Davis. International trade
Jeffrey LaFrance, Ph.D. University of California, Berkeley. Agricultural policy, econometrics
Richard B. Norgaard, Ph.D. University of Chicago. Resource and environmental economics
Jeffrey Perloff, Ph.D. Massachusetts Institute of Technology, Labor, industrial organization
Gordon C. Rausser (Robert Gordon Sproul Chair in Agricultural Economics), Ph.D. University of California, Davis. Agriculture and resource policy
Jeffrey M. Romm, Ph.D. Cornell University. Forest, land and water policy
Elisabeth Sadoulet, Ph.D. University of Geneva. International economic development
Brian D. Wright, Ph.D. Harvard University. Agriculture and resource policy
David Zilberman, Ph.D. University of California, Berkeley. Resource and quantitative policy
Sofia B. Villas-Boas, Ph.D. University of California, Berkeley. Agricultural policy, econometrics

Associate Professors
Ethan Ligon, Ph.D. University of Chicago. Rural development, information and uncertainty

Undergraduate Program

Environmental Economics and Policy

Enrollment in Agricultural and Environmental Chemistry, (1-12) Course may be repeated for credit. Approvals for hours of research per week per unit. Prerequisites: Graduate standing and consent of instructor. Research in agricultural and environmental chemistry. (F,SP) Staff

Graduate Courses

299. Research in Agricultural and Environmental Chemistry. (1-12) Course may be repeated for credit. Approvals for hours of research per week per unit. Prerequisites: Graduate standing and consent of instructor. Research in agricultural and environmental chemistry. (F,SP) Staff

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 microeconomic theory, and the economics of resources 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. Students who graduate from the major should be prepared to undertake a career in public or private agencies engaged in the planning or management of natural resources, or to enter a graduate school for further study in some program such as economics, law, public policy, or resources administration.

Lower division breadth requirements stipulate at least 20 semester units in social sciences and humanities (including one course in principles of economics, one course in political science or history, and one course in the humanities); two semester courses in reading and composition; two semester courses in calculus, and six upper division units in natural and physical sciences (including one lab science course).

Upper division work must include ENVECON 100, ENVECON 101 and ENVECON 102; two semester courses chosen from the following; and at least 24 semester units, selected in consultation with an advisor, to form an area of emphasis in natural resource analysis and policy. All students must include in their program at least five ENVECON upper division courses numbered less than 192. In addition, each course used to fulfill an upper division requirement must be passed with a grade of C or better.

A more detailed list of major requirements, including a list of acceptable courses meeting the major course requirements, is available from the Student Services Office, 203 Giannini Hall, (510) 642-3347.

Minor Program

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

Graduate Programs

The Department of Agricultural and Resource Economics offers programs leading to the M.S. and Ph.D. degrees. Because of quota limitations, students are rarely admitted for the master’s degree, although it may be awarded to students who are pursuing work toward 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 strong scholarship potential.

The agricultural and resource economics program is relatively flexible; however, each program stresses economic theory, quantitative methods, and two 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 course work in the Ph.D. program is normally devoted to economic theory and quantitative methods, after which students enter departmental preliminary examinations in each of these areas. The level of sophistication expected in these preliminary examinations is defined with reference to a specific set of courses, and most students are advised to take these courses.

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

Environmental Economics and Policy

Lower Division Courses

1. Introduction to Environmental Economics and Policy. (4) Students will receive two units of credit for 1 after taking Economics 1 and no credit after taking Economics 2 or 3. Three hours of lecture and one hour of discussion per week. Prerequisites: Math 32. Introduction to microeconomics with emphasis on resource, agricultural, and environmental issues. (F,SP)

2. Political Economy of Growth and Institutions. (3) Two hours of lecture and one hour of discussion per week. Analysis of policy at the economywide level, focusing on the relationship between economic theories, economic policies, and the environment. Theories and models considered include the statistical foundations of economywide analysis, macro models, input-output models, and alternative theories of political economy, and theories of the state. Policy areas include macroeconomic analysis of monetary and fiscal policy, trade policy, agricultural policy, pollution, and environmental degradation. (SP)

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 letter-grade basis, Sections 3-4 to be graded on a pass/not passed basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic with their 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)

39. Freshman/Sophomore Seminar. (2) Course may be repeated for credit as topic varies. Two hours of seminar per week. Must be taken 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 their 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)
98. Directed Group Studies (for Lower Division Students). (1-3) Course may be repeated for credit. Enrollment is limited to the groups and classes as specified in the catalog. (SP or F)

Upper Division Courses

100. Microeconomic Theory with Application to Natural Resources. (4) Students who have taken Econ 100A, Econ 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: Economics 100A or 101A. Theories of use of renewable and public goods and applied to pollution and environmental policy. Trade-off between property rights and common control of natural resources. Assessment of nonmarket value of environmental amenities. Remediation and clean-up policies. (F,SP)

101. Environmental Economics. (4) Students will receive no credit for 101 after taking Economics 125. Three hours of lecture and one hour of discussion per week. Prerequisites: Math 16A-1B, Environmental Economics and Policy 100, or Economics 100A or 101A. Theories of externalities and public goods applied to pollution and environmental policy. Trade-off between property rights and common control of natural resources. Assessment of nonmarket value of environmental amenities. Remediation and clean-up policies. (F)

102. Natural Resource Economics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 100A or 101A. Theories of the introduction to the economics of natural resources. Land and the concept of economic rent. Models of optimal depletion of renewable resources and optimal use of renewable resources. Application to energy, forests, fisheries, water, and climate change. Resources, growth, and sustainability. (F,SP)

115. Modeling and Management of Biological Resources. (4) Three hours of lecture per week and computer laboratory meetings. Prerequisites: Two semesters of calculus and consent of instructor. Models of population growth, chaos, life tables, and Leslie matrix theory. Harvesting and exploitation theory. Methods for analyzing population interactions, predation, competition, fisheries, forest stands, and insect pest management. Genetic aspects of population management. Mathematical theory based on simple differ- ential and partial differential equations. Use of simulation packages on microcomputers (previous experience with computers not required). Also listed as Environ Sci, Policy, and Management C104. (SP)

118. Introductory Applied Econometrics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 16A-1B and Stat 131A or equivalent. Single equation regression models; hypothesis testing; econometric applications to agricultural and resource issues. (F)

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 covers the formation, interaction, and impact of public policies affecting agriculture and the environment. Economic approaches to public law making, including theories of legislation, interest group activity, and congressional control of bureaucracies. Case studies include water allocation, endangered species, energy policy, food safety, drainage, wetlands, pesticides, and farmworker safety. Emphasis on examples from California. (F)

142. Industrial Organization of Agricultural, Food, and Fiber Markets. (3) Three hours of lecture per week. Prerequisites: 100 or Economics 100A or 101A.Organization, conduct, and performance of agricultural and resource markets. Private and public institutions that support agricultural systems, including federal and state programs and policies. Case studies to demonstrate different market conditions and arrangements, emphasizing the interaction of markets and public policy. (SP)

Agricultural and Resource Economics

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

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 or 101A. The course discusses recent efforts to understand behavior and institutions in village economics, with particular attention paid 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)

161. Advanced Topics in Environmental and Natural 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, water, and timber. Balancing environmental and extractive values. Resources, growth, and sustainability. Special topic: the problem of 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 water law and institutions; economics of salinity and drainage; economics of groundwater management. (SP)

195. Senior Thesis. (4) Course may be repeated for credit. Individual meetings with faculty sponsor. 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 or meetings with faculty sponsor(s). Prerequisites: Upper division standing and a minimum 3.2 GPA. Eligibility restrictions related to GPA and unit accumulation. Open only to Environmental Economics and Policy majors. Supervised independent honors research specific to aspects of environmental economics and policy. Followed by a written report to the department. (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 Curricular section of this catalog. Minimum of three hours of work per week per unit of credit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Supervised experience in off-campus organizations relevant to specific aspects of environmental economics and policy. Regular interaction 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 Curricular section of this catalog. Meetings to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Group study of selected topics and environments in Environmental Economics and Policy. (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 Curricular section of this catalog. Meetings to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Enrollment is restricted. Open only to qualified upper division students wishing to pursue special study and directed research under the direction of a member of the staff. (F,SP)

Agricultural and Resource Economics

Graduate Courses

201. Production, Industrial Organization, and Regulation in Agriculture. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 200A or equivalent or consent of instructor. Basic concepts of micro and welfare economics: partial and general equilibrium. Industrial organization: monopoly, competitiveness, vertical integration, price discrimination, and economics of information with applications to food retailing, cooperatives, fishing, and energy. (F)

202. Issues and Concepts in Agricultural Economics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 201A-201B or consent of instructor. History, institutions, and policies affecting agriculture markets and environmental quality. Producer behavior over time and under uncertainty. Asset and agricultural supply models. (SP)

211. Econometrics: Statistical Foundations and Single Equations. (4) Four hours of lecture and two hours of discussion per week. Prerequisites: Consent of instructor. Taught in three parts. Part 1: Introduction to multivariable calculus and optimization theory, especially nonlinear programming. Part 2: Introduction to mathematical probability, random variables, and distributions, estimation, inference, sampling theory, and Bayesian statistics. Part 3: Introduction to the traditional linear statistical model, least squares and maximum likelihood estimation and inference. (F)

212. Econometrics: Multiple Equation Estimation. (4) Four hours of lecture and one hour of discussion per week. Prerequisites: 211 or consent of instructor. Introduction to the estimation of economic models. Includes analysis of the general linear model, asymptotic theory, instrumental variable, and the generalized method of moments. In addition, a survey of time series analysis, limited dependent variables. (SP)

213. Applied Econometrics. (4) Three hours of lecture and three hours of computer laboratory per week. It is highly recommended that students take Economics 211 and 212 or equivalent or consent of instructor. Standard and advanced econometric techniques are applied to topics in agriculture and resource economics. Techniques include limited dependent variables, censored and truncated data, and choice models. Students will use computers to conduct statistical analyses. (F)

214. New Econometric and Statistical Techniques. (4) Three hours of lecture and two hours of computer lab per week. Prerequisites: 211, 213 or equivalent or consent of instructor. Theory and application of new and emerging approaches to estimation and inference. Bayesian, maximum entropy, and other new applications to economic problems will be emphasized. Students will use computers to conduct statistical analyses. (SP)

231. International Markets and Trade. (3) Three hours of lecture per week. Prerequisites: 212 and Economics 201B. Review of theories of comparative advantage, supply side of trade, and international com- mercial policy. Customs unions trade under uncertainty. Empirical models of trade. Market structure considerations in international trade. (F)

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. Presentation and criticism of ongoing research by faculty, staff, and students. Not necessarily offered every semester. (F,SP)

241. Agricultural Policy. (3) Three hours of lecture per week. Prerequisites: 201 and 202, or Economics 201A-201B. Economic and political issues of agricultural policy problems in developed and less developed countries. Roughly equal parts of theory, evidence, and policy. (F)

*Recipient of the Graduate School Professor of the Graduate School *Recipient of Distinguished Teaching Award
economies. Effects of shocks on dynamic behavior of markets. Welfare evaluation methodology and applications to public policies and private sector solutions. (research, project support, market stabilization, environmental regulations, cartelization) and implications for efficiency and distribution. (F)

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 three hours of growth-promoting public policies. Three failure types are distinguished: market, government, and organizational. The roles of public versus special interests are modeled to determine degree and extent of organizational failures in collective group behavior. Alternative frameworks are used to evaluate various types of policy reform. (SP)

249. Agricultural, Food, and Resource Policy Workshop. (1) Three hours of lecture for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Alternative development strategies and the relationship between macroeconomic and agricultural policies. Price and nonprice instruments in government regulation of agricultural institutions, household behavior, and contracts. The political economy of policy reform. Emphasis is placed on formal economic analysis. (F)

252. Sectoral and Regional Planning in Environmental Development. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Analysis of policy issues 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 microeconomics and statistics or consent of instructor. This course emphasizes the development and application of policy solutions to developing-world problems related to the role of the policy, 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, Sadoodeh, Zilberman

259. Rural Economic Development 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)

261. Environmental and Resource Economics. (3) Three hours of lecture per week. Prerequisites: Ph.D.-level economic theory or consent of instructor. Theory of renewable and nonrenewable natural resource use, with applications to forests, fisheries, energy, and climate change. Resources, growth, and sustainability. Economic theory of environmental policy. Externality, the Coaseian critique; tax incidence and anomalies; indirect taxes; the double dividend; environmental standards; environmental regulation; impact of uncertainty on taxes and standards; mechanism design; monitoring, penalties, and regulatory strategy; emissions markets. (F) Fisher

262. 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; revealed preference methods: single site demand, multi-site demand, corner solution models, and valuation and measurements; aversion behavior; the hedonic method; contingent valuation; other stated preference methods: ranking, choice, conjoint analysis; the value of sampling and questionnaire design for valuation surveys. (SP) Hanemann

263. Dynamic Methods in Environmental and Resource Economics. (3) Two hours of lecture and two hours of discussion 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. 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)

C271. International Food and Nutrition Policies. (3) Three hours of lecture per week. Prerequisites: Graduate standing and consent of instructor. An interdisciplinary course reviewing various nutritional problems plaguing developing countries and the policies designed to solve them. Topics include famine and intervention measures, food aid, feeding programs, food fortification, nutrient supplementation, price policies, and nutrition education. The course surveys the world food situation, emphasizing the links between food production, food consumption, and government policy. Special attention will be given to the effect of income and prices on food demand and to social and economic factors affecting food consumption within and among households. Also listed as Public Health C207B. (SP) Sabry

298. Special Study for Graduate Students. (1-6) Course may be repeated for credit. Individual study. Prerequisites: Consent of instructor. All properly qualified graduate students who wish to pursue a special field of study may do so if their proposed program of study is acceptable to the member here of the staff with whom they work. (F,SP)

299. Individual Research. (1-12) Course may be repeated for credit. Individual study. Prerequisites: Graduate standing and consent of instructor. An interdisciplinary course reviewing various nutritional problems plaguing developing countries and the policies designed to solve them. Topics include famine and intervention measures, food aid, feeding programs, food fortification, nutrient supplementation, price policies, and nutrition education. The course surveys the world food situation, emphasizing the links between food production, food consumption, and government policy. Special attention will be given to the effect of income and prices on food demand and to social and economic factors affecting food consumption within and among households. Also listed as Public Health C207B. (SP) Sabry

300. Professional Preparation: Teaching of Environmental Economics. (1) Course may be repeated for credit. Individual study. Prerequisites: Graduation and consent of instructor. A seminar for candidates to prepare for the various examinations required for the Ph.D. May not be used for unit or residence requirements for the doctoral degree. (F,SP)

Professional Courses

300. Professional Preparation: Teaching of Environmental Economics and Policy. (1-6) Course may be repeated for credit. Four hours of work per week per unit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing, appointment as a graduate student instructor, or consent of instructor. Discussion, problem review and development, guidance of discussion classes, course development, supervised practice teaching. (F,SP)

400. Professional Training in Research Methodology. (1-6) Course may be repeated for credit. Individual research. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate student researcher appointment. Individual training for graduate student researchers. Preparation and performing research under the supervision of a faculty advisor, intended to provide academic credit for the experience obtained while holding a research assistantship. (F,SP)

American Studies

(College of Letters and Science)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 201 Callwell, (510) 642-9330 http://www.as.berkeley.edu/dept/ai

Director: Margretta Lovell, Ph.D.

Faculty Advisers: A list of faculty advisers is available at the major office or on the web. Student Affairs Officer: Marianne Callum

Affiliated Faculty


Group Major in American Studies

Established in fall 1993, the American studies 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. “American society” refers primarily to the geographical regions of the United States, from pre-colonial times to the contemporary period, but recognizes that political, cultural, and economic patterns do not stop at national borders. Therefore, American studies courses will attempt to see this region within larger world systems, taking into account how the cultures of America have been continuously reshaped by movements of people, commerce, and ideas which cross borders. As an interdisciplinary program, American studies draws upon faculty resources and research in literature, history, economics, architecture, material culture, media studies, ethnic studies, and urban and regional studies.

Prerequisites to the Major. In order to declare the major, students applying for fall 2003 or later must complete American Studies 10, plus two of the three one-unit lower-division requirements and performing research under the supervision of a faculty advisor, intended to
Lower Division Requirements. A minimum grade of "C" is required in all lower division courses taken for major credit. 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, may be added by the department to this 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 4A, 17AC, 27AC
- Agricultural and Resource Economics 1
- American Studies 20, 10AC, 11AC
- Art 8, American Studies 20A, 20B, 20C
- UCBA 10: Chicano Studies 20, 30, 40, 50, 70, 80
- Comparative Literature 60AC
- Education 40AC: English 31AC, 33, 37
- Environmental Design 4, 71, 83, 110, 50AC
- Environmental Sciences 10
- Ethnic Studies 21AC, 41AC
- Film 25A, 25B, 40AC
- Geography 20, 50AC, 70AC
- History 7A, 7B, 16AC, 17A, 30B
- IDS 1
- Italian Language 61
- Linguistics 55AC
- Mass Comm 10
- Military Affairs 1
- Music 26AC
- Native American Studies 20A, 91
- Philosophy 1, 31AC
- Psychological Sciences 10
- Sociology 3, 13AC
- Theological Studies 2
- Women's Studies 20W

Students are required to take one course each from the two lists of courses from any one department. In addition, students should check with an AS adviser to have their lower division courses approved to fulfill this requirement.

Upper Division Requirements. 30-36 units distributed among the following:

1. Core Methods Courses. (8 units) Students are required to take one course each from the two methods series, "Examining U.S. Cultures in Time" and "Examining U.S. Cultures in Place." See department listings for available courses every semester.

2. Area of Concentration. At least 20 units of upper division coursework work drawn from the College of Letters and Science and the professional schools and colleges in the student’s individually articulated area of concentration. Areas of concentration may be highly individualized, depending on the student’s intellectual focus, prior preparation, and the availability of courses. Therefore, students planning to declare the major should meet with a faculty advisor early in their junior year, at the latest, to plan their upper division program. Subsequently, this program can be revised only with the approval of the faculty advisor.

3. Thesis Requirement. All majors are required to satisfy a senior thesis requirement in American Studies in which they write a substantial research paper.

Honors Program. Students who wish to be eligible for honors must complete all core requirements and all upper division coursework and must earn a grade of "B" or better in all courses required for the major. Honors students must maintain a cumulative grade point average of 3.5 and a grade-point average of 3.5 in the major. For further information, please contact Marianne Callum, Student Affairs Officer, 301 Campbell Hall, (510) 642-9320.

Lower Division Courses

10. Introduction to American Studies. (4) Three hours of lecture per week. A survey course covering the major topics of American history. Formerly Undergraduate Interdisciplinary Studies 10. American culture and cultural change, with attention to the intellectual and cultural 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 affecting cultural production and meaning. Those 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. Enrollment limited to 15 freshmen. (F,SP)

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. One hour of lecture and one hour of discussion 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. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

98. Directed Group Study. (1-4) Course may be repeated for credit with different topic and consent of instructor. Three hours of lecture per week. Originally C136. A course on the intellectual, cultural, historical, and social backgrounds to American literature. Topics vary from semester to semester. Students should consult the department’s webpage for current offerings before the start of the semester. (F,SP) Groth

101. Examining U.S. Cultures in Time. (4) Three hours of lecture per week. This course examines how U.S. cultures are constructed, reinforced, and changed—particularly in reference to place and material culture. Qualitative and quantitative methods of analysis drawn from several disciplines will help students develop skills in cultural interpretation. Case studies may focus on a neighborhood, a city, a region, or topics that vary from semester to semester. This course satisfies the American cultures requirement. (F,SP) Staff

102. Examining U.S. Cultures in Place. (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 changed—particularly in reference to place and material culture. Qualitative and quantitative methods of analysis drawn from several disciplines will help students develop skills in cultural interpretation. Case studies may focus on a neighborhood, a city, or a region. Topics that vary from semester to semester. (F,SP) Staff

102AC. Examining U.S. Cultures in Place. (4) Course may be repeated for credit with different topic. Three hours of lecture and one hour of discussion per week. This course examines how U.S. cultures are constructed, reinforced, and changed—particularly in reference to place and material culture. Qualitative and quantitative methods of analysis drawn from several disciplines will help students develop skills in cultural interpretation. Case studies may focus on a neighborhood, a city, or a region. Topics that vary from semester to semester. This course satisfies the American cultures requirement. (F,SP) Staff

110. Special Topics in American Studies. (3,4) Course may be repeated for credit as topic varies. Three to four hours of lecture per week. This course is designed primarily to allow faculty to develop focused interdisciplinary courses which address issues, themes, or problems in American society. 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. Also listed as Environmental Design C169A and Geography C169A. (F,SP) Groth

C111E. American Studies. (4) Course may be repeated for credit with different topic and consent of instructor. Three hours of lecture per week. Originally C136. A course on the intellectual, cultural, historical, and social backgrounds to American literature. 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. Also listed as Environmental Design C169A and Geography C169A. (F,SP) Groth

C112A. American Cultural Landscapes, 1600 to 1900. (4) Three hours of lecture and one hour of discussion per week. Originally C169A. 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 C169A and Geography C169A. (F,SP) Groth

C112B. American Cultural Landscapes, 1900 to Present. (4) Three hours of lecture and one hour of discussion per week. Originally C169B. Introduces ways of seeing and interpreting American histories and cultures, as revealed in everyday built surroundings—homes, 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 C169B. (F,SP) Groth

C112F. The American Forest: Its Ecology, History, and Representation. (4) Three hours of lecture and one hour of discussion per week. Originally C169F. The American forest will be examined in terms of its ecol- ogy, history, and representation. This course will consist of various methods and perspectives as they apply to the study of a particular year or decade. Topics will vary from semester to semester. This course satisfies the American cultures requirement. (F,SP) Staff

101AC. Examining 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 changed, and how those cultures interact simultaneously at a given time. To help students develop skills in cultural analysis, lectures will cover various methods and perspectives as they apply to the study of a particular year or decade. Topics will vary from semester to semester. This course satisfies the American cultures requirement. (F,SP) Staff

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
112 / American Studies

C132B. Intellectual History of the United States, (4) Students will receive no credit for C132B after taking History C132B or any other course in American history and one hour of discussion per week. History C132B.

C152. Native American Literature. (4) Three hours of lecture per week. Prerequisites: 151 is recommended but not required. A reading of the written and oral traditions from Native Americans. Emphasis will be placed on a multifaceted approach (esthetic, linguistic, psychological, historical, and cultural) in examining literature. Also listed as Native American Studies C152. (F) Vizenor

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 evolution of the large corporation, the development of modern managerial techniques, and the changing relationship of business, government, and labor. Also listed as Undergraduate Administration C172. (F,SP) Rosen

C173. Cultures of U.S. Imperialism: Spanish-American War of 1898. (4) Three hours of lecture and one hour of discussion per week. This survey course explores building and narrates the Spanish American War of 1898. Did the war initiate new kinds of American national identity? Authors: Vizenor, Vizenor

C174. 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 distinct textual-visual literacy. Also listed as Visual Studies C185A, Undergrad Interdisciplinary Studies C135, and English C143V. This course satisfies the American cultures requirement.

C177. Journalistic Perspectives on American Culture. (3) Three hours of lecture per week. Journalistic perspectives on American culture is the study of fame as defined by the dominant media in this society. Students will examine both primary and secondary sources to see how the reputations of individuals have been built and torn down.

C178B. Vernacular Architecture. (3) Three hours of lecture per week. Prerequisites: Architecture 170A-170B. This course will introduce you to a variety of North American vernacular building traditions, help you understand how people who are not academically trained build, and how buildings and landscapes are used, and what they mean to their builders and users. Topics to be explored include rural and urban house types, vernacular building systems, commercial architecture, the public landscape, and the vernacular landscapes of work and of religion, focusing on European, African, and Native American traditions that shaped the most familiar and widespread folk architectures, as well as on the urban landscapes of 19th- and 20th-century immigrants. We will look at building traditions as expressions of ethnic and racial identities, organizers of social life, and conscious works of art. Also listed as Architecture C174B. This course satisfies the American cultures requirement.

190. Senior Thesis. (4) Individual meeting with thesis advisor. All American Studies majors must satisfy the senior thesis requirement. Three options are available: Senior Thesis, AS 191-Senior Thesis, or majors may (with prior Faculty advisor approval) enroll in an upper division seminar appropriate to their concentration for which they write a substantial research paper. Students planning to enroll in AS 190 must complete the “Thesis Proposal/Advisor Agreement” (available in the departmental office) prior to the semester in which the thesis is written. (F,SP) Staff

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

H195. Honors Thesis. (3) Three hours of seminar per week. Prerequisites: Senior-standing major in American studies concentration. Must have completed 101 and 102. 2.81 overall GPA, and 3.65 GPA for classes in the major. This is a required course for students wishing to graduate with honors in American studies. Entails writing a bachelor’s thesis pertaining to the student’s individual area of concentration within the American studies 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 Undergraduates. (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. 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. Students must have completed 101 and 102 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 text varies. Must be taken on a passed/not passed basis. Prerequisites: Regulations set by College of Letters and Science. Seminar in the group study of selected 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) Four hours of seminar per week. Prerequisites: Ethnic Group 200A-200B or consent of instructor. A seminar course designed to introduce 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 paper is required. (SP) Vizenor

Ancient History and Mediterranean Archaeology

(College of Letters and Science)

Group Major Office: 7303 Dwinelle Hall, (510) 643-8741
http://soa.berkeley.edu/Dept/AAHA/

Professors

Daniel Boyarin, Ph.D. Jewish Theological Seminary. Rabbinic literature, Talmudic culture
Stanley H. Brandy, Ph.D. University of California, Berkeley. Medieval Mediterranean history and culture
David J. Cohen, Ph.D. Cambridge University, J.D. University of California, Los Angeles. Ancient rhetoric, classical Greek law, political and legal theory
Crawford H. Greenewalt, Jr., Ph.D. University of Pennsylvania, Classical Archaeology
Erich S. Gruen, Ph.D. Harvard University. Roman and Hellenistic history
Hebrew, Old Testament, Syro-Palestinian archaeology
Robert C. Knapp, Ph.D. University of Pennsylvania. Roman history, Latin historical authors and epigraphy
Leslie V. Kurke, Ph.D. Princeton University. Greek literature
Laurent Mayral, Ph.D. University of Limoges. Classical metrics, Roman law
Stephen G. Miller, Ph.D. Princeton University. Classical archaeology
Leslie V. Kurke, Ph.D. Princeton University. Greek literature
Laurent Mayral, Ph.D. University of Limoges. Classical metrics, Roman law

Graduate Courses

250. Research Seminar: Selected Topics. (4) Four hours of seminar per week. Prerequisites: Ethnic Group 200A-200B or consent of instructor. A seminar course designed to introduce 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 paper is required. (SP) Vizenor

The Major

There is no undergraduate major.

The Graduate Program

The Ancient History and Mediterranean Archaeology program is interdisciplinary and is administered 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 Antiquity 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. Applicants should have had sufficient training to undertake advanced work in at least one ancient language.

M.A. Requirements. The M.A. by thesis requires 20 semester units of course work and a thesis. The M.A. by examination requires 24 semester units of course work and a comprehensive examination in the area of principal specialization. All M.A. candidates must pass an examination in at least one (normal two-year) language before the degree is awarded. Each student’s progress is monitored by a three-person advisory committee. Students are expected to complete requirements for the M.A. within two years after admission. Successful completion of the M.A. does not carry with it automatic admission into the Ph.D. program. Students must petition the faculty and obtain its approval before continuing for the Ph.D.

Ph.D. Requirements. There are no specific course requirements. It is expected that all students will take at least one semester of the course in their field of specialization each semester during their graduate years. Students should also

John K. Anderson (Emeritus), M.A., F.S.A. Oxford University, Greek and Roman archaeology
Guity Azarpay (Emeritus), Ph.D. University of California, Berkeley. Near Eastern history, Near Eastern history
Wolfgang J. Heimpel (Emeritus), Ph.D. Heidelberg University. Sumerian studies, Mesopotamian history
Anne D. Klima (Emeritus), Ph.D. University of Pennsylvania. Assyriology, ancient Near Eastern history
Jacob Megrem (Emeritus), D.H.L. University of Edinburgh, Theological Seminary. Biblical religion, history of ancient Israel
Selden Prickett (Emeritus), Ph.D. Johns Hopkins University. Greek epigraphy, topography and history
Raphael Sealey (Emeritus), M.A. Oxford University, Greek history, Greek law
John M. O’C. O’Dochartaigh (Emeritus), Ph.D. Columbia University. Inner Asian history, numismatics, military history
Ruggiero Stefansson (Emeritus), Ph.D. Letters in Florence. Hittite, hieroglyphic Luwanian, Asian studies
Leslie L. Threatte (Emeritus), Ph.D. Harvard University. Greek and Latin linguistics, Greek epigraphy

Associate Professors

Suzanna Ehr, Ph.D. Oxbridge University. History of late antiquity, early Christianity
Christopher Hallett, Ph.D. University of California, Berkeley. Roman art and material culture
Cathleen Keller, Ph.D. University of California, Berkeley. Egyptian language, history and art history
Carol A. Redmond, Ph.D. University of Chicago. Egyptian archaeology and archaeology of the Southern Levant

Assistant Professors

Marian Feldman, Ph.D. Harvard University. Bronze Age Aegean and Near Eastern art and archaeology
Carmen Hunteffs, Ph.D. Queens College, Cambridge University. Classical and post-classical Latin law and theology, history of political thought

Lecturers

Todt Hickey, Ph.D. University of Chicago. Greek and Egyptian papyrology, social and economic history, Late Antiquity
David Larkin, Ph.D. University of Chicago. Egyptology

Affiliated Professors

Victor R. Ginsburg, Ph.D. Semitic languages, Syro-Palestinian history and archaeology

Senior Staff

Frank Asare (Emeritus), Ph.D. University of California, Berkeley. Provenance determination of archaeological artifacts
take considerable seminar work in at least two of the departments represented in the program and obtain practical experience in archaeology. 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 only to expose students to a discipline other than their major field of study 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

290. Special Studies. (4) Course may be repeated for credit. Six hours of study per week per semester. Special studies in topics relating to the ancient history and archaeology of the Mediterranean world. Instruction in areas covered by required seminars or regularly scheduled courses taught by Ancient History and Mediterranean Archaeology Faculty. May be taught by AHAH or visiting faculty. (F,S,P) Staff

299. Special Study. (1-4) Course may be repeated for credit. One to four hours of independent study per week per semester, including consultation. Prerequisites: Graduate standing or consent of instructor. Topics and instructors vary from year to year. Special individual study for qualified graduate students. Individual study and research, including archaeological fieldwork or laboratory projects, in consultation with instructor on subject matter not covered in scheduled course offerings. (F,S,P) Staff

## Anthropology (College of Letters and Science)

### Department Office: 232 Kroeber Hall, (510) 642-3391
http://www.berkeley.edu/Dept/Anth/Anth.html

#### Professors

- Stanley H. Brandes, Ph.D. University of California, Berkeley
- Peter Bolt, Ph.D. Religion, Spain, Mexico
- Margaret W. Conkey (Class of 1969 Chair for Distinguished Teaching), Ph.D. University of Chicago, Anthropology, prehistoric, art, hunter-gatherers, gender.
- Alan Dundes, Ph.D. Indiana University, Folklore, psychoanalysis.
- William F. Hanks (Distinguished Chair in Linguistic Anthropology), Ph.D. University of Chicago. Maya culture, language in discourse, cognition and communication, shamanism, the logic of anthropological inquiry, anthropology of literature.
- Christina Hoefert, Ph.D. University of California, Los Angeles. Anthropology, food and agriculture, political economy, prehistoric, research methodology, Andes.
- Rosemary Joyce, Ph.D. University of Illinois, Urbana. Social anthropology, symbolic interaction, religion, Central America.
- Patrick K. Kirch (Class of 1959 Chair for Distinguished Teaching), Ph.D. Yale University. Environmental archaeology, prehistory, Pacific Islands.
- Laura M. Napolitano, Ph.D. Radcliffe/Harvard University, Mexico, Middle East, law, controlling processes, conflict theory.
- John H. Rowe, Ph.D. University of California, Los Angeles. Anthropological, ethnohistory, ethnography, anthropology, fieldwork, research methodology, Europe, gender and sexuality, transnationalism, SE Asia, U.S.
- Paul M. Magnuson, Ph.D. University of Chicago. France, history of social thought, genomics.
- Nancy Scheper-Hughes, Ph.D. University of California, Berkeley. Medical, psychological, Europe, Brazil.
- Ruth Tringham (Professorial Chair in Undergraduate Education), Ph.D. University of Edinburgh. European archaeology, early agriculturalists, prehistoric architecture.
- Burton Benedict (Emeritus), Ph.D. University of London. Social structure, exhibitions.
- Brent Berlin (Emeritus), Ph.D. Stanford University. Ethnobiology, cognitive anthropology, Amazonia, Mesoamerica.
- Gerald D. Berreman (Emeritus), Ph.D. Cornell University. Inequality, interdependence, power, society.
- Elizabeth Colson (Emerita), Ph.D. Radcliffe College. Social anthropology, social migration, politics, religion, Africa.
- George A. Di Vos (Emeritus), University of Chicago. Japan, psychological anthropology, ethnic relations.
- Phyllis Dishnor (Emerita), Ph.D. University of Chicago. Physical anthropology, primatology, development, Europe.
- George M. Foster (Emeritus), Ph.D. University of California, Berkeley. Chicanos, Chicana, Mexico.
- John A. Graham (Emeritus), Ph.D. Harvard University. Mesoamerican ethnography.
- Eugene A. Hamml (Emeritus), Ph.D. University of California, Berkeley. Demography, quantitative analysis, Europe.
- F. Clark Howell (Emeritus), Ph.D. University of Chicago. Primates and human evolution, paleoanthropology.
- Herbert P. Philips (Emeritus), Ph.D. Cornell University. Psychological anthropology, literature, art, S.E. Asia.
- Jack M. Potter (Emeritus), Ph.D. University of California, Berkeley. U.S., China, S.E. Asia, peasants, politics.
- John H. Rowe (Emeritus), Ph.D. Harvard University. Archaeology, research methodology, prehistory.
- Vincent M. Sarn (Emeritus), Ph.D. University of California, Berkeley. Evolutionary, biological variation.

#### Affiliated Professors

- Lawrence Cohen, Ph.D. Harvard University. Medical anthropology. African and American studies, social psychology, religion, South Asia.
- Marlene F. Fish (Emeritus), Ph.D. University of Chicago. Social/cultural anthropology, archaeology, polymorphism, colonialism, West Africa, contemporary Western Europe.
- Maureen Hatz, Ph.D. University of Chicago. Subsistence and settlement, ceramic analysis, East Asian archaeology, Japan, Korea.
- Xin Liu, Ph.D. University of London. Practice/critical theory, transformation of rural society, social change and resistance, China, East Asia.
- Stefania Pandolfo, Ph.D. Princeton University. Symbolic and semiotic anthropology, archaeology, anthropology, colonisation, West Africa, contemporary Western Europe.
- Andrea Umland, Ph.D. University of California, Los Angeles. Historical archaeology, African-American ethnicity, gender, commerce, Louisiana, California, West Indies.

#### Assistant Professors

- Donald S. Moore, Ph.D. Stanford University. Environmental politics, development, space, place, and identity, cultural politics, Africa.

#### Adjunct Faculty

- M. Steven Shackley, Ph.D. Hunter-gatherers, archaeometry, American archaeology, paleoethnobotany, Andes.
- Jennifer Johnson-Hanks, Ph.D. Social organization, gender and sexuality, transnationalism, SE Asia, U.S.
- Paul S. Gootenberg, Ph.D. Stanford University. Migration, economic anthropology, ethnography, education.
- Joseph J. Sabloff, Ph.D. Yale University. Archaeology and education.
- Lawrence Cohen, Ph.D. Anthropology, cultural and social theory, Soviet and post-Soviet, popular culture.

#### Affiliated Researchers

- Edward Luby, Ph.D. California archaeology, mortuary analysis (Berkeley Natural History Museums).

#### Medical Anthropology Ph.D. Program Office: 333 Kroeber Hall, (510) 642-0386

- Professor

- Nancy Schen-Peppers, Ph.D.
- Associate Professor

- Lawrence Cohen, 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 sociocultural and cultural aspects of behavior, as well as the physical nature of humans. Lower division courses are intended to give a general understanding of human evolution, prehistory, and the nature of human cultures, while upper division courses elaborate particular themes.

The anthropology major is designed to serve two purposes: courses are 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 program 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 significant intellectual interests.

The collections and research facilities of the Phooe A. Hearst Museum of Anthropology are available for study in anthropology, ethnography, physical anthropology, and related subjects by graduate and undergraduate students who wish to become visiting scholars. The museum’s exhibition hall is used for instructional and educational purposes, particularly in connection with class work. Those interested may address the Director, 139 Kroeber Hall. For further information on the Hearst Museum, see the Index.

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 book borrowing microfilm. It is open to all members of the University but serves primarily the faculty and students of the Anthropology Department.

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: Anthropology 1, 2, and 3 or 3AC

### Upper Division Requirements: A total of nine upper division courses is required.

- Anthropology 114 (taught only in fall semesters)
- One course in physical anthropology (courses 100-112)
- One course in archaeology (courses 121-136, and 174AC)
- One course in social/cultural anthropology (courses 115-119, 137-189)

Five other elective anthropology courses.

The above nine courses must include at least one "core" course (121-124, 138B, and "one method" course (131-135, 138B, 141, 169B). For
example, Anthropology 123D, Archaeology of East Asia, is an area course that is also upper division anthropology. All courses must be taken for a minimum of 4 units. Summer field courses, when sponsored or endorsed by a Berkeley professor of anthropology, satisfy the method requirement. All courses must be taken on a letter-graded basis with the exception of Anthropology 199. Independent Study, if sponsored and evaluated by a professor of anthropology. Transfer students should attempt to satisfy prerequisites before transferring to Berkeley. Students may declare the major when they have completed at least 30 semester units, and should declare when they have completed 60. They may declare when they have completed two of the prerequisites and are enrolled in the third.

Honors Program. The Honors Program in anthropology is an independently pursued course of research undertaken by qualified students under the mentorship of a faculty thesis adviser. A grade-point average of 3.3 overall, and 3.5 in the major in courses completed at Berkeley is required to qualify for year-round advanced study, which may begin in either the fall or spring semester. The program requires the sponsorship of an appropriate 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 209 Kroeber Hall.

The Minor

Lower Division. Choose two from Anthropology 1, 2, 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 in all anthropology course work. Students must bring a Petition for Confirmation of Minor Program Completed and an unofficial transcript to 209 Kroeber Hall by the 12th week of the final semester.

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 sociocultural 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 archaeology might focus on globalization and political economy; gender and feminist analysis in archaeology and social-cultural anthropology; genomics and the anthropology of science and technology; theory; bioarchaeology; linguistic anthropology; palaeo-ethnobotany; the anthropologies of tourism, food, energy, space, and the body; sexuality and difference; aging and the life course; cultural politics of identity, space, and the body; political ecology 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 down their interests to particular topical and geographical fields of specialization, a process that normally takes one year.

Step II. Students attend seminars, prepare three field statements in their specializations, satisfy their 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, California 94720.

Medical Anthropology Ph.D. Program

General Information. The Department of Anthropology of 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 or the San Francisco campus but not to both. The point of entry determines the student’s home base during the program. Financial aid, primary advising, and other resources are provided by the campus through which the student enters the program. All students, however, benefit by taking required course work 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, encompassing theory and practice from sociocultural, psychological, biological, biocultural, symbolic, and linguistic perspectives. 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 affinities as a social language speaking to the critically sensitive or contradictory aspects of culture and social relations. Anthropological epidemiology asks the questions, “Who gets sick with what ailments?” (differential risks, forms of medical knowledge, and medical systems) and “Why?” (what social arrangements, cultural features, and biotechno-environmental forces account for these risks). Medical anthropology interprets individuals as actively constructing their medical realities and not simply adjusting to or coping with them.

Given the broad definition of medical anthropology, the joint graduate program between Berkeley-USC is extremely flexible, allowing for the individual needs and interests of each student. During the first year of training, students are required to take core courses in both sociocultural and biological aspects of medical anthropology, taught at both campuses. After the first year and successful completion of the preliminary qualifying examination, medical anthropology students develop a more specialized and individually tailored program under the supervision and guidance of their advisor.

For students entering Berkeley with a B.A., the doctoral program is estimated to take between five and six years, as follows: three years of course work, one to two years of dissertation research, and one to two years of writing the dissertation.

For a complete list of faculty, consult the Medical Anthropology brochure available from the Program Office, 333 Kroeber Hall, Berkeley, California 94720-3710, or the General Catalog of UCB and UCSF campuses.

Applications to all graduate programs are considered once each year for admission the following fall semester. The application period opens in early September, and the deadline for receipt of both department and Graduate Division applications is December 15. Applications are screened by the anthropology faculty, and selections are made on the basis of academic excellence, letters of recommendation, GRE scores, relevant experience, and a strong statement of intellectual and professional purpose.

The minimum requirement for admission to the Berkeley Ph.D. program in anthropology and in medical anthropology is a B.A. The UCSF program in medical anthropology requires a master's degree in anthropology or a related discipline, or a post-baccalaureate professional degree.

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 Physical 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.

2. Introduction to Archaeology. (4) Three hours of lecture and one hour of discussion per week. Prehistoric and cultural growth. (F,SP)

2L. Introduction to Archaeology through Multimedia Authoring. (2) One hour of seminar/lecture and two hours of workshop/laboratory per week. Prerequisites: Concurrent enrollment in 2. A supplemental course to the regular 2 in which students are introduced to multimedia authoring for archaeology and the multimedia presentation of archaeology through commercial and educational web sites and CD ROMs.

3. Introduction to Social and Cultural Anthropology. (4) Three hours of lecture and one hour of discussion per week. The structure and dynamics of human culture and social institutions. (F,SP)

3AC. Introduction to Social/Cultural Anthropology (American Cultures). (4) Three hours of lecture and one hour of discussion per week. The structure and dynamics of human cultures and social institutions from a comparative perspective with special attention to American cultures and their mission. Three hours will illustrate the principles presented in the course. It fulfills the requirements for 3. This course satisfies the American cultures requirement.

10AC. The California Frontier. (4) Three hours of lecture and one hour of discussion per week. This course will focus upon the beginning of the historic period in California and on the interactions between California Indians and European colonizing peoples. The course will begin with an introduction to the indigenous peoples of California and to their contacts with the expanding world system. It will focus upon the Spanish/Mexican, Russian, and American periods and will conclude with an
overview of how these several communities, colonizer and colonized, interacted with and shaped one another, i.e., course satisfies the American cultures requirement.

11AC. Humor in America: Cross-Cultural Perspectives. (3) Two hours of seminar per week. This seminar explores social scientific approaches to eth- nic humor, especially as applied to American cultures. The seminar covers three major domains: (1) sources of ethnic humor; (2) types of ethnic humor; and (3) im- pact of ethnic humor on individuals and society. We shall discuss the humor of each of the following groups: African-Americans, Asian-Americans, Native-Americans, Chicano/Latinos, and Euro-Americans. This course satisfies the American cultures requirement.

12AC. Anthropological Views of American Cultures. (3) Two hours of seminar per week. Prerequisites: Limited to freshmen and sophomores. Consent of instructor. The seminar will examine anthropologists’ research and writing on American cultures (African American, Asian American, Chicano/Latin American, and people of mixed heritage) plus intercultural relations. Each student will focus on two culture categories, to discover how anthropologists of diverse cultures have described and analyzed those cultures. Have they exhibited ethno- centric, colonialist or other biases? Have they exhibited cultural relativism and empathy? Is there a shared “anthro- pological view” of American cultures? If not, why not? If so, how and what is its impact? This course satisfies the American cultures requirement.

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 seminar setting. Freshman seminars are offered in all campus depart- ments, 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 when topic changes. One hour of lecture 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 may vary from department to department and semester to semester.

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring de- partment. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate.

98. Directed Group Study. (1-4) Course may be re- peated for credit. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Three to twelve 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 sponsorship and direction of a member of the An-thropology / 115

Anthropology / 115

Medical Anthropology

115. Introduction to Medical Anthropology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Cultural, psychological, and biological aspects of the definition, causes, symptoms, and treatment of illness. Comparative study of medical systems, practitioners, and patients.

117. The Anthropology of Aging and the Life Course. (4) Three hours of lecture per week. Prerequisites: 3 is recommended. An anthropological ap- proach to the study of age and aging and of the dif- ferent periods of the life course: birth, infancy, childhood, youth and adolescence, adulthood and mid- dle age, old age, and dying. How might we think— about time, the body, and what it means to talk about life—through a focus on aging?

119. Special Topics in Medical Anthropology. (4) Course may be repeated for credit. Three hours of lec- ture per week. Prerequisites: Upper division status and consent of instructor. Special topics in cultural, biomed- ical, and applied approaches to medical anthropology.

Archaeology

121. Historical Archaeology. Archaeology of the pe- riod 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.

121A. American Material Culture. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 2 or consent of in- structor. Formerly 121. 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 trash disposal. Euro-American, African American, and Native-American examples are consid- ered.

121B. Theoretical Approaches in American Historical Archaeology. (4) Three hours of lecture per week. Prerequisites: 2 or consent of instructor. This course will provide a background in the theoretical and method- ological development of American historical archae- ology, with particular emphasis on the ways in which archaeologists have approached the integration of ar- chaeological, documentary, oral, and other forms of historic data. Emphasis on continuing theoretical de- velopments in the discipline. Politics of historical archaeology and seminars in which historical archaeolo- gists and other public historians make the past relevant to the present.

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 ar- tifacts from the stage of recovery through the stages of analysis and interpretation. The focus is on the analy- sis of materials (i.e., ceramic, glass, metal, bone, shell artifacts) recovered from historic sites. Skills acquired include how to identify, date, record, illustrate, photo- graph, catalog, and interpret historical archaeological materials through a combination of lectures, lab ex- ercises, and a research paper.

122. New World Cultures. Three hours of lecture per week. Prerequisites: 2, except 1220 American Archaeology / 115

Anthropology / 115

Medical Anthropology

115. Introduction to Medical Anthropology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Cultural, psychological, and biological aspects of the definition, causes, symptoms, and treatment of illness. Comparative study of medical systems, practitioners, and patients.

117. The Anthropology of Aging and the Life Course. (4) Three hours of lecture per week. Prerequisites: 3 is recommended. An anthropological ap- proach to the study of age and aging and of the dif- ferent periods of the life course: birth, infancy, childhood, youth and adolescence, adulthood and mid- dle age, old age, and dying. How might we think— about time, the body, and what it means to talk about life—through a focus on aging?

119. Special Topics in Medical Anthropology. (4) Course may be repeated for credit. Three hours of lec- ture per week. Prerequisites: Upper division status and consent of instructor. Special topics in cultural, biomed- ical, and applied approaches to medical anthropology.

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121B. Theoretical Approaches in American Historical Archaeology. (4) Three hours of lecture per week. Prerequisites: 2 or consent of instructor. This course will provide a background in the theoretical and method- ological development of American historical archae- ology, with particular emphasis on the ways in which archaeologists have approached the integration of ar- chaeological, documentary, oral, and other forms of historic data. Emphasis on continuing theoretical de- velopments in the discipline. Politics of historical archaeology and seminars in which historical archaeolo- gists and other public historians make the past relevant to the present.

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 ar- tifacts from the stage of recovery through the stages of analysis and interpretation. The focus is on the analy- sis of materials (i.e., ceramic, glass, metal, bone, shell artifacts) recovered from historic sites. Skills acquired include how to identify, date, record, illustrate, photo- graph, catalog, and interpret historical archaeological materials through a combination of lectures, lab ex- ercises, and a research paper.

122. New World Cultures. Three hours of lecture per week. Prerequisites: 2, except 1220 American
122B. Culture Contact in North America. (4) Three hours of lecture per week. This course examines the implications of encounters between Native Americans and Europeans, including how indigenous peoples responded to European contact and colonialism, and how the outcomes of these encounters influenced cultural developments in postcolonial contexts. The study employs a holistic approach that integrates evidence from archaeology, ethnohistory, ethnohistory, linguistics, biological anthropology, and native oral traditions. Case studies from the Caribbean, Florida, Louisiana, Virginia, Alaska, Hawaii, and California will be included.

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.

122D. World of Ancient Maya. (4) Formerly 124A. A comprehensive study of the development and cultural history of the longest sustained tradition of aboriginal New World civilization.

122E. People of the Andes. (4) Prerequisites: 2. Formerly 126. Inca culture and its antecedents; a survey from the earliest times to the present.

122F. California Archaeology. (4) Prerequisites: 2. Prehistory of California Indians; selected archaeological sites and current issues in interpretations.

123. Old World Cultures. Three hours of lecture per week. A variety of courses that consider the peoples and past cultures and societies of the Old World, through the study of archaeology, ethnohistory, and current fields. No specific sequence to courses; 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 developments. Selected topics or geographic areas of paleolithic research.

123B. Archaeology of Africa. (4) Prerequisites: 2. Formerly 126 Prehistory and early civilizations of Africa; selected archaeological sites and current issues in interpretations.

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

123D. Archaeology of East Asia. (4) Prerequisites: 2 recommended. Prehistoric and protohistoric archaeology in China, Japan, and Korea.

123E. Mediterranean Archaeology. (4) Prerequisites: 2 or consent of instructor. Prehistory and early civilizations of the Mediterranean basin and its hinterland.

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, and other relevant fields. No specific sequence to courses; students may take any or all of the following in any sequence.

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

124AC. Hawaiian Ethnohistory. (4) Three hours of lecture per week. Prerequisites: 3 or equivalent or consent of instructor. Developmental 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-African whites, Chinese, and Japanese. This course satisfies the American cultures requirement.

124B. Hawaiian Ethnohistory. (4) Three hours of lecture per week. Prerequisites: 3 or equivalent or consent of instructor. Developmental 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-African whites, Chinese, and Japanese. This course satisfies the American cultures requirement.

128. Special Topics in Archaeology. (4) 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.

129. Prehistoric Art. (3) Three hours of lecture per week. Prerequisites: 2 or consent of instructor. A survey of non-literate societies and on archaeology to explore a range of prehistoric arts in cultural contexts; e.g., rock art, Ice Age Art; prints. Uses illustrative material from the Hearst Museum.

130. Invention and Technology. (4) Three hours of lectures per week. Prerequisites: Consent of instructor. Origin, history, and spread of fundamental inventions; illustrative material from the Hearst Museum of Anthropology.

131. Archaeological Science. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 or consent of instructor. Laboratory in analyzing the material prehistory (e.g., stone tools, ceramics, and/or metals).

132. Analysis of Archaeological Materials. (4) Course may be repeated for credit. Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 or consent of instructor. Practical experience in the field study of archaeological sites and materials. Coverage may include reconnaissance, mapping, recording, and excavation.

133. Field Course in Archaeological Methods. (4) Course may be repeated for credit. One hour of lecture and six hours of fieldwork per week. Prerequisites: 2 or consent of instructor. A field course in archaeological methods.

134. Analysis of the Archaeological Record. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 or consent of instructor. A field course in archaeological methods.

134B. Multimedia Authoring for Archaeology. (4) Course may be repeated for credit. One hour of lecture, four hours of scheduled laboratory, and six or more hours of unscheduled laboratory per week. Prerequisites: 2; or consent of instructor. A field course in archaeological methods.

135. Paleoenvironmental Archaeology. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 2 and consent of instructor. A field course in archaeological methods.

135B. Environmental Archaeology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 3 or consent of instructor. A field course in archaeological methods.

136. History and Theory of Archaeology. (4) Three hours of lecture per week. Prerequisites: 2. A critical review of the historical and philosophical premises of past and present anthropological theory with respect to its concepts of time and change.

138A. History and Theory of Ethnographic Film. (4) Three hours of lecture and one hour of discussion 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 productions will be viewed and analyzed. Topics of interest include the role of visual media in ethnography, ethics in filmmaking, and the problematic relationship between seeing and believing. Requirements include film critiques, a film proposal, and a final exam.

138B. Field Production of Ethnographic Film. (5) Three hours of lecture and three hours of laboratory per week. Prerequisites: 138A (permission of instructor). This course is devoted to training students in methods of ethnographic field film production. Based on the previous core coursework in Anthropology 138A, students will work toward the production of an ethnographic video from selected projects. In addition to weekly discussions, each student project, guest lectures, and class discussions, students will learn to use key aspects of film 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 becomes hidden, voluntary, and unconscious in industrialized societies. Readings will cover language, law, politics, religion, medicine, sex, and gender.

140. Tribal Societies. (4) Three hours of lecture per week. Prerequisites: 3. Analysis of societies past and present which are small in population, relatively homogeneous, with kin-based social organization, economies relying on gathering, hunting and/or horticulture, and governance ranging from chiefdoms to states. (F,SP)

141. Comparative Society. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 3 or consent of instructor. The comparative approach is functional interrelationships of social institutions. Primary emphasis on non-Western societies.

142. Kinship and Social Structure. (4) Three hours of lecture per week. Prerequisites: 3 or 141. Comparison of kinship and family types throughout the world; techniques of kinship and structural analysis.

143. Advanced Survey of Social and Cultural Anthropology. (4) Three hours of seminar per week plus extensive reading and written project. Prerequisites: 3 and senior standing or consent of instructor. Formerly 187 Historical Survey of anthropological theories, methods, and findings. Intended for majors and pre-honors students.

144. Social and Cultural Change. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Western theories of evolutionary and revolutionary change inform our understanding of social 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.
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.

147A. Comparative Gender Systems. (4) Three hours of lecture per week. The course will illustrate, through case studies, the systematic but variable ways gender operates in social life. It will draw particularly on the social sciences to describe patterns of asymmetry, hierarchy, and inequality between men and women and demonstrate both the social bases of gender organization as well as the fundamental effect of gender differentiation on social systems as a whole. Attention will be paid to female agency and historical change as well as social structure.

147B. 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 transgedendered desires or identities. Also listed as Undergrad Interdisciplinary Studies C147B.

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 theory, method, and case materials extending from third world agrarian types to urban North America. Topics may include cultural ecology, political ecology, cultural politics of nature, and environmental imaginaries.

149. Psychological Anthropology. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. This course examines the history of psychological anthropology from the culture and personality school through current constructionist approaches to indigenous psychologies. Topics covered include ethnopsychoanalysis, psychoanalysis, psychiatric approaches to possession and altered states, emotion and culture, gender, sexuality, and erotica. The focus will be on the use of psychological and ethnographic approaches to the study of modern and traditional culture. Cross-cultural psychological analysis possible, and if so, how?

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

152. Art and Culture. (4) Three hours of lecture per week. Prerequisites: 3 recommended. This course will focus on the use of psychology in cultural production. The course covers classical and contemporary theory. The focus will be on the use of psychology in cultural production. The course covers classical and contemporary theory.

153. Education and Culture. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Comparative survey of the ethnographies of law; methods and concepts relevant to the comparative analysis of the forms and functions of law.

154. Social Inequality. (4) Three hours of lecture per week. Prerequisites: 3 recommended. This course will explore social structures of inequality and their historical development, with a particular emphasis on the history of race, ethnicity, and gender. The course will analyze the ways in which social inequality is produced and sustained, and the ways in which it is challenged and resisted.

155. Religion and Anthropology. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. This course focuses on the study of religion and religion in society. It will cover the social and cultural aspects of religious belief and practice, as well as the political and economic implications of religious structures. The course will be taught in collaboration with the department's Internal Catalog for course title, description, instructor name, and specific format.

156. Anthropology of Modernity: Science. (4) Three hours of lecture per week. Prerequisites: A background in anthropological theory. The course will take an anthropological approach to modern science understood as an historically situated, socially contextualized set of practices and interpretations. Readings will include theoretical works drawn from Kuhn, Heider, Weber and Foucault as well as case studies with particular reference to contemporary biocentricity. 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 ethnographies of law; methods and concepts relevant to the comparative analysis of the forms and functions of law.

158. Art and Culture. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. The course will focus on the use of psychology in cultural production. The course covers classical and contemporary theory. The focus will be on the use of psychology in cultural production. The course covers classical and contemporary theory.

159. Gender and Culture. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. The course will focus on the use of psychology in cultural production. The course covers classical and contemporary theory. The focus will be on the use of psychology in cultural production. The course covers classical and contemporary theory.

160. Topics in Folklore. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. Special topics in folklore or ethno-musicology. Students will participate actively in the reading 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.

161. Narrative Folklore. (4) Three hours of lecture per week. Prerequisites: 3 or consent of instructor. The course will cover the materials and scholarship of American folklore. Generally speaking, the course will cover Native American folklore first, then European, Mexican, and Asian American folklore (including American Indian traditions), and finally African American folklore. The course will require students to prepare a final research paper of at least 7-10 pages. This course satisfies the American cultures requirement.

162. Language and Society. (4) Three hours of lecture per week. Prerequisites: Upper division standing. This course will cover the materials and scholarship of American folklore. Generally speaking, the course will cover Native American folklore first, then European, Mexican, and Asian American folklore (including American Indian traditions), and finally African American folklore. The course will require students to prepare a final research paper of at least 7-10 pages. This course satisfies the American cultures requirement.

163A. American Folklore. (4) Three hours of lecture per week. The course will cover the materials and scholarship of American folklore. Generally speaking, the course will cover Native American folklore first, then European, Mexican, and Asian American folklore (including American Indian traditions), and finally African American folklore. The course will require students to prepare a final research paper of at least 7-10 pages. This course satisfies the American cultures requirement.

163B. Research Theory and Methods in Socio-Cultural Anthropology. (4) Three hours of lecture per week. Archaeology, ethnohistory, and ethnography. This course will focus on the use of psychology in cultural production. The course covers classical and contemporary theory. The focus will be on the use of psychology in cultural production. The course covers classical and contemporary theory.


171. Japan. (4) Three hours of lecture per week. Anthropological treatment of historic and modern Japanese culture, covering history, art and religion; family, kinship and community organization; political, economic and occupational patterns; cultural psychology and social problems in modern Japan. This course satisfies both sociological and psycho-cultural forms of analysis.

172. Area Studies. (4) Three hours of lecture per week. Prerequisites: 3 recommended. An introduction to the anthropological study of peoples in Southern Mexico, Guatemala, and Belize. The course focuses on specific parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest of Mexico, independence, indigenous resistance and rebellion, and recent pan-Maya activism.

176. Contemporary Latin America. (4) Three hours of lecture per week. Prerequisites: 3 recommended. An introduction to the anthropological study of peoples in Southern Mexico, Guatemala, and Belize. The course focuses on specific parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest of Mexico, independence, indigenous resistance and rebellion, and recent pan-Maya activism.

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 peoples in Southern Mexico, Guatemala, and Belize. The course focuses on specific parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest of Mexico, independence, indigenous resistance and rebellion, and recent pan-Maya activism.

178. Oceania. (4) Three hours of lecture per week. Prerequisites: Upper division standing. A course in the anthropological study of peoples in Southern Mexico, Guatemala, and Belize. The course focuses on specific parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest of Mexico, independence, indigenous resistance and rebellion, and recent pan-Maya activism.

179. Ethnography of Oceania: Polynesia, Micronesia, Melanesia, New Guinea, and Australia. (4) Three hours of lecture per week. Prerequisites: 3 recommended. An introduction to the anthropological study of peoples in Southern Mexico, Guatemala, and Belize. The course focuses on specific parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest of Mexico, independence, indigenous resistance and rebellion, and recent pan-Maya activism.

180. European Society. (4) Three hours of lecture per week. Sociology 3. Prerequisites: Upper division standing. A course in the anthropological study of peoples in Southern Mexico, Guatemala, and Belize. The course focuses on specific parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest of Mexico, independence, indigenous resistance and rebellion, and recent pan-Maya activism.

181. Themes in the Anthropology of the Middle East and Islam. (4) Three hours of lecture per week. Prerequisites: 3 recommended. An introduction to the anthropological study of peoples in Southern Mexico, Guatemala, and Belize. The course focuses on specific parts of the Maya region, emphasizing selected themes and problems. We will explore regional history through the development of Maya studies and the historical transformations of Maya societies. These themes will be traced through studies of the Classic Maya, the Spanish conquest of Mexico, independence, indigenous resistance and rebellion, and recent pan-Maya activism.
186. Southeast Asia: Cultures, States, and Capitalisms in the Asian Pacific Rim. (4) Three hours of lecture per week. Prerequisites: C193 or other social science introductory course. An examination of the current political configuration of some Pacific Rim societies against the historical, ecological, and cultural contexts. Part 1: The cultural background of Southeast Asia, with a focus on the precolonial trading empires, the subsequent impact of European colonization on the peasantry, and the discipline of Anthropology, and the “plural societies” that emerged. Part 2: Postcolonial changes in gender relations, patron-clientelism, Chinese capitalism, and the state interventions into the economy. Part 3: Examination of newly industrializing countries and the links between economic restructuring, morality, social regulation, and knowledge as key to our understanding of the changing cultures, politics, and individual action in the Pacific Rim.

187. Peoples and Cultures of the Himalayas. (4) Three hours of lecture per week. This course will deal with ethnography, ecology and change among the peoples and cultures of the Himalayan regions of India, Pakistan, Bhutan, and less centrally, Afghanistan and China (Tibet).

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

General Topics

189. Special Topics in Social/Cultural Anthropology. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: C193 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 subdiscipline of Anthropology.

C193. Introduction to Social Science Computing. (4) One hour of lecture and one lecture in a demonstration laboratory setting with two hours of supervised laboratory and an average of four hours of self-paced laboratory per week. Introduction to computer-assisted technical report and grant proposal writing in the social sciences. Structure and content of reports. Overview of demographic, ecological, economic, and social factors. Use of computers and information technology. Internet access, machine-readable archival and other data sources, statistical summaries and graphics, Web pages. Students may choose a Mac/PC lab or a UNIX laboratory. Also listed as Undergrad Interdisciplinary Studies C193.

Seminars and Independent Study

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. Subject matter will vary from year to year. Prerequisites: Consent of instructor. Seminar for the advanced study of the subject matter of a previously given upper division course, emphasizing reading and discussion.

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.

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 thirty-six hours of travel or fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: Upper-division status; consent of instructor. Individual field experience sponsored by a faculty member; written reports required.

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 on a passed/not passed basis. Prerequisites: 60 units; good academic standing. Undergraduate research by small groups.

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. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Supervised independent study and research.

Graduate Courses

Physical 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 C226.

202. Primate Behavior. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor.

203. Primate Socialization. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor.

204. Primate Evolution. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor.

C206. Fossil Hominids. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Integrative Biology C279.

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

211. Primate Ecology. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor.

213. Method and Theory in Biological Anthropology. (5) May be repeated for credit with instructor’s consent. Two seminar sessions of two hours each per week. Prerequisites: Consent of instructor. This seminar surveys the major research programs in biological anthropology, in terms of what questions they ask, how they answer them, and their underlying theoretical bases. Example topics include human evolution, molecular anthropology, prehistoric social ecology, and functional morphology. The emphasis throughout will be on the interplay between the history of ideas and the science of biological anthropology.

Medical Anthropology

215A-215B. Advanced Medical Anthropology. (4;4) Course may be repeated for credit. Three 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.

219. Topics in Medical Anthropology. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor.

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

230X. Various Topics in Current Archaeological Issues and Methods. (2) A variety of formats totaling 22 hours of class meeting time per semester. An overview of new methods, trends, and issues in archaeology.

Social and Cultural Anthropology

240A-240B. Fundamentals of Anthropological Theory. (5;5) Two hours of lecture and two hours of discussion per week. Prerequisites: Required of all graduate students in social/cultural anthropology. Advanced survey of the major theoretical and empirical areas of social and cultural anthropology. Sequence begins Fall.

250. Seminars in Social and Cultural Anthropology. Course may be repeated for credit. Two hours of seminar per week.

250A. Psychological Anthropology. (4)

250B. Gender Anthropology. (4)

250C. Transnationalism. (4)

250D. Resistance. (4)

250E. Cultural Politics. (4)

250F. Religion. (4)

250G. Social Issues and Anthropological Ethics. (4)

250H. Art and Culture. (4)

250L. Anthropology of Law. (4)

250M. Ethnological Field Methods. (4)

250N. Colonialism and Postcolonialism. (4)

250L. Urban Anthropology. (4)

250M. Ecological Anthropology. (4)

250N. Cultural Models. (4)

250O. Action, Interaction, and Practice: Theory and Method. (4)

250P. Social Change and Development. (4)

250Q. Voices of the Subject. (4)

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.

228. Method. (4) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Various topics and issues in the methods of archaeological analysis and artifact presentation: style, ceramics, architectural analysis, lithic analysis, archaeozoology, etc.

228B. Multimedia Authoring in Archaeology. (4) Course may be repeated for credit. One hour of seminar discussion, one hour of lecture in laboratory instruction, and a minimum of six hours of laboratory per week. Prerequisites: Some experience with Macintosh computers, especially basic graphics software, is recommended. This is a combined seminar and laboratory course that will explore the multimedia presentation of archaeological data and its interpretation on CD-ROM and the World Wide Web. We shall focus on what “face” of archaeology is expressed through these media. We shall examine critically the effects of multimedia authoring for both research and teaching archaeology, in terms of the power of visual imagery, movement, and sound effects.

229A-229B. Archaeological Research Strategies. (3-4) Three hours of seminar per week. Prerequisites: Consent of instructor. Required for all 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 of the research strategies and design for various kinds of archaeological problems (229B). To be offered alternate semesters.

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

230X. Various Topics in Current Archaeological Issues and Methods. (2) A variety of formats totaling 22 hours of class meeting time per semester. An overview of new methods, trends, and issues in archaeology.
examinations. Individual study in consultation with advisor. 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 degree.

**Professional Courses**

**301. Professional Training: Teaching. (1-6)** Course may be repeated for credit. Two to eight hours of conference per week. Must be taken on a satisfactory/unsatisfactory basis. Group consultation with instructor. Supervised training with instructor on teaching undergraduates.

**Applied Science and Technology**

**(College of Engineering)**

**Office:** 230 Bechtel Engineering Center #1708, University of California, Berkeley, California 94720-1708. **Telephone**: (510) 642-8790; e-mail: astprogram@coe.berkeley.edu

**Chair:** Nathan Cheung, Ph.D.

**Executive Committee**

David T. Attwood, Ph.D. (Electrical Engineering and Computer Sciences)

Constance Chang-Haunsol, Ph.D. (Electrical Engineering and Computer Sciences)

Nathan Cheung, Ph.D., Chair (Electrical Engineering and Computer Sciences)

Daryl Chizan, Ph.D. (Materials Science and Engineering) (En-engineering)

Oscar Dubon, Ph.D. (Materials Science and Engineering)

Raya Maboudian, Chemical Engineering

Peilong Yang, Ph.D. (Chemistry)

Peter Yu, Ph.D. (Physics)

**Program Overview**

This graduate group is administered by the College of Engineering's Interdisciplinary Studies Center. The program has three major areas of emphasis: applied physics, engineering, and materials science. The University of California, Berkeley, is due the first Friday in January for the following fall semester. To obtain application forms, students should contact the Applied Science and Technology Graduate Group, 230 Bechtel Engineering Center #1708, University of California, Berkeley, California 94720-1708. **Telephone**: (510) 642-8790; e-mail: astprogram@coe.berkeley.edu

**Graduate Courses**

**C201. Magnetic Materials. (3)** Three hours of lecture per week. A description of magnetic phenomena on a macroscopic scale will be followed by discussions of modern experimental methods for magnetic measurements. Intrinsic and phenomenological concepts of magnetism will be developed, including electronic magnetic moments, classical, quantum, and band theories of magnetic behavior. Ordered magnetic materials will be explored in detail. Sponsoring department: Engineering Interdisciplinary Studies. Also listed as Engineering C217. (SP) **Staff**

**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 and soft x-rays. It begins with a review of electromagnetic radiation at short wavelengths including dipole radiation, scattering, and absorption index, using a semi-classical atomic model. Subject matter will include the generation of x-rays with laboratory 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) **Attwood**

**C225. Thin-Film Science and Technology. (3)** Three hours of lecture per week. This course will explore modern developments in the physics and applications of thin films. The course will begin with a review 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, micro-electromechanical systems and optoelectronics. Also listed as Materials Science and Engineering C225. (F,SP) **Cheung, Staff**

**C239. Partially Ionized Plasmas. (3)** Three hours of lecture per week. Prerequisites: Upper division course in electromagnetics or fluid dynamics. Introduction to partially ionized, chemically reactive plasmas, including collisional processes, diffusion, sources, sinks, boundaries, and diagnostics. DC, RF, and microwave discharges. Applications to plasma-assisted materials processes and to plasma-wall interactions as Electrical Engineering C239. Offered alternate years. (SP) **Lieberman, Neuender**

**C295R. Applied Spectroscopy. (3)** Three hours of lecture per week. Prerequisites: Graduate standing in engineering, physics, chemistry, or chemical engineering. Ten-minute review of quantum mechanics, linear vector space theory. After a brief review of quantum mechanics and semi-classical methods for the interaction of radiation with matter, this course will survey the various spectroscopies associated with the electromagnetic spectrum, from gamma rays to waves. Special emphasis is placed on application to research.
problems in applied and engineering sciences. Grad- uate researchers interested in systematic in situ pro- cess observation, analysis, or discovery are best served by this course. Also listed as Chemical Engi- neering C259R.

298. Individual Study or Research. (1-12 Course) Credit may be repeated for credit. Must be taken on a satis- factory/fail (S/F) basis. Prerequisites: Consent of instructor; graduate standing. Investigations of ad- vanced problems in applied science and technology. Sponsored by Engineering Interdisciplinary Studies Center. (F, SP) Staff

Architecture (College of Environmental Design)


Chair: Wayne Mack, Ph.D.

Professors
Nizar AsSayyad, Ph.D. University of California, Berkeley. Architectural design, urban design, urban design development in the Third World
Edward A. Atienza, Ph.D. University of Edinburgh. Building technology, energy
Clarence J. Blish, Ph.D. Massachusetts Institute of Technology. Building technology
Peter Bosselman, M.Arch. University of California at Los Angeles. Urban and urban design
Jean-Paul Bourdier, M.Plan. École des Beaux Arts University of Illinois. Architectural design, African architecture
Gail Breakey, Ph.D. University of California, Berkeley. Building technology, comfort, energy
Mary C. Cohn, M.Arch. M.S.W. Washington University. Landscape design, post-disaster reconstruction policy and planning
Galén Cranze, Ph.D. University of Chicago. Social factors in design, sociology of dress, body-conscious design, sustainable parks
Tim Davis, M.E.D. Yale University. F.A.I.A. Architectural design
Anthony Dubovsky, M.A. University of California, Berkeley. Visual design
Richard Fienau, M.Arch. University of California, Berkeley. Architectural design
Harison Fraker, Jr., M.F.A. Princeton University. Affordable housing, sustainable environments, passive solar, daylighting and energy conservation
Yehuda Kalay, Ph.D. Carnegie-Mellon. Computers, design theories and methods
Raymond Litch, M.S., M.A., M.C.P. Columbia University. University of California, Berkeley. Architectural design, special populations
Dorothy Louden, M.F.A. Princeton University. F.A.I.A. (Eva Li Charn) Architectural design, design of urban spaces
W. Mike Martin, Ph.D. University of California, Berkeley. Design and social practice, methods and theories
Jean-Pierre Moreau, Dipl. Arch. E.P.U. Université de Lausanne. Architectural history and theory
Stanley Saltzworth, M.Arch. University of California, Berkeley. Architectural design
Adela Santos, M.Arch. M.C.P. University of Pennsylvania. Architectural history
Stephen O. Tobin, Ph.D. Harvard University. Architectural history
Marc Treib, M.Arch. M.A. University of California, Berkeley. Architectural design; Architecture of Japan and Scandinavia, landscape architecture and the arts
Devi Upadhyay, M.Arch. University of California, Berkeley. Architectural history and theory
Christopher Alexander (Emeritus), Ph.D. Harvard University. Architectural design, pattern language
Richard Bernard (Emeritus), M.Arch. Harvard University
Kenneth H. Cardwell (Emeritus), A.B. University of California, Berkeley
Vernon A. Demars (Emeritus), A.B., F.A.I.A. University of California, Berkeley
Margaret P. Dharmas (of Hamar) (Emerita), M.A., M.F.A. California College of Arts and Crafts, Mills College. Electronic imaging, computer graphics
W. Russell Ellis, Jr. (Emeritus), Ph.D. University of California at Los Angeles. AIA, 1961. Sculptures in design
Norma D. Everson (Emerita), Ph.D. Yale University
Samy Y. Hassan, M.L.A. Harvard University. Architecture and the arts
Sanford Klein (Emeritus), B.Arch., F.A.I.A. Columbia University. Architectural design
Henry J. LaFarge (Emeritus), M.A., University of California, Berkeley
Lars G. Løvås (Emeritus), M.Arch. Harvard University.
Architectural design, semiotics
Claire Cooper (Emeritus), M.A., M.C.P. University of Nebraska, University of California, Berkeley. Social factors, geography
Richard L. Meier (Emeritus), Ph.D. University of California at Los Angeles. Architecture
Roger Montgomery (Emeritus), M.Arch. Harvard University. Urban planning
Donald E. Olsen (Emeritus), M.Arch., F.A.I.A. Harvard University
Richard C. Peters (Emeritus), M.F.A., F.A.I.A. Princeton University. Architectural design, lighting design
Jesse Reischl (Emeritus), Chicago Institute of Design

Herwin Schaefer (Emeritus), Ph.D. Harvard University
Daniel Solomon (Emeritus), M.Arch. University of California, Berkeley. Architectural design
Donald Strom (Emeritus), M.Arch., F.A.I.A. Harvard University
Sim H. Van der Plyn (Emeritus), B.Arch. University of Michigan. Architectural design, appropriate technology

Associated Professors
H. Gary Black, M.Arch., M.S. University of California, Berkeley
K. V. Bourke (Emeritus), B.Arch. University of California, Berkeley
Raveenith Chokkombatchai, M.Arch., M.L.A. Harvard University. Architectural design, Japanese architecture
Renee Chow, M.Arch. Massachusetts Institute of Technology. Architectural design
René David, M.A. Royal College of Art, London. Architectural design
Paul Groth, Ph.D. University of California, Berkeley. History of urban form and cultural landscape
Kathleen James-Chakraborty, Ph.D. University of Pennsylvania. History of architecture
Jill Storer, M.Arch. University of Pennsylvania. Architectural design, energy, climate responsive, daylighting
Gary H. Brown (Emeritus), M.Arch. Harvard University. Architectural design
Sara S. Ishikawa (Emerita), B.Arch. University of California, Berkeley. Architectural design, energy
M. Susan Ubbelohde, M.Arch. University of Oregon. Architectural design, energy, climate responsive, daylighting

Graduate Programs

The department offers the professional degree Master of Architecture, the academic degree Doctor of Philosophy, and several smaller degree programs.

Master of Architecture. The professional degree, Master of Architecture, will be awarded to students who successfully complete a program of studies of from one to three years in duration 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 under- graduate major, professional and other work experience, and previous graduate study, if any. Additional prerequisites for admission to the pro- fessional Master of Architecture program are college-level or equivalent mathematics through analytical geometry and beginning calculus and beginning physics through mechanics.

The basic course leading to the M.Arch. degree takes three academic years and requires the completion of at least 72 units during that period of residence. Persons who hold a B.A. or B.S. degree with a major in architecture may receive up to one year of advanced standing. The department of Architecture, Committee of the department will determine the specific amount of advanced standing individ- ually for each student at the time she or he first registers for graduate study in the department. Special one-year M.Arch. programs are available to persons holding the five-year, professional under- graduate degree, Bachelor of Architecture, from an accredited school, or comparable five-year degrees from foreign universities and technical institutions.

Doctor of Philosophy Degree in Architecture. The Doctor of Philosophy in Architecture program is open to exceptionally qualified persons who pre- sent outstanding academic records along with clear evidence of commitment and ability in architectural research and scholarship. Graduate Division re- quirement with respect to admission, the language requirement, candidacy, and the dissertation under Plan B apply (see Index). Applicants must hold a bachelor’s degree from an accredited institution, but the department makes no restriction as to the discipline of the undergraduate preparation. Addi- tional information is available from the depart- mental graduate secretary.

Master of Science Degree in Architecture. This nonprofessional degree program was developed to offer the opportunity for advanced research in spe- cialized areas within the architectural field. An academic degree, it is appropriate for those who
already hold a degree in architecture but wish to study a particular subfield. Applicants from related disciplines may be accepted into the program, pro-
vided they demonstrate experience related to the discipline of architecture. Depending upon previous preparation, students are required to complete a
minimum of 32 to 48 credit units, including a com-
bined research methods course taught by a faculty team. Remaining course work will be determined by the nature of the proposed research. A research thesis culminates the student’s program. Further in-
formation about requirements for admission and application materials may be obtained from the de-
partment’s graduate assistant.

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. Students with an interest in pursuing graduate work in
photography or involved with visual issues in the area of graphics 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
completion varies with the individual, depending in part upon previous preparation. An undergraduate degree from the College of Environmental Design
or an art-related field is helpful but not neces-
sary. The principal emphasis in the admission pro-
cess is on the portfolio that all applicants for ad-
mission to the graduate program must submit.

Concurrent Program with the Department of
City and Regional Planning. The Department of
Architecture and the Department of City and Re-
gional 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 Archi-
technology or a four-year Bachelor of Arts/Bachelor of Science degree in architecture, or
equivalent degrees in related disciplines. The Mas-
ter of City Planning degree portion of the concur-
rent program requires completion of 36 semester
units; the M.Arch. segment calls for 24-72
semester units, depending upon the undergradu-
ate degree. Applicants should seek admission to the Department of Architecture and indicate that they wish to be considered for the Concurrent Program in Architecture and City and Regional Planning.

Concurrent Degree Program in Architecture and
Landscape Architecture. The Departments of Archi-
technology and Landscape Architecture and En-
vironmental Planning have developed a con-
current degree program. This program will lead to
two professional degrees: Master of Architecture
and Master of Landscape Architecture. This new
program brings together two closely connected branches of environmental design—the design of sites and the design of buildings. This program is
for exceptionally qualified students who have an
undergraduate degree in architecture or landscape
architecture and who satisfy the admission re-
quirements of the one-or two-year M.Arch. program
and/or the two-year M.L.A. program. Applicants to
either of the above concurrent degree programs
should apply to either department by December 15.
Acceptance into the concurrent degree program is limited to outstanding applicants. More information may be obtained from the Graduate Office in 202
Wurster Hall or from our web site.

Concurrent Degree Program with the Division of
Structural Engineering and Structural Me-
chanics. The two departments offer a joint pro-
gram 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 sav-
ing in the time enrolled, varying from one semester to one year, depending on undergradu-
ate preparation. Some engineering courses are
prerequisite to entering the program or may be
taken during the first year of enrollment without credit towards the minimum course requirements. Applicants should seek admission to the Depart-
ment of Architecture (M. Arch. Program) and indi-
cate on their application interest in the concurrent program.

Concurrent M.A. in International and Area Stud-
estures. The concurrent M.A. program in International and Area Studies (IAS) is designed to complement the graduate degree programs in architecture. It is intended to provide advanced professional training with a detailed knowledge of contemporary international issues or particular world areas or countries. The content of each M.A. program will be shaped in consultation with the departmental IAS adviser to meet the specific needs and interests of the individual stu-
dent.

In addition to satisfying all Graduate Division and
departmental requirements for the Master of Ar-
rchitecture or Ph.D. degrees, students in this con-
current program must complete a minimum of 24
units outside architecture in the special area agreed upon with the IAS adviser.

For additional information on these degree pro-
grams, please consult the Enrollment of the College of Environmental Design or the Graduate
Office.

Architecture

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 ba-
sis. Sections 3-4 to be graded on a pass/no pass basis. The Berkeley Seminar Program has been de-
signed 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 de-
partment to department and semester to semester. (F,SP) Staff

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/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-se-
minar setting. These seminars are offered in all campus
departments; topics vary from department to depart-
ment and from semester to semester. (F,SP) Staff

Design and Design Arts

Upper Division Courses

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

101. Case Studies in Architecture. (8) Course may be repeated for credit as topic varies. Three hours of lecture and five hours of studio per week. Prerequi-
sites: 100A-100B. Topics in the analysis of urban design
and development. Each section deals with a specific
problem such as housing, urban design, energy issues. Projects may be pursued within the topic.

109. Seminar in Architectural Design. Course may be repeated for credit as topic varies. Prerequisites: Consent of instructor. Selected topics in the theories
and concept of architectural design. For current se-
lection offerings, see departmental announcement.
109A. Seminar in Architectural Theory. (1-4)
109C. Current Issues in Architecture. (1-4)
109X. Special Topics: Architectural Design. (1-4)
(F,SP)

Graduate Courses

(17) Sixty hours of lecture/seminar and 120 hours of
studio per semester. 200A must be taken on a satis-
factory/unsatisfactory basis. 200B must be taken for
a letter grade. Introductory course in architectural design
and theories for graduate studies. Problems em-
phasize the major social, technological and environ-
mental determinants of building form. 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 lec-
ture and five hours of studio per week. Prerequisites:
100A-100B or 200A-200B. Each section deals with a
specific problem such as housing, high-rise design, in-
terior, community development. Studio work is sup-
plemented 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 semes-
ter of the Master of Architecture degree pro-
gram. Prerequisites: Three semesters of 201 and
209D. This is the final project studio. Projects in 202
are presented in the form of a design thesis or a re-
search thesis. Staff

202A. Final Project Studio: Studio Thesis Option. (5)
Course sections are organized by specific topics such as
housing, urban design, energy issues. Independent projects may be pursued within the topic.
(5) Zero hours of lecture and five hours of studio per
week. Course intended primarily for research theses. Students seeking permission to enroll in this section
must petition the chair of graduate advisors before the
end of fall semester.

207. Urban Design Research Seminar. (1) Two hours of laboratory every second week. Special topics in urban design research directed to the understand-
ing of places that support and enhance the experience of people. Research focuses on a range of issues in-
cluding the physical transformation of urban places or
the analysis of urban design projects and plans. Also
listed as City and Regional Planning C242.

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)
209B. Seminar in Architectural Criticism. (1-4) (F,SP)
209C. Current Issues in Architecture. (1-4) (F,SP)
209X. Special Topics: Architectural Design. (1-4)
(F,SP)

Social and Cultural Processes in
Architecture and Urbanism

Upper Division Courses

110AC. Social and Cultural Factors in Design. (3)
Forty hours of lecture and 20 hours discussion per
semester. The course is a survey of how political, cul-
tural, social, and economic factors influence archi-
tectural design. The focus for studying these broad top-
ics will be housing of all types and special needs
facilities. The twice-weekly one-hour sessions will be
combinations of student presentations. Courses are
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
satisfies the American cultures requirement. Cranz

prefix=language course for business majors
prefix=course satisfies R&C requirement
prefix=professor of the Graduate School
prefix=recipient of distinguished teaching award
prefix(course satisfies American cultures requirement

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prefix=professor of the Graduate School
prefix=recipient of distinguished teaching award
prefix=course satisfies American cultures requirement

128. Architectural Internship. (25) Twenty-four hours of lecture/seminar and 160 hours of internship per semester. Prerequisites: 128 with consent of instructor. An intensive and structured exposure to the professional practice of architecture using the resources of practicing architects’ offices as the “laboratory.” (F,SP) Staff

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

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. Advanced Project Development Analysis. (1-4) (F,SP)

229B. Architectural Practice: Construction Document Phase. (1-4) (F,SP)

229C. Architectural Practice: Construction Phase. (1-4) (F,SP)

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

Design Theories and Methods

Upper Division Courses

130. Introduction to Design Theories and Methods. (3) Forty-five hours of lecture and 20 hours of discussion per semester. Formerly 130A. Comparison and discussion of the theories of environmental design, and development and testing of various methods, tools, and techniques available for environmental designers, especially psychological research. Particular emphasis lies on the difficulties of environmental design and related fields. (SP) Profren

131. Introduction to Computer-Aided Design in Architecture. (3) Three hours of lecture and three hours of laboratory 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,SP) Staff

132. Introduction to Computer-Aided Design in Architecture. (4) Three hours of lecture and three hours of laboratory 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,SP) Staff

133. Computer Applications in Architecture. A student may take sequentially 2 or 3 modules in one semester. The series of short courses (called “modules”) teaches how to use specific hardware/software tools. It is intended to build computing skills needed in other courses, such as design studios. The length and the number of units of each module depend on its content. Each module is a self-contained unit. Some have prerequisites, and some can be taken only in conjunction with another course, as noted. (F,SP,SP,SP) Staff

133A. Two-Dimensional Computing Techniques in Architecture. (2) Two hours of lecture per week. This course looks at the principal 2-Dimensional CAD techniques used by architects to create presentations, schematic drawings, and working documents. Emphasis will be placed on the generation of 2D architectural graphics, the integration of those graphics with nongraphic data, and the uses of disparate graphic approaches. (SP,SP,SP)

133B. Three-Dimensional Computing Techniques in Architecture. (2) Two hours of lecture per week. This course looks at the principal 3-Dimensional modeling techniques used by architects to create computer models, rendered images, and animation. Emphasis will be placed on the generation of 3D architectural graphics and their presentation. (SP,SP,SP)

133C. Virtual Simulation. (2) Two hours of lecture per week. This course will introduce students to digital image processing and computer models, image resolution, scanning, and digital photomontage.

The course will also introduce the basics of three-dimensional modeling, rendering, and simple animation production.

133D. Rendering and Animation. (1,2) Fifteen hours of lecture/seminar/laboratory per unit per semester. This course is a five-to-seven-week auxiliary course to 138, Advanced Computer-Aided Rendering and Animation. Students will learn how to operate computer-aided rendering equipment and software while being introduced to 3D modeling and animation principles. Lectures, demonstrations, discussions, and critiques conducted in a studio atmosphere of the subjects specified in the syllabus. The equipment used will be Silicon Graphics workstations. Most of the work will take place at the computers.

133E. Computer Applications in the Design Studio. (1,2) Fifteen hours of lecture/seminar/laboratory per unit per semester. Five-week module course. This module is an introduction to a specific design studio and is designed to facilitate the use of 2D drawing and 3D modeling CAD tools in the studio.

133X. Special Topics in Computer Applications. (1-2) One to two hours of lecture per week. Current topics in computer technology. Topics will vary by semester or offering.

134. Graphic Introduction to Computer Programming. (4) Three hours of lecture per week. This course presents the basic principles of computer programming and introduces beginning and interactive computer graphics. It develops the skills for the presentation, manipulation, and graphic display of images and text for use in computer-aided architectural design, through learning the programming language PASCAL, and user interfaces. (F) Kalay

135. Digital Design: Process and Methods of Modeling and Presentation. (3) Two hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: Consent of instructor. This course studies the process of architectural design using three-dimensional computer modeling programs and two-dimensional computer graphics programs. The objective is to gain an understanding of an alternative design methodology which supports traditional architectural practices. The vehicle for this study will be the design of a simple building, exclusively created via a computer. The completed three-dimensional building design will be used to study two-dimensional forms of representation and creative expression. (F,SP) Staff

136. Advanced Computer-Aided Rendering and Animation. (1-4) Course may be repeated for credit as topic varies. This is a computer class will enable students to carry out self-determined architectural or other projects in consultation with the professor and the GSI. There will be discussions, demonstrations, visits to current spatial and current animations, idea sessions, field trips, guest reviewers and lectures. Idea development beyond the original project will result from the interaction of the student with the computer and is designed to facilitate the use of 2D drawing and 3D modeling CAD tools. 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. Staff

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

230. Advanced Design Theories and Methods. (3) Forty-five hours of lecture/seminar per semester. Prerequisites: IDS 130A or consent of instructor. Design and planning methods, their theoretical foundations and practical applications.

231. Research Methods for Design. (2) Thirty hours of lecture/seminar per semester. Methods of scientific research and the use of research methods. Required for doctoral students in the area of Design Theories and Methods. (SP)

235. Seminar in Design Theories and Methods for Doctoral Students. (1) Course may be repeated for credit. Thirty hours of seminar/discussions per
semester. Must be taken on a satisfactory/unsatisfactory basis. Required for doctoral students in this study area. (F,SP)

239. Seminar in Design Theories and Methods. Course may be repeated for credit as topic varies. Prerequisites: 130A or consent of instructor. (SP)

239A. Design and Computers. (1-4)

239B. Environmental Models and Model Environments. (1-4) (F,SP)

239C. Ethics of Design. (1-4)

239X. Special Topics: Design Theories and Methods. (1-4) (F,SP)

Building Environments

Upper Division Courses

140. Introduction to Energy and Environmental Management. (4) Fifty hours of lecture and 30 hours of study per semester. Prerequisites: 130A or consent of instructor. Formerly 240A. This course covers thermal and solar design.

241. Research Methods in Building Sciences. (2) Course may be repeated for credit. Thirty hours of lecture/seminar per semester. Required for doctoral students in the area of environmental physics. (SP)

242. Building Energetics. (1) Fifteen hours of lecture/seminar offered first five weeks of semester. Prerequisites: 140 or consent of instructor. Preparation for advanced study in thermal building sciences. This course provides a theoretical basis for advanced elective courses in the energy area including principles of heat transfer, air flow, psychrometrics, and thermal comfort. (F)

243. Natural Cooling and Ventilation. (3) Forty-five hours of lecture/seminar per semester. Prerequisites: 140, 242 or 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. (SP)

244A. Pipes and Ducts: Mechanical Systems and Architectural Space. (2) Three hours of lecture for ten weeks. Exploration of mechanical systems in terms of their impact on architectural design, energy performance, and thermal comfort. Topics cover residential and commercial applications, centralized HVAC and innovative task conditioning systems, architectural systems integration, and field evaluation methods. Field trips, hands-on exercises, and design analysis give students a direct opportunity to see how real systems affect architectural space in real buildings. Brager

245. Daylighting Analysis Using Physical Models. (3) Three hours of lecture/seminar per semester. Prerequisites: 140 or consent of instructor. Scale models as a vehicle for the investigation of daylight in architectural space including issues of photometric measurement, qualitative assessment, temporal variability, and presentation technique. (SP)

246. Thermal Aspects of Building Design. (3) Three hours of seminar per week. Prerequisites: 140 or equivalent, consent of instructor. The thermal and lighting environments of buildings are qualitatively and quantitatively examined in detail. Climate effects on human comfort, building requirements, and design approaches will be studied using history, field observation, design/analysis software, and physical modeling. Students will design and graphically present the thermal qualities of a building and of a window, in one of two real current projects. The designs will incorporate new technology and energy standards. (F,SP) Arens

249. Special Topics in the Physical Environment in Buildings. (1-4) Course may be repeated for credit as topic varies. Fifteen hours of lecture/seminar per unit per semester. Prerequisite: 140.

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

Graduate Courses

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. (2) Course may be repeated for credit. Thirty hours of lecture/seminar per semester. Required for doctoral students in the area of environmental physics. (SP)

242. Building Energetics. (1) Fifteen hours of lecture/seminar offered first five weeks of semester. Prerequisites: 140 or consent of instructor. Preparation for advanced study in thermal building sciences. This course provides a theoretical basis for advanced elective courses in the energy area including principles of heat transfer, air flow, psychrometrics, and thermal comfort. (F)

243. Natural Cooling and Ventilation. (3) Forty-five hours of lecture/seminar per semester. Prerequisites: 140, 242 or 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. (SP)

244A. Pipes and Ducts: Mechanical Systems and Architectural Space. (2) Three hours of lecture for ten weeks. Exploration of mechanical systems in terms of their impact on architectural design, energy performance, and thermal comfort. Topics cover residential and commercial applications, centralized HVAC and innovative task conditioning systems, architectural systems integration, and field evaluation methods. Field trips, hands-on exercises, and design analysis give students a direct opportunity to see how real systems affect architectural space in real buildings. Brager

245. Daylighting Analysis Using Physical Models. (3) Three hours of lecture/seminar per semester. Prerequisites: 140 or consent of instructor. Scale models as a vehicle for the investigation of daylight in architectural space including issues of photometric measurement, qualitative assessment, temporal variability, and presentation technique. (SP)

246. Thermal Aspects of Building Design. (3) Three hours of seminar per week. Prerequisites: 140 or equivalent, consent of instructor. The thermal and lighting environments of buildings are qualitatively and quantitatively examined in detail. Climate effects on human comfort, building requirements, and design approaches will be studied using history, field observation, design/analysis software, and physical modeling. Students will design and graphically present the thermal qualities of a building and of a window, in one of two real current projects. The designs will incorporate new technology and energy standards. (F,SP) Arens

249. Special Topics in the Physical Environment in Buildings. (1-4) Course may be repeated for credit as topic varies. Fifteen hours of lecture/seminar per unit per semester. Prerequisite: 140.

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

Building Structures

Upper Division Courses

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

152. Introduction to Construction. (3) Forty-five hours of lecture and 20 hours of discussion per semester. Study of typical building subsystems, types of construction, choice of materials and details of design. (SP) Brunett

153. Performance of Wood in Structures. (3) Two hours of lecture and three hours of laboratory per week. Overview of properties and characteristics of wooden structural and non structural building materials as related to performance, including environmental and energy issues. Emphasis is on durability and hazard mitigation through proper design, construction, and maintenance. (SP) Beall

154. Design and Computer Analysis of Structure. (3) Thirty hours of lecture and 45 hours of laboratory per semester. Prerequisites: 150. Special topics such as building performance, production, and materials. For current section offerings see departmental announcement. Brunett

159. Seminar on Structures and Construction. Course may be repeated for credit as topic varies. Fifteen hours of lecture/seminar per unit per semester. Prerequisites: 150. Design and analysis of whole structural building systems with the aid of finite element analytical methods. Advanced structural concepts explored in a laboratory environment. Black

159X. Special Topics: Structures and Construction. (1-4)

Graduate Courses

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 techniques. A research paper and seminar participation are the basis for grading. (F) Comerio

254. Structures, Construction and Space in Great Historical Buildings. (3) Forty-five hours of lecture/discussion and thirty hours of laboratory work per semester. Prerequisites: 150 and 170. Study into the relationships between architectural space, structural behavior, and construction systems/methods in buildings from the Bronze Age to the present. Taught with History of Architecture. Finite element methods utilized for structural investigations. Offered even-numbered years. (F,SP) Arens

259. Special Topics: Structures and Construction. (1-4) Course may be repeated for credit as topic varies. Fifteen hours of lecture/seminar per unit per semester. (F,SP)

259X. Special Topics: Structures and Construction. (1-4) Course may be repeated for credit as topic varies. Prerequisites: 250 or 252 and consent of instructor.

Construction and Materials

259. Seminars in Building Process. Course may be repeated for credit. One hour of seminar per week per unit. Prerequisites: Consent of instructor. Current topics in building process. Topics vary by semester or offering.

259X. Building Process Atelier. (1-4)

History of Architecture and Urbanism

Upper Division Courses

170A-170B. An Historical Survey of Architecture and Urbanism. (4,4) Forty-five hours of lecture and 15 hours of seminar/discussion per semester. The first part of this course 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 social and historical context. (F,SP) Staff

172. Great Cities. (3,4) Forty-five hours of lecture per semester; additional 15 hours of seminar for one additional unit. Prerequisites: 170A-170B. A study of the physical fabric of a great city and its changing character through time.

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

174A. American Architecture. (3) Forty-five hours of lecture per semester. Prerequisites: 170A-170B and consent of instructor.

174B. Vernacular Architecture. (3) Forty-five hours of lecture per semester. Prerequisites: 170A-170B and consent of instructor.

174C. Vernacular Architecture. (3) Three hours of lecture per week. Prerequisites: 170A-170B. This course will introduce you to a variety of North American vernacular building traditions, to help you understand how people who are not academically trained as architects design and build, how buildings and landscapes are used, and what they mean to their builders and users. Topics to be explored include rural and urban house types, vernacular building systems, commercial architecture, the public landscape, and the vernacular landscapes of work and of religion, focusing on European, African, and Native American traditions that shaped the most familiar and widespread folk architectures, as well as on the urban landscapes of 19th- and 20th-century immigrants. We will look at built environments as expressions of ethnic and racial identities, organizers of social life, and conscious works of art. Also listed as American Studies C178B. This course satisfies the American cultures requirement.

174C. San Francisco Architecture. (3) Forty-five hours of lecture/seminar per semester. Prerequisites: 170A-170B and consent of instructor.

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

prefix:language course for business majors
prefix:cross-listed course
prefix:honors course
prefix:course satisfies R&Q requirement
prefix: suffix/course satisfies American cultures requirement
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 and consent of instructor. 10A and B. Projects in graphic form, color, and word-image relationships. 181. Introduction to Photography. (4) Thirty hours lecture and 75 hours studio per semester. Assignments testing standard materials, equipment, and processes for optimum performance resulting in a completed portfolio. Preference will be given to students in the College of Environmental Design. (F,SP)

282AC. Pictureting Identity. (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: Consent of instructor. This course uses photography to examine ways in which ideas of ethnicity are communicated and given visual form. Students will re-examine and compare ways in which different ethnic groups have been represented in the past and at present in fine arts, advertising, and mass media. Students will begin by collecting existing examples of representations from mass media and then visually interpret that material by working in collage and written word and by using other presentation formats, including documentary photography, persona, explorations of identity, and explorations of fine artists of color. This course satisfies the American cultures requirement. (F)

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. 185AC. 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 discursive textual/visual literacy. This course satisfies the American cultures requirement. Staff C185A. 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 discursive textual/visual literacy. Also listed as Undergrad Interdisciplinary Studies C135, American Studies C174, and English C143V. This course satisfies the American cultures requirement. Staff C185X. Special Topics: Word and Image. (1-4)

186. Selected Topics: Photography. Course may be repeated for credit as topic varies. Prerequisites: 181. Studio sections in Photography as an Art Form, Documentary Photography, Light and Motion Studies, and Artificial Lighting Photography. For current section offerings see departmental announcement. 186A. Documentary Photography. (1-4) Fifteen hours of lecture/seminar per unit per term for eight weeks. (F,SP) 186B. Light and Motion Studies. (1-4) (F,SP)

186C. Photography as an Art Form. (4) (F,SP) Staff 186X. Special Topics: Photography. (1-4) (F,SP)

187. Selected Topics: Drawing. Course may be repeated for credit. Prerequisites: Environmental Design 11A-11B and consent of instructor. 187A. Freehand Drawing. (1-4) (F,SP)

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

189. Seminar in Visual Studies. (1-3) Course may be repeated for credit. Fifteen hours lecture/seminar per unit per semester. Prerequisites: 180A-180B. For current section offerings see departmental publications.

197. 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 areas of design in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. See General Catalog regarding unit limitation toward the degree. (F,SP)

199. Individual Study and Research. (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)

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 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/seminar per unit per semester. Prerequisites: 181, 186. Advanced work in visual studies and photography. (F,SP)

281. Seminar in Photography. (3) Course may be repeated for credit. Forty-five hours of lecture/seminar per semester. Prerequisites: 181 and 186. Selected topics such as Seminar in Photography, Photography as an Art Form, or Environmental Photography. For current section offerings, see departmental announcement.

289. Seminar in Visual Studies. (2) Course may be repeated for credit. Fifteen hours lecture/seminar per semester. Orientation seminar required of all graduate students in the M.A. program in Visual Studies. (F,SP)

289G. Seminar in Visual Studies. (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 http://ls.berkeley.edu/dept/practice
Chair: Prof. Mary Lovelace O’Neil, M.F.A.
Professors
Anne L. Healy, B.A.
Mary L. O’Neil, M.F.A.
Richard S. Shaw, M.F.A.
Robert L. Hartman, M.A. (Emeritus)
Karl A. Kasten, M.A. (Emeritus)
James F. Melchert, M.F.A. (Emeritus)
George H. Myasky, M.F.A. (Emeritus)
David W. Varnum, M.F.A. (Emeritus)
Brian A. Wall (Emeritus)

Associate Professor
Katherine D. Sherwood, M.F.A.
Jerold G. Ballaine, M.F.A. (Emeritus)

Staff
Jerrold C. Ballaine, M.F.A.
Associate Professor
George J. Miyasaki, M.F.A.
Jerrold C. Ballaine, M.F.A.
James F. Melchert, M.F.A.
Richard B. Shaw, M.F.A.
Anne L. Healy, B.A.
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., the student must complete a minimum of four semesters of coursework that includes six graduate seminars, one 20th-century art history course, one upper division course, and 24 units of studio and independent study. Students must produce a comprehensive body of creative work, to be exhibited in a 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. (3) 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. Course work will be organized around weekly lectures and studio problems that will introduce students to the nature of art making and visual thinking. (F,SP)

12. The Language of Drawing. (3) Six hours of instructional and three hours of open studio per week. Prerequisites: 8A or 8B. A concentrated investigation of what painting on a two-dimensional surface can elicit from what is both observed and felt. Illustrated talks will help familiarize you with issues that have concerned painters in the 20th century. (F,SP)

13. Language of Painting. (3) Six hours of instructional and three hours of open studio per week. Prerequisites: 8A or 8B. A study of how interactions between physical form and the space it generates can serve as a metaphor. Field trips and illustrated talks will help acquaint you with the ideas that sculptors have explored in the 20th century. (F,SP)

Upper Division Courses

15. Lecture: Issues and Ideas in Contemporary Art. (1) One hour of lecture per week. A lecture designed to introduce students to issues, ideas, and works of art that comprise the context of contemporary art. (F,SP)

16. Introduction to Printmaking. (3) Six hours of lecture and three hours of open studio per week. This course examines and explores various print disciplines in a 15-week survey format. Students study and create traditional forms of printmaking including woodcut, lithography, intaglio, and screenprinting as well as newer approaches which include transfer and digital printmaking. Lectures and demonstrations introduce students to techniques and varied applications. This course is a prerequisite for upper division print courses. (F,SP) Staff

23. Digital Media Foundation. (3) Nine hours of studio per week. Server-based art course introduces principles of digital media creation from program to poetry through a combination of lectures, creative projects, and studio seminars. Topics: basic units of digital media, video, audio, and interactivity authoring, digital cinema, scripting, interactive art, web cam and net art. Final project is a student created ambient/dramatic performance. All course resources, projects, and reviews are web-based. Students must own networked computer. (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 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. (F,SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methodologies of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

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 one and two 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 producing art exhibitions—from selecting works to hanging and insuring them. Other students will learn concepts, skills and information they can use in their major courses. All students gaining credit from these courses will have to produce at least three short term papers analyzing their experiences and reflecting on the principles involved in their work. (F,SP) Staff

102. Approaches to Painting. (3) Course may be repeated for credit. Six hours of instructional studio and three hours open studio per week. Prerequisites: 10, 12, and 14 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. (F,SP) Staff

117. Drawing and Composition. (3) Course may be repeated for credit. Six hours of instructional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, and 15 or equivalents. Advanced drawing and composition, color and black-and-white, primarily on paper. Art 117 or 118 is required of all art majors. (F,SP)

118. Figure Drawing. (3) Course may be repeated for credit. Six hours of instructional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, and 15 or equivalents. Emphasis on the human figure seen in the context of pictorial space, dark and light and color. Various media. Art 118 or 117 is required of all art majors. (F,SP)

120. Approaches to Printmaking: Intaglio. (3) Course may be repeated for credit. Six hours of instructional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, and 15 or equivalents. An opportunity to discover what an artist can do with an etching press and a unfamiliar print processes such 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. (F,SP)

122. Approaches to Printmaking: Lithography. (3) Course may be repeated for credit. Six hours of instructional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, and 15 or equivalents. In lithography, the student must use both stone and metal plates. (F,SP)

124. Advanced Projects in Printmaking. (3) Course may be repeated for credit. Six hours of instructional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, and 15 or equivalents. In lithography, the student must use both stone and metal plates. (F,SP)

130. Approaches to Sculpture: Metal. (3) Course may be repeated for credit. Six hours of instructional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, and 15 or equivalents. The projects will introduce you to a variety of ways in which you can use metal to make spatial structures that will...
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speak to your esthetic imagination. Illustrated talks will acquaint you with the artists whose ideas and pro-
cesses are currently shaping the nature of metal sculpture in the 20th century. (F)

132. Approaches to Sculpture: Ceramics. (3) Course may be repeated for credit. Six hours of in-
stitutional studio and three hours of open studio per week. Prerequisites: 12, 13, and 15 or equivalents. An opportunity to learn the many ways of shaping and giving form to wet clay, then making it permanent by firing it. The instructor will explain the ideas that have engaged ceramic sculptors in many traditions and the processes that they have used to expand them. (F,SP)

133. Approaches to Sculpture: Mixed Media. (3) Course may be repeated for credit. Six hours of in-
stitutional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, and 15 or equivalents. Further experience with three-dimensional form in real space. The term “mixed media” refers to combining two or more materials to make an image, often ones not normally associated with sculpture making. This will be made clear through both the projects and il-

134. Advanced Projects in Ceramic Sculpture. (3) Course may be repeated for credit. Six hours of in-
stitutional studio and three hours of open studio per week. Prerequisites: 12, 13, 14, 15, and 132 or equivalents. Projects aimed at understanding and in-
venting ways in which time and change can become key elements in an artwork. Regular screenings of pro-
fessional tapes will illustrate uses of the mediums and provide a historical context. (F)

142. New Genres. (3) Course may be repeated for credit. Six hours of institutional studio and three hours of open studio per week. Prerequisites: 10, 12, 13, 14, 15 or equivalents. An opportunity to investigate topics and mediums on an ad hoc basis. The term “mixed media” refers to combining two or more materials to make an image, often ones not normally associated with sculpture making. This will be made clear through both the projects and il-

150. Art Analysis: Theory and Criticism. (3) Re-
quired of all art majors. Three hours of lecture per week. Prerequisites: 12, 13, 14, 15 and 142 or equivalents. Projects aimed at understanding and in-
venting ways in which time and change can become key elements in an artwork. Regular screenings of pro-
fessional tapes will illustrate uses of the mediums and provide a historical context. (F)

156. Special Topics in Visual Studies. (3) Course may be repeated for credit. Three hours of lecture and three hours of laboratory per week. Prerequisites: Con-
sent of instructor. Topics of concern to the instructor, usually related to current research, which may fall out-
side of the normal curriculum or be of more restricted content than traditional 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 con-

160A. Art, Technology and Culture, (2) Two hours of seminar per week. This seminar is held in conjunction with the Art, Technology and Culture Colloquium, a lecture series that presents renowned artists, scientists and cultural theorists in new media. The course will focus on discussion and critique of con-
temporary issues in the emerging digital medium that arise from the technical and social processes of the colloquium speakers. Emphasis will be placed on exploring common strate-
gies and themes inherent in the research and creative work of these interdisciplinary artists, technologists, and theorists, and building on relevant tools for the cri-

tical analysis of their work. Students will be required to participate in colloquium and seminar discussions, do background research on colloquium and related topics, and produce critical papers/ Net projects. The course is open to undergraduate and graduate students from all departments. (F,SP) Packet.

170. Information Art: Database and Interface. (4) Course may be repeated for credit. Nine hours of stu-
dio per week. Prerequisites: 23. This course will pro-
vide an overview of the emerging contemporary digiti-

ted anxious, strategies, trends, and socio-cultural aspirations. The goal of the course is to critique the influence of digital media on the arts as well as the broader culture, and to develop commen-
tary in the form of interactive projects for the Internet. The specific approach of the course is an exploration of the phenomena of digital art, especially net art, from two vantage points. The first hour will focus on core social or inherent aspects of digital art. These are aspects unique to the Internet or subjects or objects often explored in networks of digital media such as tele-

171. Digital Video: The Architecture of Time. (4) Course may be repeated for credit. Nine hours of stu-
dio per week. Prerequisites: 23. This hands-on studio course is designed to present students with a founda-
tion-level introduction to the skills, theories and con-
cepts used in digital video production. Non-linear 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 im-
age. This course will expose students to a broad range of industry standard equipment, film and video history, theory, terminology, field and post-production skills. Students will be required to technically master the dig-
tal media tools introduced in the course. Each week will include relevant readings, class discussions, guest speakers, demonstration of ex-

172. CGI Animation Studies. (4) Course may be repeated for credit. Nine hours of studio per week. Prerequisites: 23. Motion is an ubiquitous element of hu-
man experience, yet attempts to explain it remain incomplete. The representation of motion with technical means is in continuous development. Starting perhaps with sculptural representations of celestial movements in antiquity and leading to dynamic computer graphics simulations of molecular processes today. In this produc-
tion-oriented intensive studio course, we will study computer graphics for motion simulations, or animations. We will also probe these tools for their use in creative ex-
pression and analyze their impact on our perception of motion. Software used: Maya. (F,SP) Staff

174. Advanced Digital Video. (4) Nine hours of stu-
dio per week. Prerequisites: 23, 171, and 172. This ad-
vanced studio course is designed for students who have mastered basic skills and concepts involved in digital video production, and are interested in further in-
vestigating critical, theoretical, and creative research topics in digi-
tal video production. Also listed as Film Studies C187. (F,SP) Staff

175. Advanced Computer Graphics Production. (4) Nine hours of studio per week. Prerequisites: 23, 171, 172 or Film 185. Simulation of small, team-based CGI creative production environments is deve-
developed in Art 160 (Computer Animation II) or FS Screenwriting. Completed projects will be presented at final presentation night, and will be open to all stu-
dent animation reels. UCB will provide duplication ser-
vices for all completed projects. (F,SP) Staff

180. Advanced Problems in Drawing. (3) Course may be repeated for credit. Six hours of institutional stu-
dio and three hours open studio per week. Prereq-

189. Supervised Independent Study for Advanced Undergraduates. (1-3) Course may be repeated for credit. Course does not satisfy major requirement for art. 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 ad-
ditional three units (H195B) the following semester. (F,SP)

Graduate Courses

Only UC graduate students are allowed to take graduate courses in studio art.

200. Advanced Problems in Drawing. (3) Course may be repeated for credit. Six hours of institutional stu-
dio and three hours open studio per week. Prereq-

201. Workshop in Primary Research. (3) Course may be repeated for credit. Six hours of institutional stu-
dio and three hours open studio per week. Prereq-

202. Advanced Workshop in Printmaking. (3) Course may be repeated for credit. Nine hours of stu-
dio per week. Prerequisites: Graduate standing and consent of instruc-

203. Advanced Workshop in Sculpture. (3) Course may be repeated for credit. Six hours of institutional stu-
dio and three hours open studio per week. Prereq-

217. Digital Video: The Architecture of Time. (4) Nine hours of studio per week. Prerequisites: Film 25A and 28A or 28B with a grade of B+ or better and con-
sent of instructor. This one-credit 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 digi-
tal video production. Also listed as Film Studies C187. (F,SP) Staff

H195A-H195B. Special Study for Honors Candi-
dates in the Practice of Art. (3,3) Course may be ap-
plicated toward major requirements. Hours to be ar-
anged. Prerequisites: Eligibility for admission to the Honors Program. Honors students are required to take three units of H195A. They may elect to take an ad-
ditional three units (H195B) the following semester. (F,SP)

Graduate Courses

Only UC graduate students are allowed to take graduate courses in studio art.
History of Art
Office: 416 Doe Library #6020, (510) 643-7290 www.lib.berkeley.edu/arthistory
Chair: Whitney Davis, Ph.D.
Professors
Timothy J. Clark, Ph.D., London University, Modern art
Whitney Davis, Ph.D., London University, Ancient, modern, and theory of art history
Margaretta Lovell, Ph.D., Yale University, American and British art
Loren Patrice, Ph.D., Harvard University, Italian Renaissance
Andrew F. Stewart, Ph.D., Cambridge University, Greek and Roman art
Anne M. Wagner, 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 Millennium A.D.
*Sidvika Alpers (Emerita), Ph.D. Harvard University. 17th- and 18th-century art.
Michael Baxandall (Emeritus), M.A. Cambridge University. European art
James Cahill (Emeritus), Ph.D. University of Michigan. Chinese and Japanese art
*Jacques de Caude (Emeritus), Ph.D. Yale University. 18th-19th-century art
Peter H. Saltz (Emeritus), Ph.D. D.F.A. (Hon.) University of Chicago. Modern and contemporary art
Associate Professors
Patricia Berger, Ph.D. University of California, Berkeley. Chinese art
Darcy Gimado Gringsby, Ph.D. University of Michigan. European art since 1700
Christopher Hall, Ph.D. University of California, Berkeley. Roman art
Elizabeth Hong, Ph.D. Yale University. European art, 1400-1700
Gregory P. Levine, Ph.D. Princeton University. Japanese art
Darcy Grimaldo Grigsby, Ph.D. University of Michigan. Modern art
Margaretta Lovell, Ph.D. Harvard University. 17th- and 18th-century art.
*Sidvika Alpers (Emerita), Ph.D. Harvard University. 17th- and 18th-century art.
Michael Baxandall (Emeritus), M.A. Cambridge University. European art
James Cahill (Emeritus), Ph.D. University of Michigan. Chinese and Japanese art
*Jacques de Caude (Emeritus), Ph.D. Yale University. 18th-19th-century art
Peter H. Saltz (Emeritus), Ph.D. D.F.A. (Hon.) University of Chicago. Modern and contemporary art

Major Program
The major provides 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. Taking a multidisciplinary and fundamentally humanistic approach, the program provides majors with essential training in the perceptive, research, and critical skills required in many professions. Majors frequently go on to careers in the arts, law, or business as well as to graduate study in the history of art and careers in teaching, museum work, and conservation.

Undergraduate Curriculum. The major in history of art consists of no fewer than 12 courses, and must include the following:
1. Any three lower division lecture courses in the history of art.
2. One lower or upper division course in the practice of art.
3. Five upper division lecture courses in five of six fields presently taught in the department: Asian, Ancient, Medieval, Renaissance, Baroque, and Modern. One of these courses must be in Asian art unless the student has already taken a lower division course in this field;
4. Two additional upper division courses in the history of art, one of which must be a seminar;
5. One upper division course outside the department, related to the student's major focus of study. This course must be approved in advance by a departmental undergraduate major adviser.

All courses must be taken for a letter grade.

Honors Program. Students with at least a 3.5 grade-point average both overall and in all upper division courses taken to fulfill the requirements of the major are eligible for admission into the Honors Program. Candidates for honors in the History of Art are required to complete satisfactorily, within their senior year, an honors thesis, consisting of at least 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 special study). Those who have completed the program will graduate with honors, high honors, or highest honors in the major, depending upon their final GPAs in upper division courses taken to fulfill the major requirements. Applications, which require the signature of the project director and under-graduate major adviser, are available in the History of Art office.

Minor Program
Required: Five upper division courses in at least three of the six fields presently taught in the department: Asian, Ancient, Medieval, Renaissance, Baroque, and Modern. One course may be an upper division seminar; the rest must be lecture courses. All courses must be taken for a letter grade. An overall GPA of 2.0 is required in all courses applied to the minor. A minimum of three courses must be taken at Berkeley. The minor is not open to practice of art majors.

Recommended: R11B and two other lower division lecture courses (11, 30, 31, 34, 35, 40, 41, 51, 62) and one course in the practice of art, preferably drawing.

Graduate Study
The department offers a two-stage integrated master’s and doctoral program in preparation for college teaching, writing, and curatorial careers. Students are not admitted to work specifically for the M.A. degree, although it may be awarded to those working toward the Ph.D. after fulfillment of the requirements for Stage I of the M.A./Ph.D. program.

Preparation and Application for Admission
1. Undergraduate Training. Applicants must hold a Bachelor of Arts or its equivalent from an institution of acceptable standing. An undergraduate major in the history of art is not necessary. Students with high academic achievement in history, literature, practice of art, or similar humanistic disciplines are welcome. Those with little work in the history of art may have to complete some additional study to meet breadth requirements.
2. Post-M.A. Transfer Students. Students applying with an M.A. degree in history of art or a closely related field from another institution must submit their M.A. thesis or two substantial research papers with their application.
3. Statement of Purpose. Students should be as precise as possible in describing their intellectual background and interests in the history of art, their expectations for graduate study at Berkeley, and their academic and career goals.
4. Languages. Students are expected to be proficient in one or more of the appropriate foreign languages when they begin graduate study. The specific languages will vary according to the field of study (see Languages, below). Students are strongly urged to do everything possible to satisfy both language requirements before entering the program. We particularly recommend the summer before enrolling as a time to improve language proficiency.
5. Graduate Division Requirements. Applicants are encouraged to become familiar with Graduate Division regulations as described in the beginning sections of this catalog, specifically regarding GRE and TOEFL examinations, and minimum grade-point average.

Requirements for Completion of Stage I of the M.A./Ph.D. Program
1. Breadth. (a) Students of Western art: one upper division course or seminar in Asian art and in four of the following areas: Ancient; Medieval; Renaissance; Baroque, and Modern. Each course may be an upper division seminar; the rest must be lecture courses. All courses must be taken for a letter grade. (b) Students of Asian art: one upper division course or seminar in each of the three Asian areas (Japan, China, and Southeast Asia), and at least two upper division courses or seminars in one

B prefix=language course for business majors
C prefix=cross-listed course
H prefix=honors course
R prefix=course satisfies R&CE requirement
AC suffix=course satisfies American cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
or two of the areas of Western art listed above in (a). These requirements may be satisfied by previous coursework at the undergraduate level.

2. Course Work. Ten courses selected with the approval of the graduate adviser. One course may be counted toward the qualifying examination. There must be at least four semesters of lower division undergraduate coursework; the sequence of upper division coursework must be approved by the graduate adviser.

3. Courses in Western Art. Students must complete at least two graduate seminars with department faculty. For students in Western art, each course counts as one semester. Entering students are normally not eligible to enroll in any of these courses until after the third semester. In addition, first-time international GSIs must complete at the Berkeley Art Museum or in Europe an orientation workshop offered in the department each semester. All first-time GSIs must be from outside the department; all first-time GSIs must be enrolled in the M.A. program in History of Art.

4. Qualifying Paper or M.A. Thesis. The qualifying paper is a written document that presents a thesis proposal that addresses the scope and approach of the student's dissertation research. The student must submit a completed draft of the thesis proposal to the graduate adviser for review. The proposal must be submitted by the end of the third year of enrollment.

5. Dissertation. The dissertation is a book-length study of a problem in the history of art written under the supervision of a dissertation committee. The dissertation committee is nominated by the graduate adviser following consultation with the student. It consists of three Academic Senate members from the Berkeley campus, one of whom must be from outside the department. Dissertation chapters should be submitted to the committee, together with appropriate illustrations, as they are written. Normally the committee must receive the entire dissertation with illustrations, at least three months before the filing deadline.

6. Dissertation Writing Colloquium (History of Art 296). In order to break down the isolation of dissertation writing, establish dialogue among advanced graduate students, encourage productivity, and improve mentoring between advisers and students, all students in residence who have passed their qualifying exams and have written at least a first chapter of their dissertation will be expected to enroll for credit in the dissertation colloquium under the direction of the graduate adviser. The colloquium will meet at regular intervals throughout the academic year with appropriate directors.

7. Annual Review of Ph.D. Candidates. All doctoral students at the dissertation stage must meet with the dissertation committee, present a progress report, and have their dissertation plan reviewed. Enrollment in the colloquium is expected until at least two chapters have been presented (normally two semesters), but students are encouraged to enroll and present chapters until the dissertation is completed. Colloquium members also will be encouraged to take part in campus symposia such as the Berkeley Symposium.

8. Length of Stage II. Good progress means one year to the qualifying examination, plus three or four additional years for research and completion of the doctoral dissertation. Total time for Stage I and Stage II is six to seven years (seven to eight years for students of Asian or Ancient art).

Further information concerning the M.A./Ph.D. program may be obtained from the graduate student adviser, History of Art Department, 416 Doe Library #6002D, University of California, Berkeley; Berkeley, CA 94720-6002. You may also visit the Web site at http://www.lis.berkeley.edu/dept/arthist/ or e-mail arthist@socrates.berkeley.edu.

Berkeley Art Museum

The Berkeley Art Museum plays an active role in instruction and research, giving students an opportunity for experience in connoisseurship and organization of exhibitions. See Berkeley Art Museum in the Index for further information.

Lower Division Courses

11. Introduction to Western Art: Renaissance to the Present. (4) Three hours of lecture per week. Prerequisites: Subject A, English 1A, or equivalent. Formerly 1B. How do mechanisms of perception structure 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 history of art, it is intended for students with no previous course work in the field. Satisfies the second half of the Visual Literacy requirement. (F,SP) Students are normally not eligible for this course until after the third year of residence, unless they have already had teaching experience elsewhere. To qualify as a GSI, students in Western art must have satisfactorily completed the reading and Composition requirement. Students in Asian art must have satisfactorily completed the reading and Composition requirement.
of discussion per week. Prerequisites: May follow 1B or 10, though neither is required. Formerly 10B. An introduction to the history and visual character of Western art from the Renaissance to the present. Not a chronological survey, but an exploration of some of the major issues 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 flourishing of the work of art contribute to the emergence of modern society? Do stylistic labels like Classicism, Realism, Impressionism, and Modernism help us think about art in the past? This course is recommended for potential majors and for students in other disciplines, both humanities and sciences.

C16. Introduction to Islamic Art, (4) Three hours of lecture and one hour of discussion per week. An introduction to the art and architecture of Islamic lands from the seventh to the 17th centuries and to the practice of art history. Also listed as Near Eastern Studies C16.

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. 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 group setting. Freshman Seminars are offered in all campus departments, and topics may vary from department to department and semester to semester. Enrollment is limited to fifteen freshmen. (F,SP)

30. Art of India and Southeast Asia, (4) Three hours of lecture and one hour of discussion per week. This course surveys the arts of South and Southeast Asia from 2000 BC to the present, including painting, sculpture and architecture. It treats prehistoric material (Indus Valley, Dong Son), Buddhasch sculpture, Hindu temples and their images, and miniature painting. Art will be considered in relation to its religious, political, and social contexts. The course will normally focus on major monuments, seen from multiple viewpoints, or upon particular art forms. It will attempt to relate the art of this area to traditions of other parts of the world (or differentiate it from them). No previous background is presumed, and students will be introduced to basic art-historical methods of viewing and analysis.

31. Art of China, Japan, and Korea, (4) Three hours of lecture and one hour of discussion per week. A survey of selected works of painting, sculpture, architecture, and other art forms in China, Japan, and Korea (to a lesser extent) Korea. The course is intended to serve as an introduction to basic art-historical issues and methodologies. It attempts to provide a cultural and historical perspective for understanding the great monuments of East Asian art.

43. Arts of China, (4) Three hours of lecture and one hour of discussion per week. An introduction to the arts of China and China's many neighbors. Sections 1-3 to be graded on a letter-grade basis. The course is intended to serve as an introduction to basic art-historical issues and methodologies. It attempts to provide a cultural and historical perspective for understanding the great monuments of East Asian art.

35. Art and Architecture in Japan, (4) Three hours of lecture and one hour of discussion per week. This course is an introduction to art and architecture in Japan. It is intended for beginners to the history of art and/or to the study of Japanese history and culture. Lectures will survey six millennia of Chinese art thematically and chronologically, including the burial arts of the Neolithic period through the Tang dynasty (4th M. B.C.-10th C. CE), Buddhist and Daoist rituals, 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

39. Freshman/Sophomore Seminar, Course may be repeated for credit as topic varies. Seminar Format. Priority given to freshmen. (Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. 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 group setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

40. Introduction to Near Eastern Art: Egypt and Mesopotamia, (4) Three hours of lecture and one hour of discussion per week. Introduction to the arts and architecture of the early civilizations of Egypt and Mesopotamia. The course takes a thematic approach organized culturally (Egypt, Mesopotamia, Anatolia, and Iran) and chronologically (ca. 3200-300 BCE) in order to touch upon the most significant aspects of these ancient cultures. (F,SP) Staff

41. Introduction to Greek and Roman Art, (4) Three hours of lecture and one hour of discussion per week. An introduction to the major works, themes, and agents of Greek and Roman art and architecture. Participants will learn to acquire the perceptual and critical skills necessary for understanding these works; to analyze and interpret them; and to relate them to 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 exploration of the visual arts from the decline of the Roman empire to the beginnings of Early Modern Europe. The emergence of new artistic media, types of art, and strategies of making and viewing will be discussed alongside phenomena characteristic of the harshing historical changes at the time. Emphasis will be placed on the methods of interpreting the works, especially in relation to new social practices and cultural values. (F,SP)

62. Introduction to Italian Renaissance Art, (4) Four hours of lecture and one hour of discussion per week. Using a few selected examples drawn from Florence, Rome, Milan, and Venice, this course will introduce most types of art and architecture produced in the Italian Renaissance—including city squares, churches, palaces and libraries, and their painted and sculptural decoration. Special attention will be paid to various approaches used in interpreting works of art.

81. Introduction to Modern Art (for Non-Majors), (4) Designed for students with no previous study of the visual arts. Two hours of lecture and two hours of discussion per week. Selective survey of major developments in painting, sculpture, graphic arts, photography, architecture and design, primarily from about 1890 to about 1950. Emphasis will be placed on the analysis of examples in the Bay Area, on developing critical and writing skills.

84 Sophomore Seminar, (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/no pass basis. Some sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they graduate. (F,SP) Upper Division Courses

100. Theories and Methods of Art History, (4) Three hours of lecture and one hour of discussion per week. How art has been studied in the past? For whom, at whose expense? How do the rise of landscape painting, the cult of the artist, and the flourishing of the work of art contribute to the emergence of modern society? Do stylistic labels like Classicism, Realism, Impressionism, and Modernism help us think about art in the past? This course is recommended for potential majors and for students in other disciplines, both humanities and sciences.

106. Economies of Art, (4) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. An analysis of the effect of economic factors on the creation, content, reception, and value of works of art. Topics may include patronage, collaboration, citizenship, consumerism, etc. Detailed descriptions of current and future offerings available in room 416 Doe Library.

108. Cities and the Arts, (4) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. The study of various urban centers at particular times in relation to the art produced there. Emphasis may be placed on the rise of artistic centers and professional communities, the representation of places of power, learning or recreation, the construction of urbanity, the reaction to cities, etc. Detailed descriptions of current and future offerings available in room 416 Doe Library.

C120A. The Art of Ancient Mesopotamia: 3500-1000 BCE, (4) Three hours of lecture and one hour of discussion per week. The art 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 early kingdoms. The course provides an integrated picture of the arts of Mesopotamia and 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 and in the area will be incorporated when possible. Also listed as Near Eastern Studies C120A. (F) Feldman

C120B. The Art of Ancient Mesopotamia: 1000-330 BCE, (4) Three hours of lecture and one hour of discussion per week. The art of ancient Mesopotamia will be explored in terms of the social, political, and cultural context of the great empires of Assur, Babylon, and Persepolis. The course provides an integrated picture of the arts of Mesopotamia and neighboring regions from 1000-330 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 and in the area will be incorporated when possible. Also listed as Near Eastern Studies C120B. (SP) Feldman

C121A. 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 topics in Islamic art. Subjects addressed may include painting, calligraphy, and book production. Also listed as Near Eastern Studies C121A.

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 topics in Islamic art. Subjects addressed may include painting, calligraphy, and book production. Also listed as Near Eastern Studies C121B.

130A. Early Chinese Art, Part I, (4) Three hours of lecture and one hour of discussion per week. Chinese art of the Neolithic and Bronze Age. From the earliest period to the end of the Han dynasty (early third century A.D.), especially ceramics, bronzes, jade, and lacquer.


131A. Chinese Art through the T'ang Dynasty, (4) Three hours of lecture and one hour of discussion per week. The history of Chinese pictorial art and painting from the beginning of the T'ang dynasty through the Sung dynasty (618-1279) will be covered. Special attention will be given to the art and architecture of the T'ang dynasty (618-907) and the Sung dynasty (960-1279).

131B. Chinese Later Art, (4) Three hours of lecture and one hour of discussion per week. The history of Chinese art will be covered from the Yuan dynasty (1279-1368) through the Ming dynasty (1368-1644) and the Ch'ing dynasty (1644-1911). Special attention will be given to the art and architecture of the Yuan dynasty (1279-1368), the Ming dynasty (1368-1644), and the Ch'ing dynasty (1644-1911).

132. The Art of the Japanese Temple, (4) Three hours of lecture and one hour of discussion per week. The art and architecture of the Japanese Buddhist temples, 7th to 13th centuries.

133A. Early Japanese Painting. (4) Three hours of lecture and one hour of discussion per week. The three main topics within a carefully selected survey of Buddhist painting, narrative handscrolls, and painting in the art of the Japanese Zen masters will be covered.

133B. Later Japanese Painting. (4) Three hours of lecture and one hour of discussion per week. The art and architecture of the Japanese Buddhist temples, 14th to 17th centuries, with special attention to the art and architecture of the Japanese Zen masters.

141. The Art of Ancient Greece. (4) Three hours of lecture and one hour of discussion per week. The art of Ancient Greece will be covered from the early Cycladic period (c. 3500-2000 B.C.) to the fall of the Roman Empire (323 B.C.). Special attention will be given to the art and architecture of the Archaic period (700-400 B.C.), the Classical period (480-323 B.C.), and the Hellenistic period (323 B.C.-138 B.C.).

142. Art and the Body in Ancient Greece. (4) Three hours of lecture and one hour of discussion per week. The art of Ancient Greece will be covered from the early Cycladic period (c. 3500-2000 B.C.) to the fall of the Roman Empire (323 B.C.). Special attention will be given to the art and architecture of the Archaic period (700-400 B.C.), the Classical period (480-323 B.C.), and the Hellenistic period (323 B.C.-138 B.C.).
184. Art in Consumer Society. (4) Three hours of lecture and one hour of discussion per week. An introduction to modern art with particular emphasis on its relations to phenomena of mass society such as technology, the commodity, communication media, capitalism, fascism, etc.

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 postmodernism, this course addresses art and its social context over the last two centuries in which is now the United States. Issues include patronage, audience, technology, and the education of the artist as well as style and cultural expression. Field trips.

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.

185C. Contemporary American Art. (4) Three hours of lecture and one hour of discussion per week. In-depth examination of visual culture in America from 1960 to the present, with particular attention to theoretical issues and the intersections of art with the culture at large. Previous course work in History of Art recommended.

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. Art in Paris, 1900-1914, or Art and the First World War) or on a major artistic problem (e.g., Abstraction and Figuration).

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. interaction. The culture of 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 include conceptual, video, and performance art, as well as traditional media.

187A. Problems in 19th-Century Sculpture. (4) Three hours of lecture and one hour of discussion per week. Art of the 19th century: key issues, artists, and works, including the role of sculpture in urban space; relations to history and memory, technology, and commerce; uses of the body as a communicative vehicle, etc. Previous course work in history of art recommended.

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 course work in history of art recommended.

C119. The American Forest: Its Ecology, History, and Representation. (4) Three hours of lecture and one hour of discussion per week. The American forest will be examined in terms of its ecology, history, and representation. Issues include patronage, audience, technology, and the education of the artist as well as style and cultural expression. Field trips.

190. 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 and student involvement, please see individual instructor. Detailed descriptions of current and future offerings in this series available in 416 Doe Library. (F,SP)

190A. Asian. (4)
190B. Ancient. (4)
190C. Medieval. (4)
190D. 15th-16th Century. (4)
190E. 17th-18th Century. (4)
190F. 19th-20th Century. (4)
190G. American/British. (4)
190H. Precolombian/Latin American. (4)

191. Framing the Arts at UC Berkeley, (.5,1) Two hours of lectures/screenings per week for three weeks to 1/2 Unit. Two hours of lecture/screenings per week for six weeks for 1 Unit. The focus of this course varies based on the exhibits, screenings, and performances being presented at the Berkeley Art Museum, Pacific Film Archive, and Cal Performances. The work of well-established artists is used to illustrate historical trends; emerging artists. Intermedia-cutting-edge developments. This course encourages students to integrate the arts into their intellectual pursuits and develop lifelong habits of involvement in and appreciation of the fine arts. (F,SP) Stan Berger, Lovell

192. Undergraduate Seminar: Problems in Research and Interpretation. Course may be repeated for credit. Three hours of seminar per week plus extensive outside work. Prerequisites: Prior knowledge of junior and seniors in the major or consent of instructor. Concentration on specific problems or works in a particular area of art history, assigned readings, discussions, and a substantial paper. For general independent study see 195; for honors research, see H195.

193. Directed Research. (4) Prerequisites: Consent of instructor and departmental adviser. Intended for advanced undergraduates wishing to continue research on topics already begun in a lecture or seminar or to pursue at a high level specialized topics not ordinarily covered in the curriculum. Usually results in a substantial paper. For general independent study see 195; 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 pass/no pass basis. Prerequisites: Approval of undergraduate adviser; 192H recommended. Study and practice of the profession, 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 participating museum and a faculty member. The experience is tailored to advance in further, for additional information, inquire at 416 Doe Library.

H195. Special Study for Honors Candidates in the History of Art. (1-3) Must be the outside work. Prerequisites: Senior standing and qualifying scholastic record (3.5 GPA overall and 3.5 GPA in upper division courses completed in the major). Directed study leading to the completion of the senior 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 work per semester plus regular meetings with the faculty supervisor. Students to 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 no fewer than 35 pages. Other restrictions apply; see faculty adviser. Also listed as Undergrad Interdisciplinary Studies C196W, Women’s Studies C196W, Media Communications C196W, Political Science C196W, History C196W, Political Economy of Industrial Soc C196W, and Sociology C196W.

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor, major adviser and department chair. For students wishing to pursue an interest not represented in the curriculum by developing an individual program of study supervised by a faculty member. Study may involve readings, projects, papers, fieldwork, etc. For continuing or advanced research projects, see 193.

Graduate Courses

General prerequisites: Graduate standing and consent of the instructor, and possibly courses in the history of art and related languages.

200. Graduate Proseminar in the Interpretation of Art Historical Materials. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisite: Graduate standing and consent of instructor. An introduction to the fundamentals of art history, including traditional and innovative perspectives designed for candidates for higher degrees. Offerings vary from year to year. Students should consult the department’s “Announcement of Classes” for offerings before the beginning of the semester.

200X. Special Topics: Short Course. (2) Course may be repeated for credit. Four hours of lecture/seminar per week. Must be taken on a satisfactory/unsatisfactory basis. A four-week long course permitting the instructor to cover in depth a topic of particular interest. Topics and instructors vary; consult course description for details.

201. Museum Philosophy and Practice. (4) Three hours of seminar per week plus field trips and outside work. Prerequisites: Consent of instructor. Introduction to the history, philosophy, and methods of art museums including film and video for graduate and advanced undergraduate students in history of art, history of film, art practice, and related disciplines. Emphasis on connoisseurship and expository writing skills. Visits to Bay Area museums, conservation center, and media workshops.

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 Asia. It draws on 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 understood to “speak” as aesthetic vehicles and as cultural texts. Taught by two faculty members who have extensive experience as museum curators—one of American Art, the other of Asian Art, this class will combine theory with hands-on learning. (F,SP) Berger, Lovell

230. Seminar in Chinese Art. (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 Asia. It draws on 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 understood to “speak” as aesthetic vehicles and as cultural texts. Taught by two faculty members who have extensive experience as museum curators—one of American Art, the other of Asian Art, this class will combine theory with hands-on learning. (F,SP) Berger, Lovell

234. Seminar in Japanese 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.
236. Seminar in the Art of India. (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.

240. 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.

244. Seminar in Roman 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.

254. Seminar in Early Medieval 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.

256. Seminar in Byzantine 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.

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.

258. Seminar in Late Medieval Art in Northern Europe. (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.

260. Seminar in Italian Renaissance 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.

266. Seminar in Northern Renaissance 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.

275. Seminar in 18th-Century 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.

281. Seminar in 19th-Century 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.

283. Seminar in 20th-Century 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.

286. Seminar in 20th-Century Painting and Sculpture. (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.

288. Graduate Seminar in British 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.

289. Seminar in American 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.

290. Special Topics in Fields of Art History. (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. Topics explore themes and problems, often reflect current research interests of the instructor, and supplement regular curricular offerings. Detailed descriptions of current and future offerings available in 416 Doe Library. (F,SP)

296. Directed Dissertation Research. (3-12) Course may be repeated for credit. Independent study. Must be taken on a satisfactory/unsatisfactory basis. Independent study open to qualified students directly engaged upon the doctoral dissertation. (F,SP)

299. Special Study for Graduate Students in the History of Art. (1-12) Course may be repeated for credit. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. (F,SP)

601. Individual Study for Master’s Students in the History of Art. (1-12) Course may be repeated for credit. Course does not satisfy unit or residence requirements for master’s degree. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for master’s degree. Individual study in consultation with the graduate adviser. (F,SP)

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. Prerequisites: 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)

Professional Courses

300. Teaching the History of Art. (1-5) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and concurrent appointment as a graduate student instructor. Weekly meetings with the instructor to discuss the methods and aims of the course, to plan the content and presentation of the material for the discussion sections, and to set standards and criteria for grading and commenting upon papers and exams. (F,SP)

Major Requirements

Note: Some of the courses included in the major curriculum are pending approval. Please consult the online catalog for a departmental adviser for further information.

The major in Asian American studies consists of 12 courses for a total of 48 units.

Lower Division. Ethnic Studies 10A, 10B, Asian American Studies 20A, 20B.

Upper Division. Ethnic Studies 101A, 101B, and 103; completion of two elective courses, selected with the help of the student’s faculty adviser, from existing curriculum in history, community studies, and culture; Asian American Studies 195A and 195B; Asian American Studies 197 (4 units cumulative).

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 grade-point averages 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. To graduate with an A.B. with honors, students must obtain at least a 3.3 GPA for all course work undertaken at the University.
The Minor

Note: Some of the courses included in the minor curriculum are pending approval. Please consult the online catalog or a departmental adviser for further information.

Requirements. The minor in Asian American studies consists of five upper division courses for a total of 20 units: Ethnic Studies 101A or 101B; completion of four upper division Asian American elective courses (not including Asian American Studies 197).

Lower Division Courses

R2A. Reading and Composition. (4) Three hours of lecture and one hour of tutorial per week. Prerequisites: Subject A or equivalent. Formerly 2A. Through the study of the literary, political, social and psychological dimensions of representative works of Asian American literature, this course introduces students to close textual analysis, fosters critical judgment, and reinforces academic writing skills. Satisfies the first half of the Reading and Composition requirement. (F,SP)

R2B. Reading and Composition. (4) 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 from historical 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)

20A. 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 history. (F,SP)

20B. Introduction to the Contemporary Issues in the Asian American Community. (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)

24. Freshman Seminar. (Course may be repeated for credit.) Three hours of lecture per week. 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/no pass basis. This Freshman Seminar Program has been designed to help 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 major and small departments, and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Staff

98. Supervised Group Study. (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 and community-related activities. (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 Curriculum section of this catalog. Three hours of independent study per week per unit. 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 in America. (4) Three hours of seminar per week. Prerequisites: 20A or equivalent. Analysis of the similarities and dissimilarities of the Asian experience 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. Survey of 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 preseminar with selected topics in order to give students an opportunity to participate in the dynamics of the Asian American Historical. Topics include immigration, anti-Japanese racism, labor, concentration camps, agriculture, art and literature, and personality and culture. (SP)

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 issues related to the contemporary population influx. (SP)

124. Filippino American History. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. Topics include consequences of the Spanish-American War on Filippino emigration; conflicts in Hawaii and California and the need for Filippino labor; community development; changing relations between the U.S. and the Philippines; effects of independence movement and World War II on Filippino 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. This course will introduce students to the sociocultural, economic, educational, and political issues facing Southeast Asian refugees in the U.S. The while course focus is on the Asian American experience, references will be made to the pre-migration experiences and resettlement in Southeast Asian refugee groups. The processes and problems in the formulation of refugee programs and services in the U.S. also will be addressed in their implications for refugee resettlement and community 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 and resettlement in the U.S. in the context of the United States' involvement in Vietnam, Laos, and Cambodia during the Vietnam War. It will also address the post-war "legacies" and their impact on the societies and politics of the three 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. (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. Examines immigration and social 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 U.S.

129. Asians and Pacific Islanders in Hawaii. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. A course about the peoples of Hawaii from 1778 to the arrival of Captain James Cook to the present. A study of the society, culture, and economy of Hawaii in order to penetrate beneath the glamorous image of the islands. (F,SP)

130. Asian Americans and Foreign Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or equivalent. This course will examine immigration and cultural beliefs and ideas and their implications for Asian American communities. In analyzing interstate relations, students will gain insight into U.S. policies and interests in Asia-Pacific and the interaction of internal and external forces that shaped the Asian American experience and influenced the emergence and development of Asian American communities. (SP)

131. Asian Diasporas from an Asian American Perspective. (4) Three hours of lecture and one hour of discussion per week. Examines the global presence of an Asian group with a significant U.S. population: migration/settlement history, history of economic/political/cultural interactions between diasporic communities and with land of origin, impact on Asian American community/identity formation. Instructor selects groups(s). (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.

142. Asian American Psychology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. This course is designed to acquaint the student with the basic psychological concepts relevant to the mental health of Asian Americans with particular emphasis on the service delivery aspect. It attempts to correct the traditional deficiencies in the academic curricula, which fail to focus on the ethnic and cultural complexity of the Asian American communities in the area. 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 American community define issues and respond to political challenges.

146. Asian Americans and Education. (4) Three hours of lecture and 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, affirmative action and assimilation of Asian immigrants as well as theoretical models of
Asian American Studies

Asian American academic success will be explored and critically analyzed. (SP) Staff

150. Gender and Generation in Asian American Familial Systems. Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. The influence of cultural legacy, ethnic background, immigration history, community structure, class and economic status, and racism on gender and generational relations in the Asian American family. (SP)

151. Asian American Women: Theory and Experience. Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. Examines the historical and contemporary experiences of Asian American women in relation to 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)

155. Research Methodologies in Asian American Studies. Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 20B. Approaches to research in the Asian American community as a whole. Prerequisites: consent of instructor. (SP)

170. Asian American Historical Experiences Through Literature. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Examines literary treatments of defining moments in pre-1965 Asian American history (e.g., exclusion, migrant farmwork, plantation work, internment) through contemporaneous accounts and later representations. Compares and contrasts treatments of similar events by different authors. Explores representation, "historical memory" and narrativity, gender, and history writing, identity formation, etc. (F,SP)

171. Asian Americans in Film and Video. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Introduces students to films and videos by and about Asian Americans; presents an overview of the development of the Asian American media arts field in relation to current cultural theories and American film history and theory. (F,SP)

172. Asian American Literature. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Introduces students to representative works from Asian American literature by writers from the major ethnic subgroups; examines the works in their sociocultural context; analyzes thematic and formal elements intertextually to form a coherent understanding of the Asian American literary tradition. (F,SP)

176. Genre in Asian American Literature. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Investigates specific genres in Asian American literature (e.g., autobiographical, personal memoir, autobiographical fiction, poetry, short story) and the cultural contexts surrounding the production and consumption of these writings. (F,SP)

177. Asian American Art: Remapping Modernity: Art and Artists in the 20th Century. Three hours of seminar per week. Seminar in contemporary Asian American visual art, with 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)

178. Gender and Sexuality in Asian American Literature and Culture. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Explores gender/sexuality issues in Asian American literature and culture, such as simultaneous construction of gender/ethnicity/race/culture/heterosexuality/gender/sexism/feminist, and gay/bisexual cultural projects; the body; family relations; matrilineal and patrilineal traditions. Instructor selects focus. (F,SP)

179. Transnational Narratives by Asian Americans. Three hours of lecture and one hour of discussion per week. Prerequisites: 20A or 170 and consent of instructor. Analyses 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, postmodern, diasporic, and globalized views of transnational movement. (F,SP)

180. Chinese-Language Literature and Film on the Immigrant Experience. Three hours of lecture and one hour of discussion per week. Prerequisites: Reading knowledge of Chinese; consent of instructor. Analyzes representations of the life of Chinese immigrants in the U.S. in Chinese-language literature and film since the early 20th century, with emphasis on 1960s and beyond. All readings in Chinese; lectures primarily in English; in-class discussion and written assignments in either Chinese or English. (F,SP)

181. Chinese American Literature. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Analyzes literary representations of contemporary and/or historical experiences of Chinese Americans; genre, formal, and stylistic features; definition of cultural identity and development of literary tradition. Primarily English-language works, some translations from Chinese. (F,SP)

183. Korean American Literature. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Introduces the Korean American literary tradition in its sociocultural context, including the Philippines' unique historical relationship to U.S. imperialism; explores similarities and differences between this and other Asian American literatures. (F,SP)

184. Filipino American Literature. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Studies the Filipino American literary tradition in its sociocultural context, including the Philippines' unique historical relationship to U.S. imperialism; explores similarities and differences between this and other Asian American literatures. (F,SP)

187. Literature of the South Asian Diaspora. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Studies the South Asian diasporic communities in the Western Hemisphere; includes analysis of factors such as gender, class, region, caste, and racism in forming individual and collective subjectivities; may focus on specific subgroups depending on instructor. (F,SP)

190. Seminar on Advanced Topics in Asian American Studies. Four hours of discussion per week. Prerequisites: Consent of instructor. Formerly 176. Explores range of responses to issues and challenges facing South Asian diasporic communities in the U.S.; focuses on the production and consumption of these writings. (F,SP)

191. Philippine American Literature. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Formerly 176. Explores range of responses to issues and challenges facing South Asian diasporic communities in the U.S.; focuses on the production and consumption of these writings. (F,SP)

192. Seminar on Advanced Topics in Asian American Studies. Four hours of discussion per week. Prerequisites: Consent of instructor. Formerly 176. Explores range of responses to issues and challenges facing South Asian diasporic communities in the U.S.; focuses on the production and consumption of these writings. (F,SP)

195. Supervised Independent Study and Research. 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 leads to the writing of a major paper. Regular meetings with faculty sponsor. (F,SP) Staff

Asian Studies

(Advising Office: 101 Stephens Hall, (510) 643-5814 Graduate Office: 2223 Fulton Street, Room 524, (510) 642-0333 http://eas.berkeley.edu/gas/ Chair and Head Adviser: Bonnie C. Wade, Ph.D. Advisers Mary Elizabeth Barry (History) You Tien Hsing (Geography) David Johnson (History) Ashley Thompson (South and Southeast Asian Studies) Bonnie Wade, Chair (Music) Carolyn Wakeman (Journalism) Joannia Williams (History of Art) Jytendra Das Gupta (Emeritus) (Political Science)

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 one East Asian 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 the following:

1. One year (two semesters) of a language appropriate to the area of regional specialization (Area I—China; Area II—Japan).


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 course work is required:

1. One additional year of language appropriate to the area focus. After this 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 course work.

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 region outside the student's area focus.
Area Focus

China
1. Students must complete one additional year of Chinese (Mandarin). Further study of the language is encouraged and will count toward the major unit requirement.


3. Other courses (one course must be in the same discipline as the theory and methods course). Please see major adviser to determine appropriate course. Anthropology 123D, 170; Asian Studies 147, 148, 149; Chinese 101, 102, 120, 122, 132, 134, 136, 138, 140, 155, 156, 157, 181A-181B, 183A, 183B, 187, 190; Film 100; Geography 166; History 100 (when on China); 116A, 116B, 116C; History of Art 130A, 130B, 131A, 131B, 134; Legal Studies 161; Music 134A; Philosophy 153; Political Science 128, 129C, 137A, 137B, 137C, 138B, 138E, 143A-143B, 144A, 144B, 145B; Sociology 172; South Asian Studies 124, 127, 128, 130, 140, 141, 142, 143, 145; Southeast Asian Studies 122, 124, 128, 129, 130; and South and Southeast Asian Studies C112, 141; Women’s Studies 141, 142.

*These courses are appropriate when they include Asia 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.

Optional Senior Thesis
Qualified students may complete a senior thesis approximately 8-10 pages in length under the supervision of the major adviser or 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 grade-point average 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 courses H195A-H195B (3.0), which includes 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. Minimum requirements are five upper division courses with a C or better in each course. At least three of these courses must be completed at Berkeley; only one may overlap with those credited to the student's major. There is no Asian language requirement for the minor. Additional upper division language/literature courses may be used. For specific courses that satisfy minor requirements, see the department.

Graduate Program
The Group in Asian Studies offers an M.A. degree programmatically in Asian Studies. Students in the program emphasize one of four areas of Asia: East Asia (China), Northeast Asia (Japan/Korea), Southeast Asia, or South Asia. The group, in cooperation with the Graduate School of Journalism, the Walter A. Haas School of Business, and Boalt Hall, School of Law, respectively, also offers a concurrent J.D./M.A. in journalism and Asian studies, a concurrent M.B.A./M.A. in business administration 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 program is very restricted. Applicants with specific disciplinary interests should apply to a particular department rather than to the interdisciplinary group. Interested applicants should contact the Group in Asian Studies for additional information.

Lower Division Courses
10A. Introduction to Traditional Asian Cultures. (4) Three hours of lecture and one hour of discussion per week. This course will cover the period from the earliest origins to around 1600 for South, Southeast, and East Asia. Emphasis will be on historical and traditional history, although political and social history will also be introduced, and the approach will be interdisciplinary. Religious traditions will be depicted, along with geographical factors in the formation of Asian nation states, and the rise of urban centers. (F) Staff

10B. Introduction to Modern Asian Cultures. (4) Three hours of lecture and one hour of discussion per week. This course will cover the period from 1800 to 1950 for South, Southeast, and East Asia. Emphasis will be on social and political history, and the approach will be interdisciplinary. Issues that cut across national boundaries such as trade, development, colonialism, and urbanization will serve as unifying themes for five segments: India, Southeast Asia, China, Korea, and Japan. The course is designed to interest students in Asian cultures early in their undergraduate studies. (SP) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, introductory courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Each instructor will become faculty mentors for the students from the time they declare the major until they graduate. (F,SP)

98. Directed Group Study. (1-4) Course may be repeated for credit. Enrollment is by consent of instructor. Group study involves directed reporting on selected topics. (F,SP)

Upper Division Courses
147. Inside Revolutionary China: Studies in Memor, Fiction, and Film. (4) Three hours of lecture per week. Prerequisites: Consent of instructor as required. This course studies events, policies, and institutions in China over the last half century through the revealing reports provided in memoirs, profiles, fictional narratives, literary reportage, and feature film. Texts chronicle the personal experience of the revolution from the War of Resistance against Japan (1937-1945) through the post-Mao decade and the suppression of the 1989 democracy movement in Tiananmen Square.

148. China Reporting: Assessing the First Draft of History. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. This course explores the influence of American reporting on the development of U.S.-China relations. Students examine the role journalists have played in shaping public opinion and influencing foreign policy from 1956, the date of Edgar Snow’s classic Red Star Over China, to the 1990s. They also compare different accounts of major historical events as the Great Leap Forward and the Cultural Revolution to consider the importance and the difficulty of accurately reporting the China story. Journalists’ reports as well as memoirs, television footage, and documentary films provide the texts for this scrutiny of the first draft of China’s recent history. (F,SP) Wakeman

149. Media and Society in Contemporary China. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. This course explores the influence of American reporting on the development of U.S.-China relations. Students examine the role journalists have played in shaping public opinion and influencing foreign policy from 1956, the date of Edgar Snow’s classic Red Star Over China, to the 1990s. They also compare different accounts of major historical events as the Great Leap Forward and the Cultural Revolution to consider the importance and the difficulty of accurately reporting the China story. Journalists’ reports as well as memoirs, television footage, and documentary films provide the texts for this scrutiny of the first draft of China’s recent history. (F,SP) Wakeman

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Astronomy
(These courses may not be credited toward the major.

**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. Two hours of credit toward the 36 unit major requirement. Individually directed study of special topics approved by the chair of the Group in Asian Studies. (F,SP) Staff

**197. Field Study.** (1-4) Course may 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/credit basis. Prerequisites: Upper division standing and consent of instructor. Supervised experience relevant to specific aspects of Asian studies in off-campus locations. Regular individual meetings with faculty sponsor and written reports required. (F,SP) Staff

**194. Independent Study.** (1-4) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Two hours of consultation per meeting. Must be taken on a satisfactory/unsatisfactory basis. Group study of special topics approved by the chair of the Group in Asian Studies. (F,SP) Staff

**299. Independent Study.** (1-7) Independent conferences 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

**Astrology**

The Department of Astronomy offers undergraduate and graduate instruction in a wide variety of fields, including observational astrophysics; infrared, X-ray, and radio astronomy; galactic structure and dynamics of stellar systems; high-energy astrophysics and cosmology; and spectroscopy. A considerable amount of research and teaching related to astronomy is done in other units at Berkeley, including the Space Sciences Laboratory, the Astronomy/Earth and Planetary Science Department, and the Particle Physics and Astrophysics Department. Various professors in the Chemistry, Earth and Planetary Science, Mathematics, Statistics, and Engineering departments have an active interest in astronomy and are available for consultation.

A variety of instruments is available to students and staff, including 20-inch and 30-inch telescopes at Leuschner Observatory (near the campus), two 10-meter telescopes at the Keck Observatory on Mauna Kea in Hawaii, 30-inch, 40-inch and 120-inch telescopes at Lick Observatory, and a 10-element millimeter-wave interferometer at the Hat Creek Radio Observatory. Laboratories are available for the development of radio, infrared, and X-ray instruments, and for the precise measurement of images and spectra.

**The Major in Astrophysics**

During the first two undergraduate years, students must, in addition to fulfilling the credit requirements of the College of Letters and Science, pursue studies that will prepare them for future work in astronomy or in other careers that benefit from an education in a physical science, such as science teaching or technical positions in industry. Specifically, the department requires that during the first two years, and in any case before declaring the major, students take courses that provide a thorough understanding of the following:

1. **Basic principles of physics: mechanics, properties of matter, electricity and magnetism, heat, wave motion, sound and light.** (Physics 7A, 7B, 7C)
2. **Basic mathematics: analytic geometry, differential and integral calculus, differential equations, and linear algebra.** (Math 1A-1B, followed by Math 53 and 54)
3. **An introduction to astronomy.** (Astronomy 7A-7B)

In addition, students are urged to take any of the foreign language courses that will enable them to gain a speaking knowledge of German, Russian, French, or Japanese.

The last two years, leading to the A.B. degree in astrophysics, are spent in more intensive work, primarily in the fields of astronomy, physics, and mathematics. The specific plan of study to be followed by each student is worked out in consultation with the departmental advisers for the major, and must include 30 units of upper division work in astronomy and allied fields. For students who are double majors in astronomy and another science, the upper division requirement is reduced to 24 units. The major has been organized around two basic structures. All students, regardless of which structure they choose, are required to take at least one semester of graduate laboratory (Astronomy 120, 121, or 122).

**Focused Structure**, oriented toward students who are considering pursuing graduate study in astrophysics, has a strong emphasis on physics (particularly in electromagnetic and statistical physics). These students are required to take the senior-level courses Astronomy 160 and 161 and one of the laboratory courses (Astronomy 120, 121, or 122). Many such students pursue a double major in astrophysics and physics. Astronomy/Earth and Planetary Science C149 is also recommended, although it is not required. With the approval of a graduate adviser, outstanding students may take a graduate course in astronomy. Broad structure has been designed for students who have chosen not to go on to graduate school in astronomy. Such students include those who want to study astronomy simply for its intellectual appeal, and for the scientific and educational opportunities it provides.
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lectual and cultural interest, and those who want to use the major as a platform for later work or study in fields where a strong technical background in the quantitative understanding of complex physical systems is desirable. Students take Astronomy 149, 169, 160, C161, 169, and three upper division electives. Courses 7A and 7B are recommended for the minor but not required.

Graduate Programs

The graduate program is aimed at the Ph.D. degree. Entering students need not have majored in astronomy, although some background in astronomy is desirable. A strong background in physics is essential, however. In order to facilitate communicating with non-English-speaking scientists, entering students are urged to study at least one language of German, Russian, French, Italian, or Chinese as an undergraduate.

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 chosen by the student from a list of about 10. Students choose, with the aid of their advisor, courses in the department which are useful in preparing for the preliminary and qualifying examinations. In addition, students must pass two graduate courses taken outside the department and will receive no credit for 10 after taking 7A or 7B. Three hours of lecture and one hour of laboratory per week. Prerequisites: Physics 7A-7B (7B can be concurrent) or consent of instructor. This course is an introduction to general cosmology, observational astronomy, and life in the universe. (F,SP) Staff

10. Introduction to General Astronomy. (4) Students will receive no credit for 10 after taking 7A or 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, the solar system, and the universe. Additional topics optionally discussed include quasars, pulsars, supernovae, the interstellar medium, relativity and cosmology, history of astronomy, observational astronomy, and life in the universe. (F,SP) Staff

19. Seminar. (1.5) Course may be repeated for credit. Two to three hours of lecture per week. Prerequisites: 10 or consent of instructor. Berkeley Seminars are offered in all departments. These small-size undergraduate seminars are designed for sophomores and juniors interested in upper division undergraduate research. Berkeley Seminars are graded on a letter-grade basis. Sections 3-4 to be graded on a letter-grade basis. The course combines lectures in science education and teaching methodology and pedagogy with opportunities of supervision and 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. (F,SP) Basri, Davis, Graham

120. Optical Astronomy Laboratory. (4) Four hours of discussion and one hour of laboratory. Prerequisites: 7A-7B; Mathematics 53, 54; Physics 7A-7B-7C (7C may be taken concurrently). Formerly 120A. This course requires four to six hours per week. Students will be taught to select the most appropriate observational method for a specific research project, based on their knowledge gained from recent spacecraft missions, on the interstellar medium, galaxies, black holes, quasars, dark matter, the expansion of the universe, and the large-scale structure, and cosmology and the Big Bang. The physics in this course includes that used in 7A (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. (SP) Marcy, Quataert

122. Infrared Astronomy Laboratory. (3) Four hours of discussion and one hour of laboratory. Prerequisites: 7A-7B; Mathematics 53, 54; Physics 7A-7B-7C; Physics 110B recommended. Formerly 122B. Several basic laboratory experiments that concentrate on microwave electronic techniques and 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 astronomical observing projects including structure of the Milky Way galaxy, precise position measurements of several nearby radio sources, and measurement of the radio brightness distributions of the sun and moon with high angular resolution. There is a heavy emphasis on digital data acquisition, software development in the IDL language, and high-quality written reports. (SP) Backer, Blitz, Heiles

149. The Origin and Evolution of the Solar System. (3) Three hours of lecture per week. Prerequisites: 7A-7B recommended but not required. Mathematics 53, 54, Physics 7A-7B-7C. The story of the Sun and its planets. Topics include the solar nebula and modern observations of disks, the formation of the planets, planetary interiors and surfaces, planetary atmospheres and magnetospheres, and smaller bodies in the solar system. The physical processes at work are developed in some detail, and an evolutionary history of each object is expounded. Some discussion of other (potential)
planetary systems is also included. (F) Spindr, de Pater

C149. The Origin and Evolution of the Solar System. (3) Three hours of lecture per week. Prerequisites: 7A-7B recommended but not required. Mathematics 53, 54, Physics 7A-7B-7C or consent of instructor. The story of the solar system. Topics include the solar system, modern observations of the planets, the formation of the planets, planetary interiors and surfaces, planetary atmospheres and magnetospheres, and habitability of the solar system. Principles and processes at work are developed in some detail, and an evolutionary picture of each object is expounded. Some discussion of other (potential) planetary systems is also included. Also listed as Earth and Planetary Science C149. Chiang, de Pater, Spindr


202. Astrophysical Fluid Dynamics. (4) Three hours of lecture per week. Prerequisites: Formerly 201B. Also listed as Physics C285. The study of theoretical astrophysics. (F,SP)

203. Astrophysical Techniques. (3) Three hours of lecture per week and frequent laboratory work plus observation visits. Prerequisites: 201 and 290A, 290B must be taken concurrently. Introduction to the flow of astronomical signals through telescope optics and into detectors; subsequent calibration, deconvolution of instrumental artifacts, and analysis. A broad wavelength approach is maintained with focus on shared fundamental concepts. Students "adopt a wavelength band" for assignments and presentations. Analysis and simulation of astronomical signals, noise, and errors. (SP) Backer, Basri, Blitz, Grahem, Marcy, Welch

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

217. Stellar Atmospheres. (3) Three hours of lecture per week. Prerequisites: 201. Spectral characteristics of normal and peculiar stars. Interstellar absorption via model atmosphere, line profiles, curve of growth, etc. Line and continuous opacity, line-blanketing, convection, non-LTE, extended atmospheres. Current problem areas. (F) Basri, Marcy

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

228. Extragalactic Astronomy and Cosmology. (3) Course may be repeated for credit. Three hours of lecture per week. A survey of the field of extragalactic astronomy. Classification and morphology of galaxies, the distance scale, galaxy dynamics and masses, the stellar population of galaxies, clusters of galaxies, galaxy evolution, and active galactic nuclei (including Quasars). Cosmological models and the early universe. (SP) Davis, Filippenko, White

249. Solar System Astrophysics. (3) Three hours of lecture per week. Prerequisites: 127 series or consent of instructor. The physical foundations of solar system astronomy. The study of planetary atmospheres and surfaces. Meteors, comets, and the interplanetary medium. Observational techniques and problems. (F) de Pater, Jeanloz, Marcy

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

199. Supervised Independent Study and Research. (2-4) Credit: independent study. Must be taken on a pass/no pass basis. Prerequisites: 127A-127B. Enrollment is restricted by regulations in the General Catalog. (F,SP) Staff

Graduate Courses


202. Astrophysical Fluid Dynamics. (4) Three hours of lecture per week. Prerequisites: Formerly Physics 110A-110B, 113A-113B. Formerly C252 and Physics C252. Equations of stellar structure, radiative transfer and convection, stellar radiative processes, stellar energy generation; stellar models, degenerate configurations, evolutionary sequences, supernovae, neutron stars, black holes, nucleosynthesis. (F,SP) Arons, Flippenco, Marcy

C254. High Energy Astrophysics. (3) Three hours of lecture per week. Prerequisites: 201 or consent of instructor. Basic physics of high energy radiation processes in an astrophysics 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, Boggs, 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 Lagrangian and Eulerian astrophysical hydrodynamics and coupled radiation-hydrodynamics. N-body gravitation techniques including direct N-body, P-M, P&M and hierarchical Tree. Particle gas dynamics methods such as Smooth Particle Hydrodynamics (SPH), Adaptive SPH and unification of SPH and Tree hierarchies (TREE-SPH). Advanced techniques such as a higher order finite difference hydrodynamics with Adaptive Mesh Refinement (AMR). Applications of these approaches in three broad areas: Cosmology; High Energy Astrophysics and the Interstellar Medium. (SP) Klein, White

C285. Theoretical Astrophysics Seminar. (2) Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. The study of theoretical astrophysics. Also listed as Physics C285. (F,SP) Arons, Chiang, Quataert

290A. Introduction to Current Research. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Survey of research currently being performed in the Department or the University. (F) Backer

290B. Introduction to Current Research. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Continuation of 290A. Selection of a research topic with an individual staff member. (SP) Backer

291. Seminar. (F) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Topics will vary from semester to semester. See departmental announcements. (F,SP) Staff

299. Advanced Study and Research. (2-12) Course may be repeated 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. Independent study in consultation with the major field advisor, intended to provide an opportunity for qualified students to prepare themselves for the various examinations for the Ph.D. (and other doctoral degrees). May not be used for unit or residence requirement for the doctoral degree. (F,SP) Staff

Professional Courses

300. Instruction Techniques in General Astronomy. (2-4) Two hours of lecture per week. Must be taken on
Bioengineering

(College of Engineering)

Department Office: 459 Evans Hall, (510) 642-5833
http://bioeng.berkeley.edu
Chair: Thomas F. Budinger, M.D., Ph.D.

Undergraduate Program

The Department of Bioengineering at UC Berkeley, established in 1998, unites faculty and students, as well as academic and research programs at the University of California, San Francisco. The multidisciplinary undergraduate major is intended for academically strong students who excel in the physical sciences, mathematics, and engineering. It provides students an opportunity to learn how to apply the physical sciences and mathematics in engineering ap- proach to bioscience, and to integrate engineering and biological and medical sciences. There are two undergraduate programs, one in engineering and the other in bioengineering, which fall into eight areas of specialization.

Bioengineering is being created in phases. In Phase I, a Department of Bioengineering has been formed within Berkeley's College of Engineering, and a Division of Bioengineering is being formed within the School of Medicine at UCSF. Phase II will see the formal establishment of the joint intercampus structure.

Mission Statement

The Department of Bioengineering unites the intellectual and physical resources of Berkeley and UCSF to educate future practitioners of bioengineering, biology, and related disciplines of the future, and create new knowledge through cross-disciplinary research among engineering, biology, and medicine.

We believe that in the years ahead, biology and modern engineering will be seamlessly integrated to improve health and human productivity through major advances in medicine. We anticipate future breakthroughs in the design of drugs customized to an individual’s genome to the perfection of artificial implantable organs. Aggressive and intelligent integration of engineering and the biological and medical sciences can hasten the realization of these and other innovations, leading to longer, healthier, and more productive lives.

We can now visualize structures inside the body with a level of clarity that has thought impossible only a decade ago. With the improved diagnosis that comes from these advances and those that will follow, we will add further discoveries in the area of treatment. Today, miniature devices can be manipulated through endoscopes, making it possible to perform surgical procedures with minimal inva- sion and thus minimal trauma to the patient.

In the future, we expect that the microfabrication of devices pioneered in engineering at Berkeley will further enable surgery and increase the function- ality of the patient, and that biology in applications ranging from congenital defects to improving the function of major organs, such as the heart, kidneys, and liver. Other technologies of similar promise—breakthroughs in human tissue research may enable us to replace damaged or diseased bone, cartilage, and other tissue with engineered materials.

There is little doubt that these and other ex- traneous developments will occur over the next few decades. By merging the leadership and talents found in the College of Engineering with the physical and biological sciences at the University of California, Berkeley, the biological and health sciences at the University of California, San Francisco (UCSF), and the assets at the Lawrence Berkeley National Laboratory (LBNL), the Department of Bioengineering will be uniquely positioned to become a leader in this arena.

We believe that Berkeley and UCSF can lead the nation in advancing this new mode of medicine by educating a new type of engineer: a world-class bioengineer. In this spirit, we are dramatically in- creasing our student enrollments, investing in new faculty, staff, and facilities, expanding our research program, and integrating the broad range of bioengineering activities traditionally under way on our campuses. We foresee that, through the formal organiza- tional integration of our two institutions, we will develop new synergies between the University of California—department—that can achieve far greater results than either campus could working alone.

The two-campus Department of Bioengineering is being created in phases. In Phase I, a Department of Bioengineering has been formed within Berke- ley’s College of Engineering, and a Division of Bioengineering is being formed within the School of Medicine at UCSF. Phase II will see the formal establishment of the joint intercampus structure.

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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. Information is available in 467 Evans Hall.

G uidant Bioengineering Summer Research Program

The Guidant Bioengineering Summer Research Fellowship is a sponsored internship program for students performing research in bioengineering. Students are selected each summer in a compet- itive application process to participate in funded research projects with department faculty. The aim is for students to join a research lab and perform full-time research over a 10-week period during the summer. The culmination of the program is the annual symposium, during which students present the results of their research. The fellowship is open to UC Berkeley and UCSF students and industry representatives.

The Guidant Corporation, a work leader in the design and development of cardiovascular medical products, donates substantial funds for specialization in advanced areas of both bioengineering and biology, including laboratory and clinic equipment, and supplies.

Students can tailor their upper division programs to prepare specifically for graduate school; medical, dental or optometry school; or immediate em- ployment upon graduation. We currently offer courses which fall into eight areas of specialization: Biomechanics and Tissue Engineering, Bioinfor- matics and Genomics, Micromachines and Robotics, Computational Biochemistry, Biophysical and Sensory Systems Bioengineering, Biomedical Imaging and Signal Processing, Radiological Bioengineering, and Biomedical Systems Engineering.

Curriculum and Degree Requirements

A minimum of 122 semester units is required for the bachelor’s degree in bioengineering, including:

• Approximately 64 units in the lower division (described below) designed to provide a strong foun- dation in the physical and biological sciences and mathematics, as well as an introduction to the various fields of engineering normally applied to biol- ogy and medicine.
• Upper division study that combines advanced courses in engineering, physical and biological sci- ences, and mathematics and statistics. Some courses have clinical content.
• At least 40 units of approved technical courses (mathematics, statistics, science, engineering), of which at least 16 units are upper division engi- neering mathematics, or physics courses.
• Six courses of at least 3 units each in humanities and social studies, selected from an approved list of courses. (Please see the “Humanities and Social Studies” section of the Announcement of the Col- lege of Engineering.)
• One course with substantial ethics component to be chosen from an approved list.

Lower Division. Mathematics 1A-1B, 53, 54; Chemistry 1A, 3A, 3B (or 1A, 1B, 112A or 4A, 4B, 112A); Engineering 77 or C 61A or 61B; Physics 7A-7B; Biology 1A, and either Physics 7C or Biol- ogy 1B; Bioengineering 24; Electrical Engineering 40 or 100; Engineering 42, two to four humanities or social studies courses from the approved college list (reading and composition course recom- mended).

Upper Division. Eight bioengineering core courses, MCB 100 or 102; math/science elective; engineering elective; Bioengineering 153; biology elective or Chemistry 130A; technical elective; and two to four courses in humanities or social studies from the college list.

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annually to support the program. Each student participant receives a $3,000 fellowship and the opportunity to work closely with a faculty mentor. More information is available at http://bioeng.berkeley.edu/guidant/guidant.html.

Graduate Study
Graduate Group Executive Committee: Theodore E. Cohn, Ph.D. (Chair), Kevin Healy, Ph.D., Jeff Lotz, Ph.D., Sharmila Majumdar, Ph.D. (Co-Chair), Sarah Nelson, Dr. rer. nat (ex officio), Kimmen Sjölander, Ph.D.

The graduate degree (Ph.D.) in bioengineering is administered by the Joint UCSF/UCB Bioengineering Graduate Program in cooperation with the Department of Bioengineering. This program permits students to benefit from both the strong clinical and health sciences resources available on the San Francisco campus and the strong engineering and basic life sciences resources available on the Berkeley campus.

The program is interdepartmental as well as intercampus. It combines related interests and research activities of faculty from five of the seven engineering departments and from several non-engineering related departments. Membership of the faculty is from both the Berkeley and UCSF campuses. All students in the program are simultaneously enrolled in the Graduate Divisions of both the San Francisco and Berkeley campuses and are free to take any relevant courses and research opportunities on both campuses. The program awards the Doctor of Philosophy in Bioengineering degree from both campuses.

Students with a B.A. or B.S. degree in engineering, biology, or other science are eligible for admission. Students can obtain additional information and application materials by contacting the Bioengineering Program, College of Engineering, 467 Evans Hall, University of California, Berkeley, CA 94720-1762; (510) 642-9931; http://bioeng.berkeley.edu/graduate/index.html.

Lower Division Courses
24. Aspects of Bioengineering, (1) Course may be repeated for credit. One hour of seminar per week. This course is designed to give freshmen and sophomores an overview of a broad selection of bioengineering research that is currently underway at Berkeley and UCSF. The goal is to help students gain a feeling for the breadth of interesting problems in bioengineering research and the variety of ways that engineering principles can be applied to biological and medical problems. A series of one-hour seminars will be presented by researchers, professors, and doctors on their particular research areas. (FSP) Liepmann

Upper Division Courses
100. Ethics in Science and Engineering, (3) Three hours of lecture per week. This course will present the issues of professional conduct in the practice of engineering, in the conduct of research, in publication, in private and public disclosures, and in managing personal and financial conflicts. The method is through historical didactic presentations, case studies, presentations of technical methods for problem solving in ethical matters, and classroom debates on contemporary ethical issues. Faculty from religious studies, journalism, and law from the UC Berkeley campus will give guest lectures. (FSP) Budinger

115. Cell Biology Laboratory for Engineers, (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: Molecular and Cell Biology 110 or 130. The structural and functional characteristics of musculoskeletal tissues, bones, tendons, cartilages, are altered by cells in response to loading, injury, nutrition, and other factors. A contemporary understanding of the structural form, function and longevity includes knowledge of tissue ultrastructure, composition of matrix, and cell function. Students will be introduced to cellular and molecular biology and biochemistry techniques as they apply to the study of tissues including histology, image analysis, protein quantification, gene analysis and expression, and cell culture. By applying these techniques to the musculoskeletal tissues in the laboratory, students can learn the reliability and limitations of these tools. (FSP) King, Rempel

116. Cell and Tissue Engineering, (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Engineering 45 and Molecular and Cell Biology 102 or consent of instructor. Introduction to tissue engineering, analysis of cellular process, and cell engineering. Topics include bioreactor and mass transport, transplantation, artificial tissues, cell-matrix interaction, cell migration and cell mechanics, cell proliferation, stem cells, and cell manipulation. (SP) Li

C117. Structural Aspects of Biomaterials, (3) Three hours of lecture per week. Prerequisites: Biology 1A, Engineering 45, and Civil Engineering 130. This course covers the mechanical and structural aspects of biological tissues and their replacements. Tissue structure and mechanical function are addressed. Natural and synthetic load-bearing biomaterials for clinical and medical applications are reviewed. Biocompatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of tissues and biomaterials are covered. Material selection for load-bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology. Mechanical design for longevity including topics of fatigue, wear, and fracture. Use of bioresorbable implants and hybrid materials. Diagnostics in tissue engineering. Also listed as Mechanical Engineering C117. (SP) Prult

C118. Biological Performance of Materials, (3) Three hours of lecture per week. Prerequisites: Engineering 45 and Biology 61A (may be taken concurrently). Introduction to the problems associated with the selection and function of biomaterials. Structure-property relationships of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts developed include blood-materials compatibility, biometric materials, hard and soft tissue-material interactions, drug delivery, tissue engineering and biotechnology. Also listed as Materials Science and Engineering C118. (FSP) Healy

C119. Orthopedic Biomechanics, (4) Three hours of lecture and one hour of discussion/computer workshop per week. Prerequisites: Civil Engineering 130. For- merly C176. Students will learn the application of engineering concepts including statics, dynamics, optimization theory, composite beam theory, beam-on-elastic foundation theory, Hertz contact theory and material behavior. Topics include forces and moments acting on human joints; composition and mechanical behavior of orthopaedic biomaterials; design and analysis of bone-on-articular joint transitions; musculoskeletal tissues including bone, cartilage, tendon, ligament, and muscle; osteoporosis and fracture-prevention of bones; bone and bone adaptation. Students will be challenged in a MATLAB-based project to integrate the course mate- rial in an attempt to gain insight into contemporary design problems. Also listed as Mechanical Engineering C176. (FSP) Keaveny

121. Introduction to Micro and Nanobioengineering: BioMEMS, (3) Three hours of lecture per week. Prerequisites: Chemistry 38 and Physics 7B or consent of instructor. Biophysical and chemical principles of biomedical microelectromechanical systems (bioMEMS) for the measurement of biological phe- nomena and clinical applications. Micro- and nano- scale devices for the manipulation of cells and biomolecules. Topics include solid-state transducers, optical transducers, mechanical transducers, biomedical microelectronics, microfluidics, and hybrid integration of microfabrication technology. (FSP) Lee, Liepmann

C125. Introduction to Robotics, (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Electrical Engineering 120 or equivalent, and consent of instructor. An introduction to the kinematics, dynamics and control of robotic manipulators, vision, sensing, and the programming of robots. The course will cover forward, inverse kinematics of serial chain manipulators. The mechanics of force dynamics, relations, and dynamic-control, and force control. Trajectory generation, collision avoidance, au- tomatic planning of fine and gross motion strategies, robot programming languages, perception and force sensing. Network modeling, stability, and fidelity in teleoperation. Biological analogues and medical ap- plications of robotics. Also listed as Electrical Engi- neering C125. (FSP) Sastry, Tendick

131. Introduction to Computational Molecular and Cell Biology, (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Biology 1A, Mathematics 53 and 54 or Engineering 77, Computer Science 61A-61B; or consent of instructor. Top- ics include computational approaches and techniques to gene structure and finding, sequence alignment, dynamic programming, protein folding and structure prediction, protein drug interactions, genetic and bio- chemical pathways and networks, and microarray analy- sis. Various case studies in these areas are reviewed and web-based computational biology tools will be used by students. Computational connections to biotechnology will be explored. (FSP) Head-Gordon

C141. Statistics for Bioinformatics, (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Computer Science SC 59 or SC Engineering 77 or equivalent; Math 53, 54. Study of bioinformatics problems such as DNA pattern finding, gene expression data analysis, molecular evolution models, and biомolecular sequence database searching. Intro- duction of the necessary probability and statistics: events, conditional probability, random variable, estimation, testing, and linear regression. Also listed as Statistics C141. (FSP) Budinger, Speed, Yu

142. Programming and Algorithm Design for Com- putational Biology & Genomics Applications, (4) Three hours of lecture and one hour of laboratory per week. Prerequisites: Math 54 and Molecular and Cell Biology 102; Engineering 77, or Computer Science 61A, or Science 61B or consent of instructor. This course will introduce students to structured software development and select principles of computer science with applications in computational biology and allied disciplines. The principle language used for instruction will be Java with a Java module on Perl. Examples and tutorials will draw from problems in computational biology. The course will require one significant pro- gramming project, preferably biologically oriented. (FSP) Arkin

143. Computational Methods in Biology, (4) Three hours of lecture per week. Prerequisites: Math 53, Math 54, Chemistry 130A, and Bioengineering 142; or consent of instructor. A course in thermodynamics, such as Mechanical Engineering 102, is recommended. Topics include thermodynamics, statistical mechanics, classical mechanics, and quantum mechanics that connect most directly to modern simula- tion methodology. Various case studies in the areas of classical dynamical simulations, ab initio dynamics, and Monte Carlo techniques will be covered. The ar- eas of mathematical optimization and “non-analytic” computation such as neural networks and Hidden Markov Models will also be considered. (FSP) Head- Gordon

144. Introduction to Protein Informatics, (4) Three hours of lecture and three hours of computer labora- tory per week. Prerequisites: Molecular and Cell Bi- ology 103 or 102. The course is designed to provide an introduction 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 impart both a theoretical understanding of fundamental computational methods and practical hands-on ex- perience with protein sequence analysis methods ap- plied to real data. (FSP) Spolander

C146. Topics in Computational Biology and Ge- nomics, (4) Three hours of lecture and one hour of
Mechanical Engineering C212. (F,SP)
Applications to biomedical engineering. Also listed as models and discussion of experimental procedures. biological systems; organic molecules, cells, biological requisites: Mechanical Engineering 106, 109.

C215. Macromolecular Science in Biotechnology and Medicine. (3) Three hours of lecture per week. Prerequisites: 142, Computer Science 61A, or equivalent ability to.

C216. Molomak Science in Biotechnology and Medicine. (3) Three hours of lecture per week. Prerequisites: Computer Science 61A, or equivalent ability to.

C222. Polymer Engineering. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course will cover the principles and application of molecular sequence comparison, genome sequencing and functional annotation, and phylogenetic analysis. Also listed as Molecular and computational biology.

C223. Advanced Topics in Neural and Sensory Systems Engineering. (1-3) (F,SP)

C246. Topics in Computational Biology and Genomics. (4) Three hours of lecture/fieldwork per week. Overview of computational biology 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 modeling. Field trips to medical imaging laboratories. Also listed as Electrical Engineering C145B. (SP) Bussen

C279. Occupational Biomechanics. (4) Three hours of lecture and one and one-half hours of paper and review, discussion per week. Prerequisites: 142, Computer Science 61A, or equivalent ability to write programs in Java, Fortran, C, or C++. Molecular and Cell Biology 100, 102, or equivalent, or consent of instructor. Instruction 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 and functional annotation, and phylogenetic analysis. Also listed as Plant Biology C246 and Molecular and Cell Biology C246. (SP) Brenner, Eisen

C290F. Advanced Topics in Biomedical Imaging and Signal Processing. (1-3) (F,SP)

C290G. Advanced Topics in Radiological Biomedical Engineering. (1-3) (F,SP)

C290H. Advanced Topics in Biomedical Systems Engineering. (1-3) (F,SP)

C290I. Advanced Topics in Special Topics in Biomedical Engineering. (1-3) (F,SP)

C290J. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290K. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290L. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290M. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290N. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290O. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290P. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290Q. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290R. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290S. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290T. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290U. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290V. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290W. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290X. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290Y. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C290Z. Advanced Topics in Biomedical Engineering. (1-3) (F,SP)

C310L. Laboratory for Biology 11. (2)

C310M. Laboratory for Biology 11. (2)

C310N. Laboratory for Biology 11. (2)

C310O. Laboratory for Biology 11. (2)

C310P. Laboratory for Biology 11. (2)

C310Q. Laboratory for Biology 11. (2)

C310R. Laboratory for Biology 11. (2)

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H prefix=honors course
C prefix=cross-listed course
AC suffix/course satisfies American cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Biophysics
(College of Letters and Science, Interdepartmental Graduate Group)

Graduate Group Office: Mail: 343 Mulford Hall #3202, (510) 642-3411
E-mail: compbio.lbl.gov

Head Adviser: Robert M. Glaeser, Ph.D.

Assistant Professors
David E. Wemmer, Ph.D. University of California, Berkeley. Eukaryotic gene expression.
Richard A. Steinhardt, Ph.D. Columbia University. Cellular physiology, neurophysiology, and developmental physiology.
W. Geoffrey Owen, Ph.D. Imperial College, London. Membrane proteins, structural biology.
Richard A. Mathies, Ph.D. Cornell University. Biophysical chemistry.

Susan Marquesse, Ph.D., M.D. Stanford University. Protein chemistry.
Sung-Hou Kim, Ph.D. University of Pittsburgh. Biophysical chemistry.
Donald A. Glaser, Ph.D., Sc.D. California Institute of Technology. Membrane biophysics, retinal neurophysiology.
Wayne J. Freeman, Neurophysiology, neuropsychology, and computational biology.

Warren Winkelstein, Jr. Assistant Adjunct Professor
Michael Eisen, Ph.D. University of California, San Francisco. Genomics, bioinformatics.

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.

Undergraduate students interested in pursuing graduate work in biophysics typically acquire underraduate training in one of the basic sciences and take key courses in biology during the first year. Other individual deficiencies may be removed during the early stages of graduate study. Graduate courses are listed in this catalog among the offerings of the Department of Molecular and Cell Biology and the Department of Chemistry. Among other possibilities. Further information is available from the group office.

Biostatistics
(College of Letters and Science and School of Public Health)

Group Major Office: 101 Haviland Hall, (510) 642-3241
Mailing Address: 140 Warren Hall #7360

Head Adviser: Robert Glaeser, Ph.D.

Assistant Adjunct Professor
Michael Eisen, Ph.D. University of California, San Francisco. Genomics, bioinformatics.

Preparation for Graduate Study
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. Entering students who are not adequately prepared in mathematics, statistics, and the subject matter area may have an opportunity to fulfill some of these prerequisites during the first year of graduate study.

Research Facilities
Graduate students in the group have direct access to a variety of specialized computers as well as the services of the campus computing facilities. Research activity of the faculty currently includes bio-statistical 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.
Robert H. Edelston (Chair in Real Estate Development), Ph.D. Harvard University. Real estate, investment, philosophies of the real estate business.

Robert T. Green (Chair in Business Administration), Ph.D. Harvard University. Organization theory, management, strategic planning.

Robert H. Reitano (Chair in Entrepreneurship and Innovation), Ph.D. University of North Carolina. Entrepreneurship, organization theory, and innovation.

Paul J. Gertler (Chair in Finance), Ph.D. Harvard University. Economic development, international finance, health economics.

Rash H. Glazer (Chair in Marketing), Ph.D. Stanford University. Marketing strategy, decision models, marketing communications.

Benjamin E. Hermalin (Wells H. Booth Chair in Banking and Finance), Ph.D. Stanford University. Corporate governance, agency problems, securities regulation.

Teck H. Ho (Chair in Accounting), Ph.D. University of Pennsylvania. Quantitative analysis, accounting, operations research, and computer science.

Dent J. Hochbaum (Chair in Technology), Ph.D. Massachusetts Institute of Technology. Operations research, computer systems, algorithms.

David J. Lee (Chair in Business Finance), Ph.D. Massachusetts Institute of Technology. Finance, corporate finance, economics of organizations, applied microeconomics.

Robert E. Litan (Chair in Urban Economics and Real Estate), Ph.D. Columbia University. Urban economics, real estate, land use planning.

Lewis E. Sayles (Chair in Labor and Employment Relations), Ph.D. University of California, Los Angeles. Labor economics, collective bargaining, labor-management relations.

Michael S. Tushman (Chair in Innovation Management), Ph.D. Harvard University. Innovation, organizational change, organizational theory.

Richard L. Schmalensee (Chair in Economics and Management), Ph.D. Harvard University. Economics, management, microeconomics, managerial economics.


Mark B. Garman (Chair in Finance), Ph.D. Harvard University. Financial markets and regulation, capital structure, financial institutions.

Robert S. Winer (Chair in Accounting), Ph.D. University of California, Los Angeles. Accounting, financial reporting, financial analysis.

Russell S. Winer (Chair in Marketing Strategy), Ph.D. Carnegie-Mellon University. Marketing, consumer choice models.

Ganapathy V. Rajan, Ph.D., Massachusetts Institute of Technology. Marketing, manufacturing models of product scheduling.

Janet L. Yellen (Eugenia and Catharine M. Tretiach Chair in Business Administration), Ph.D. Yale University. International economics, macroeconomics.

David A. Aaker (E. T. Grether Chair in Marketing and Public Policy), Ph.D. Harvard University. Consumer behavior, advertising, market research.

David H. Beatty (Chair in Business Strategy), Ph.D. Harvard University. Financial institutions, economic behavior.

Hector R. Anton (Emertus) (Chair in Economics and Finance) (Chair in Finance and Economics), Ph.D. University of Minnesota. Accounting, corporate finance.

K. Rolfe Burt (Emertus) (Chair in Economics), Ph.D. Princeton University. Strategy, financial services, marketing systems.

Louis P. Buckley (Emertus) (Chair in Marketing), Ph.D. Northwestern University. Marketing strategies, distribution, and pricing.

James M. Garman (Emertus) (Chair in Business Administration), Ph.D. Michigan. Investment analysis, corporate finance, organizational economics.

Alan R. Carl (Emertus) (Chair in Economics), Ph.D., CPA. Stanford University. Taxation, real estate, accounting.

Eiel F. Chell (Edgar and F. Kaiser Professor of Business Administration, Emeritus and Dean Emeritus), Ph.D., J.D., D.H.L. (hon.) University of Minnesota. Business government, finance, policy, education.

G. West Churchill (Emertus) (Chair in Business Administration), Ph.D. University of Pennsylvania. Ethics, statistics, psychology, systems analysis.

Robert E. Cole (Emertus) (Chair in Economics), University of Illinois. Work organization, industrial relations, organizational change.

Michael Conant (Emertus) (Chair in Economics), Ph.D. University of Chicago. Antitrust economics, public policy, regulation.

Edwin M. Epstein (Emertus) (LL.B. Yale University). Business ethics and corporate behavior.

Joseph W. Garbarino (Emertus) (Chair in Business Administration), Ph.D. Harvard University. Industrial relations, organization theory, organizational behavior.


Nils H. Hakansson (Emertus) (Chair in Finance), Ph.D. University of California at Los Angeles. Investment theory, financial structures, accounting.

Austin C. Hoggett (Emertus), Ph.D. University of Minnesota. Business school, marketing, finance and accounting.

Richard H. Helton (E. T. Grether Chair in Marketing and Public Policy), Ph.D. Harvard University. Marketing, marketing management, international business, strategy.

Daniel Kahanem (Emertus) (Chair in Business Administration), Ph.D. University of California, Los Angeles. Accounting, taxation, financial management.

Van Dusen Kennedy (Emertus) (Chair in Business Administration), Ph.D. Columbia University. Industrial relations, environment of business.

John G. Myers (Emertus) (Chair in Finance), Ph.D. Northwestern University. Advertising, communications, new product development.

Charles A. O'Reilly (Lornaine Tyson Mitchell Chair in Leadership and Communication), Ph.D. University of California, Berkeley. Employee commitment, organizational culture.

David H. Pyo (Wells H. Booth Professor in Banking and Finance), Ph.D. Massachusetts Institute of Technology. Financial institutions, corporate finance.

Albert H. Schlaaf (Emertus) (Chair in Business Administration), Ph.D. University of California at Los Angeles. Economic analysis and policy.


Jonathan B. Berk (Harold Furst Chair in Management (Harold Furst Chair in Management), Ph.D. University of Chicago. Financial markets, capital structure, investment analysis.

Maurice Moonitz (Chair in Business Administration), Ph.D. Columbia University. Corporate finance, econometrics, accounting.

Baruch I. Lev (Chair in Accounting), Ph.D. University of Illinois. Financial accounting, microeconomics, organizational economics.

Robert H. Edelston (Chair in Real Estate Development), Ph.D. Harvard University. Real estate, investment, philosophies of the real estate business.

Robert T. Green (Chair in Business Administration), Ph.D. Harvard University. Organization theory, management, strategic planning.

Robert H. Reitano (Chair in Entrepreneurship and Innovation), Ph.D. University of North Carolina. Entrepreneurship, organization theory, and innovation.
Undergraduate Program

The highly competitive, two-year Haas Undergraduate Program accepts applications from both transfer and continuing UC Berkeley applicants. The program’s goal is to provide students with the knowledge and technical skills necessary to understand the modern business world, to prepare for subsequent graduate work, and to achieve the highest levels of success in their professional careers. Students earn a Bachelor of Science degree that takes a general management perspective. Course work is fully integrated with the University’s liberal arts curriculum, allowing students to gain a broad perspective on business management and its environment. Students are challenged to develop creative and innovative solutions to contemporary business problems and to develop leadership skills and a sense of community service through classroom experiences and extracurricular activities.

Students preparing for admission to the Undergraduate Program may complete required lower division courses in any college in the University or equivalent courses at other institutions. Before applying to the school, you should visit our web site at http://www.haas.berkeley.edu/Undergrad. The web site contains complete information concerning academic qualifications for admission, with details about prerequisites and degree requirements. Because there are many more applicants than spaces available, completion of the prerequisites does not guarantee admission.

Upon admission, business majors must take the following upper division core courses at Haas:

- UGBA 100—Business Communication

- UGBA 101A—Microeconomic Analysis for Business Decisions

- UGBA 101B—Macroeconomic Analysis for Business Decisions

- UGBA 102A—Introduction to Financial Accounting

- UGBA 102B—Introduction to Managerial Accounting

- UGBA 103—Financial Management

- UGBA 105—Organizational Behavior

- UGBA 106—Marketing

- UGBA 107—Social and Political Environment of Business

Beyond these required core courses and other courses outside the Haas School needed to fulfill the degree requirements, business majors must take additional classes from the following nine business disciplines: accounting, business and public policy, economics and policy, finance, general management, marketing, operations and information technology management, organizational behavior and industrial relations, and real estate and urban land economics.

Graduate Degrees

The Haas School of Business offers curricula leading to the Master of Business Administration degree, Master’s in Financial Engineering, and the Ph.D. degree. The Haas School offers three MBA programs: a two-year program for full-time students, the Evening and Weekend MBA Program, and the Berkeley-Columbia Executive MBA, 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 unsurpassed education in the fundamentals of management and in-depth exposure to the trends shaping the foundations of business. It brings together over 1000 men and women from around the world and teaches them to be 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 action. In addition, the program is shaped by its flexible curriculum, 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 serious scholarship and a global outlook. With approximately 30 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
- M.B.A./M.A. in Asian studies with the Group in Asian Studies; and
- M.B.A./M.I.A.S. in international and area studies.

In addition, two joint curriculum programs are offered:

- The Management of Technology Certificate, a joint program with the College of Engineering
- The Real Estate Development Program with the Department of City and Regional Planning and the Center for Real Estate and Urban Economics.

Curriculum. Students in the full-time program must complete 51 semester units to graduate: 20 units of core required courses and 31 units of electives. 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 degree requirements, courses out of standing men and women, such as languages or law, and they are encouraged to take full advantage of the range of course offerings at Berkeley. 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 consult 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. Students participate in the London Business School in Great Britain, L’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. Enterprise Corps 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. Each year, the school receives more than 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.

Because admission to the program is extremely competitive, the Admissions Committee uses the following criteria for admission: a superior scholastic record; a substantial employment history that demonstrates potential for a career in management; and personal attributes that suggest leadership, maturity, interpersonal skills, social and civic responsibility, ethical character, and goal orientation.

Applicants are strongly urged to submit completed applications as early as possible. Applications are reviewed beginning in November and are evaluated on a rolling basis, generally in the order of their receipt.

Carey Center. The Carey Center guides students through their career-planning process. Job search preparation includes workshops on interview techniques, résumés, networking, and industry-specific informational interviews. 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 presentations cover live in the program, depart from the student perspective. Information sessions are held 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 Dutch-treat lunch with current students. For further information or to arrange for a campus visit, call (510) 642-5610.

Applications. Candidates should apply online through the Haas School of Business web site at www.haas.berkeley.edu. The online application is typically available in early September. If you are unable to apply on the web, you may download a PDF of the application found at the Haas School of Business web site, print the file, and use it as a paper application. 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. Students participate in the Evening & Weekend M.B.A. program directly before attempting to register for courses.

Evening & Weekend M.B.A. program must complete 42 semester units to gradu- ate, including 16 units of required core courses and 24 units of elective courses. 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 and may enroll in day courses on a space-available basis. Weekend classes are held Saturdays from 9 a.m. to 6 p.m. and alternate between Berkeley and a South Bay campus.

Applications. The Evening & Weekend M.B.A. program accepts applications online at http://www.haas.berkeley.edu/EWMBA/apply.html. If you are not able to apply online, you may down- load a printable application on our Web site. 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; telephone (510) 642-0292; web site: http://haas.berkeley.edu/EWMBA.

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 enrolled in the M.F.E. program learn to use theoretical finance, mathematics, and computer program- ming 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 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 Dutch-treat lunch with current students. For further information or to arrange for a campus visit, call (510) 642-5610.

Applications. Candidates should apply online through the Haas School of Business website at www.haas.berkeley.edu. The online application is typically available in early September. If you are unable to apply on the web, you may download a PDF of the application found at the Haas School of Business website, print the file, and use it as a paper application. Please read the application information carefully.

The Ph.D. Program

The Ph.D. program of the Haas School of Business is an advanced, scholarly 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 primary specialization include accounting, business and public policy, finance, marketing, and organizational behavior and industrial relations. Students in any primary specialization may also choose to concentrate in strategy by taking course work. The program also enrolls students with interests in real estate, provided they take the required course work in either accounting or finance. The Ph.D. program includes periods of intensive work in formal courses as well as individually developed and executed research on special topics and programs of research. It provides the opportunity to work closely with an internationally known faculty both in the classroom and in individual scholarly investigations.

The purpose of the program is to train men and women for careers in the research, study, and teaching of business administration. It is designed to prepare students for careers that are critically familiar with the sophisticated technical and theoreti- cal disciplines underlying the practice of business administration, but to provide students with the opportunity to contribute to their extension. A distinguishing feature of Berkeley’s program is an emphasis on research. Since the end of World War II, the applied econometric and computer programming skills to make pricing, hedging, trading, and portfolio management decisions.

Instruction in the program may be separated into three general periods. The first encompasses formal course work in basic and advanced subjects. The time devoted to these studies, typically two years, depends largely upon a student’s prior preparation. In the second period, directed study, students work closely with faculty members to prepare for research in their selected fields. In the last period, individual research, students work on their dissertations. Together, periods two and three usually require two to three years to complete.

Preparation for the Ph.D. Program. Admission to the Ph.D. program is open to students with an accredit- ed bachelor’s degree, or from any field for which preference in admission is given to any previous field of study or to applicants whom graduate training. Applicants should possess masters or skills in writing and programming 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 the Ph.D. degree.

Applications for the Ph.D. program may be obtained by writing to the Ph.D. Program Office, Haas School of Business, University of California, Berkeley, 2525 Addison Street, Berkeley, CA 94720-1906; telephone (510) 642-0292; web site: http://haas.berkeley.edu/Phd.

Undergraduate Business Administration

Lower Division Courses

10. Principles of Business. (3) Three hours of lecture and one hour of discussion per week. Formerly Business Administration 10. This course provides an introduction to the study of the modern business enterprise. The course is taught in five modules, the order...
effects of the state of the competitive environment on determination of the level of prices, outputs, and inputs; problems of business enterprises with emphasis on the lecture and one hour of discussion per week.

4. Organized group study on topics selected by lower division students under the sponsorship and direction of a member of the Haas School of Business faculty. Course may be repeated for credit. Two to twelve hours of group study per week.

39. Financial Management. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 101A or equivalent. Formerly Business Administration 120. An intermediate-level course in the theory and practice of financial accounting. The measurement and reporting of the economic effect of events involving the political economy of trade. By integrating the findings of the latest theoretical and empirical research in international economics, this course helps students learn how to explore the current political debates in the US, international benefits and costs of international trade. (F,SP) Staff

10. Integration of Organizational Behavior. (3) 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 are considered. Alternating theoretical models are used. (F,SP) Van Loo

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 twelve hours of group study per week. Prerequisites: Reading and Composition 1A-1B, junior or senior status, or consent of instructor. This course introduces students to key principles and rhetorical strategies of writing texts in non-academic settings. An intermediate-level course in the theory and practice of decision-making in business. The development of marketing programs including decisions involving products, price, promotional distribution. (F,SP) Staff

100. Business Communication. (2) Two hours of lecture per week. Formerly Business Administration 100. Theory and practice of effective communication in a business environment. Students practice what they learn with oral presentations and written assignments that model real-life business situations. (F,SP)

101. Microeconomic Analysis for Business Decisions. (3) Students will receive no credit for 111 after taking Economics 100A or 101A. Three hours of lecture and two hours of discussion per week. Prerequisites: Economics 1, Mathematics 1A or 16A, Statistics 21, or equivalents. Formerly Business Administration 110. Microeconomic analysis applicable to the problems of businesses with emphasis on the determination of the level of prices, outputs, and inputs; effects of the state of the competitive environment on business decisions. (F,SP) Cole

101B. Macroeconomic Analysis for Business Decisions. (3) Students will receive no credit for 111 after taking Economics 101A or equivalent. Three hours of lecture and two hours of discussion per week. Prerequisites: Economics 1, Mathematics 1A or 16A, Statistics 21, or equivalents. Formerly Business Administration 110. Macroeconomic analysis applicable to the problems of businesses with emphasis on the determination of the level of prices, outputs, and inputs; effects of the state of the competitive environment on business decisions. (F,SP) Cole

110. Managerial Economics. (3) Three hours of lecture per week. Prerequisites: 101A-101B or equivalents. Formerly Business Administration 113. Analysis of the theory and practice of decision-making in business firms, utilizing the concepts and techniques of managerial economics. The business decisions to be investigated include those pertaining to price, output, internal transfer pricing, and various choices under uncertainty. (F,SP)

114. Forecasting for Managerial Decisions. (3) Three hours of lecture per week. Prerequisites: 101A-101B or equivalents. Formerly Business Administration 126. Theory and analysis of the long-run and short-run forecasts of economic activity. (SP)

117. Special Topics in Economic Analysis and Policy. (2-3) Course may be repeated for credit. Two to three 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 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 findings of the latest theoretical and empirical research in international economics, this course helps students learn how to explore the current political debates in the US, international benefits and costs of 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. This class format consists of 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 121. An intermediate-level course in the theory and practice of financial accounting. The measurement and reporting of the economic effect of events involving working capital and long-term plant assets, investment in securities, intangible assets. (Required for students specializing in accounting.) (F,SP)

120B. Financial Accounting II. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 102A-120A recommended. Formerly Business Administration 122. A variety of topics in economic analysis and policy with emphasis on current problems and research. (F,SP)

121. Federal Income Tax Accounting. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 102A, formerly Business Administration 121. An intermediate-level course in the theory and practice of financial accounting. The measurement and reporting of the economic effect of events involving working capital and long-term plant assets, investment in securities, intangible assets. (Required for students specializing in accounting.) (F,SP)

122. Financial Information Analysis. (3) Three hours of lecture per week. This course is designed to: 1) develop basic skills in financial statement analysis; 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 outcome of the financial reporting process, such as the incentives of reporting parties, regulatory behavior, and a firm’s competitive environment. (F,SP) Staff

126. Auditing. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: 120A-120B recommended. Formerly Business Administration 130. Conceptual framework of professional verification of financial and related information, including ethical, legal and other professional issues, historical developments, and current concerns. (F,SP)
127. Special Topics in Accounting. (2-3) Course may be repeated for credit. Two to three hours of lecture and one hour of discussion per week. Prerequisites: 101A-101B, and 103. Formerly Business Administration 129. A variety of topics in accounting with emphasis on current problems and research. (F,SP)

131. Corporate Finance. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 101A-101B, and 103. Formerly Business Administration 134. This course will cover the principles and practice of business finance. Emphasis will be on current problems in investment, capital structure, and corporate governance. Students will be required to complete an individual project dealing with an on-going organization. Role of the staff manager. Introduction of change. Implications of behavioral research for management processes. (F,SP)

132. Money and Capital Markets. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 101A-101B, and 103. Formerly Business Administration 133. 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 capital, operations of security markets, determination of investment policy, and procedures for analysis of securities. (F,SP)

137. Special Topics in Finance. (2-3) Course may be repeated for credit. Two to three hours of lecture per week. Prerequisites: 103. Formerly Business Administration 139. A variety of topics in finance with emphasis on current problems and research. (F,SP)

140. Introduction to Management Science. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Computer Science 3, Economics 1, Math 1A or 16A, or equivalents. Formerly Business Administration 140. Survey of management science and its applications to business problems. Topics covered include linear and integer linear programming, project management, dynamic programming, inventory control, queuing theory, and simulation. (F,SP)

141. Production and Operations Management. (3) Three hours of lecture per week. Prerequisites: 140 or equivalent. Formerly Business Administration 142. A variety of topics in production and public policy. (F,SP)

144. Fundamentals of E-Business. (4) Three hours of lecture/work and one hour of discussion per week. Prerequisites: Computer Science 3 or equivalent. Formerly Business Administration 144A. A survey of current and future trends in technology. Thorough treatment of key issues concerning the importance of computers in organizations, including small groups, universities, firms, government, and society at large. Topics include the history of development of computers, characterization of scientific versus business problems, information storage and retrieval, compilers, problem-oriented languages, simulation models, current developments in computer systems. (F,SP)

146. Planning and Design of E-Business Systems. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: Computer Science 3 or equivalent. Formerly Business Administration 148. Study of principles and procedures of management information systems (MIS). Planning, design, and analysis in various organizations. Topics relate to successful and efficient implementation strategies of business systems. "Real-world" 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)

147. Special Topics in Manufacturing and Information Technology. (2-3) Course may be repeated for credit. Two to three hours of lecture per week. Prerequisites: Business Administration 140. Formerly Business Administration 149. A variety of topics in manufacturing and information technology with emphasis on current problems and research. (F,SP)

151. Management of Human Resources. (3) Three hours of lecture per week. Prerequisites: 105. Formerly Business Administration 151. The design of systems of rewards, assessment, and manpower development. The interaction of selection, placement, training, personnel evaluation, compensation, and other HRM activities. (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 situations faced by managers and professionals. Through participation in the role of individuals, groups, and organizations in the context of competitive situations, the course will allow students the opportunity to develop negotiation skills experimentally in useful analytical frameworks (e.g., simulations, cases). (F,SP) Staff

153. Industrial Relations. (3) Students will receive no credit for 153 after taking Economics 151. Three hours of lecture per week. Prerequisites: 154. An analysis of modern, white collar, and professional employee relations. Background and functioning of employer-employee organizations. Functioning of labor markets and wage and income security issues. Questions of public policy in labor economics and industrial relations. (F,SP)

154. Labor and the Law. (3) Three hours of lecture per week. Formerly Business Administration 155. Analysis of the issues arising out of legislative, administrative, and judicial efforts to define the rights, duties, and responsibilities of employers and labor relations. Includes programs to deal with racial, ethnic, sex, and age discrimination as well as the law of union-management relations. (F)

157. Special Topics in Organizational Behavior. (2-3) Course may be repeated for credit. Two to three 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. Formerly Business Administration 160. Consumer behavior is critical to understand how consumers think and behave, which is critical for a company wishing to develop a custom product for different people or companies, 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 sources of information, retrieve it from memory, and utilize it to make decisions. It is one of the most important areas of study in marketing and provides the student with a set of tools to improve business results. (F,SP) Staff

161. Introduction to Marketing Research. (3) Three hours of lecture per week. Prerequisites: 106. Formerly Business Administration 161. Marketing research techniques; qualitative research, surveys, experiments, sampling, data analysis. (F,SP)

162. Brand Management and Strategy. (3) Three hours of lecture per week. Prerequisites: 106. Formerly Business Administration 162. This course is an introduction to product management in marketing consumer and industrial products and services. The course will cover analysis of market information, development of product strategy, programming strategy, and implementation. (F,SP) Staff

163. Advertising. (3) Three hours of lecture per week. Prerequisites: 106. Formerly Business Administration 163. Basic concepts and functions of advertising in the economy; consumer motivation; problems in utilizing advertising for industrial and services. (F,SP)

166. History and development of retail management types; geographical structure of global trade; assortment and customer goods and services. Formerly Business Administration 167. A variety of topics in marketing with emphasis on current problems and research. (F,SP)

172. Business in Its Historical Environment. (3) Three hours of lecture per week. Formerly Business Administration 172. This course examines the historical aspects of the history of American business. Included will be discussions of the evolution of the large corporation, 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. (2-3) Course may be repeated for credit. Two to three 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)

179. Introduction to International Business. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 101A-101B or equivalents. Formerly Business Administration 179. 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)

180. Introduction to Real Estate and Urban Land Economics. (3) Three hours of lecture per week. Prerequisites: Economics 1, Mathematics 16A or 1A, or equivalents. Formerly Business Administration 180. An overview involving environmental, economic, political, and social constraints on doing business abroad; effects of overseas business investments on domestic and foreign economies; foreign market analysis and operational strategy of a firm; management problems and development policies towards international activities. (F,SP)

189. Special Topics in Real Estate and Public Policy. (2-3) Course may be repeated for credit. Two to three hours of lecture per week. Prerequisites: 108. Formerly Business Administration 189. An overview of the law affecting ownership and use of real estate; transfers, titles, development rights, and the regulation thereof in the public interest. (F,SP)

189. Valuation of Real Property. (3) Three hours of lecture per week. Prerequisites: 108 or equivalent. Formerly Business Administration 189. Critical examination of the appraisal concepts and role of a real estate appraiser in the real estate investment decision and in the implementation of public policies affecting urban development. (F,SP)

193. The Financial Management of Real Estate Resources. (3) Three hours of lecture per week. Prerequisites: 180. Formerly Business Administration 193. 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. (SP)

195. Legal Aspects of Real Estate. (3) Three hours of lecture per week. Prerequisites: 195. Formerly Business Administration 195. An overview of the law affecting ownership and use of real property; transfers, titles, development rights, and the regulation thereof in the public interest. (F,SP)

196. Management in the Public and Not-for-Profit Sectors. (3) Three hours of lecture per week. Prerequisites: 196 or equivalent. Formerly Business Administration 196. Critical examination of the appraisal concepts and role of a real estate appraiser in the real estate investment decision and in the implementation of public policies affecting urban development. (F,SP)

197. Real Estate in Its Historical Environment. (3) Three hours of lecture per week. Prerequisites: 197 or equivalent. Formerly Business Administration 197. 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)
pies, theories, and practical aspects of entrepreneurship. Building on functional subject knowledge, explores the causes and failures of entrepreneurship. Includes starting new ventures, writing business plans, acquiring other businesses, and making existing enterprises profitable. (F,SP)

196. Special Topics in Business Administration. (1-3) One hour of lecture per week. Prerequisites: Upper division standing. Formerly Business Administration 196. Study in various fields of business administration, will vary from year to year, and will be announced at the beginning of each semester. (F,SP)

C196W. Introduction to Principles of Professional Communication. (3) Three hours of lecture per week. Prerequisites: Reading and Composition 1A-1B, junior or senior status, or consent of instructor. Formerly Business Administration C196W. This course introduces students to key principles and rhetorical strategies of writing texts in non-academic settings. Although the course may address issues of oral communication, the primary focus will be on learning and practicing strategies to generate written documents in a business context. Also listed as College Writing Program C151. (F,SP) Cole

196. Directed Study. (1-4) Course may be repeated for credit. Prerequisites: Upper division standing. See the Introduction to Courses and Curricula section of this Catalog. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor.

195. 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 195. Enrollment restrictions apply. (F,SP)

Master’s 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. Through prepared and impromptu speeches aimed at moving others to action, peer coaching, and lectures, 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. (F,SP) Staff

205. Data and Decisions. (2) Four hours of lecture and one and one-half hours of discussion per week for seven weeks. Formerly Business Administration 205S. The objective of this course is to make students critical consumers of statistical analysis using available software packages. Key concepts include interpretation of regression analysis, model formation 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 options, cost, demand, supply, failure of 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. 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 profit rates, inflation, interest rates, unemployment and 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 202A. This course examines accounting measurements 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. Formerly Business Administration 203A. This course introduces students to advanced capital market valuation techniques and the behavior of financial assets. 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-basics and capital market efficiency. An effort will be made to tie the theoretical underpinnings to finance to real-world examples. (F,SP) Staff

204. Operations Management. (2) Four hours of lecture per week for seven weeks. This course provides a broad overview of strategic, operational and tactical issues facing manufacturing and service companies. The course focuses on the long-term and longer-term perspectives associated with the management of the manufacturing process. Major topics include: operations strategy, quality management, project management, supply chain management, service systems management, and operations strategy. These issues are explored through lectures, case studies, and discussions on a variety of industries, from fast food to fashion goods to automotives to manufacturing to telephone call centers. (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 ensure that your decisions are not biased? What influence 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 dynamics in complex organizations by covering topics spanning the micro (individual level of analysis), the macro (organizational level of analysis), and also topics that integrate these two levels. (F,SP) Staff

206. Marketing Management. (2) Four hours of lecture per week for seven weeks. This course is designed for students who need to understand the basic concepts and techniques of marketing strategy as a foundation for more advanced study in the area. The course teaches marketing from a strategic perspective of strategic analysis and development of a framework for the decisions associated with the management of the marketing function in the modern organization focusing on customer analysis, competitor analysis and the analysis of marketing investments. (F,SP) Staff

207. Global Business Ethics. (1) Two hours of lecture per week for seven weeks. Formerly Business Administration 207A. This course presents students with the ability 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

212. Managerial Decisions in Regulated Industries. (3) Three hours of lecture per week. Prerequisites: Business Administration 202A or equivalents. Formerly Business Administration 212A. This course examines the theoretical and practical aspects of decision making in regulated industries, including the use of models and decision tools to analyze competitive behavior, and the use of derivative-basics and capital market efficiency. Special attention is paid to international financial arrangements relevant for managers of multinational corporations. This course will explore foreign exchange and capital markets; the balance of payments; open economy macroeconomics; exchange rate determination; history of the international financial system; arbitrage and hedging; and international aspects of financial decisions. (F,SP)

218A. International Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration 201B. Formerly Business Administration 285. This course introduces students to the implications of operation of the international macroeconomic environment. Special attention is paid to international financial arrangements relevant for managers of multinational corporations. This will cover foreign exchange and capital markets; the balance of payments; open economy macroeconomics; exchange rate determination; history of the international financial system; arbitrage and hedging; and international aspects of financial decisions. (F,SP)

218B. Theory and Institutions of International Trade. (3) Three hours of lecture per week. Prerequisite: Business Administration 202A or consent of instructor. Formerly Business Administration 287. The course focuses on determinants of global trade flows, patterns of international competition, and governmental policies affecting international trade. Topics include: tariff and nontariff barriers to trade, industrial policies in declining and emerging industries, strategic trade policies, United States trade law, bilateral and multilateral approaches to trade liberalization, and current issues in international trade policy. (F,SP)

222. Financial Information Analysis. (3) Three hours of lecture per week. Prerequisites: Business Administration 202A or consent of instructor. Formerly Business Administration 222A. Issues of accounting information evaluation with special emphasis on the use of financial statements by decision makers external to the firm. The implications of recent research in finance and accounting for external reporting issues will be explored. Emphasis on financial models that describe the user’s decision context. (F,SP)

223. Corporate Financial Reporting. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Business Administration 202A or consent of instructor. Formerly Business Administration 223A. This course examines the theory and practice of financial accounting and the issues involved in determining corporate financial reporting policies. It provides an in-depth knowledge of how financial statements are prepared but emphasizes the evaluation of accounting reports from a managerial perspective. Cases supplement discussion, and problem solving. (F,SP)

224A. Managerial Accounting. (3) Three hours of lecture and one hour of optional discussion per week for 10 weeks. Prerequisites: Business Administration 202A or equivalent. Formerly Business Administration 224B. This course emphasizes the use of accounting information throughout the planning, operating and control stages of managing an organization. The course is divided into three sections to reflect these three stages of management: 1) information for planning and decision making; 2) information received during operations (cost accounting); and 3) information for control and performance evaluation. (SP)

224B. Advanced Managerial Accounting. (2.3) Forty-five hours of work per unit per term. Prerequisites: Business Administration 202A or equivalent. Formerly Business Administration 224. This course includes the theory of management accounting, its application in modern organizations, and related problem areas included in recent CPA CMA examinations. (F,SP)

225. Management Planning and Control Systems. (3) Three hours of lecture per week. Prerequisites: Business Administration 202A or equivalent. Formerly Business Administration 229. Planning and control systems are an essential tool in the management of modern organizations. Strategic planning and management control are studied through the use of cases illustrative of
management practice in both public and private organizations. (SP)

237. Topics in Finance. (5-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced strategic issues associated with the implementation and management of information systems discussed. Topics range from year to year and will be announced at the beginning of each semester. (F,SP)

240. Introduction to Management Science. (3) Three hours of lecture per week. Prerequisites: Business Administration 200 or equivalents. Formerly Business Administration 240. An introduction to the techniques and concepts associated with the modeling of business decisions and public policy problems. Topics include: linear programming, transportation, network optimization, project and inventory management, queuing theory and simulation. (F,SP)

242. Strategic Planning of Production and Operations. (2) Two hours of lecture per week. Prerequisites: Business Administration 240 or consent of instructor. Formerly Business Administration 240. Strategic issues involved in planning the production and logistics of a firm and models of those functions that are used to make a decision. Topics include models of a firm's capacity expansion, facility location, and technology selection decisions; learning curve strategies; and industry cost models. (F,SP)

243. Decisions, Games, and Strategies. (3) Three hours of lecture per week. Prerequisites: Business Administration 200, 204 or equivalents. Formerly Business Administration 243. The course considers two techniques for guiding the decision maker who has to make a choice now but will only know later whether the choice was good. Decision analysis helps if the outcome depends on "nature"; game models help if the outcome depends on human opponents (e.g., competitors). Foundations of the two techniques, and a variety of applications, are studied. (SP)

244A. MIS: Data Management. (4) Three hours of lecture and one-half to three hours of laboratory per week. Prerequisites: Business Administration 204, formerly Business Administration 248A. This course covers several important topics in business data processing including file and data base systems. The problem of data management in large organizations is analyzed, and the logical data modeling process and its strategic importance are studied. Other topics include future developments in computer technology and information systems and the management of computer resources. A team project consists of the design and implementation of a data base using a relational database management system package. (F)

244B. MIS: Systems Analysis and Design. (3) Three hours of lecture per week. Prerequisites: Business Administration 204, formerly Business Administration 248B. The goal of this course is to provide future general managers and information systems specialists with expertise in aspects of utilizing information in decision making. Topics covered include the role of information systems in organizations, systems analysis, trade-offs, and economic considerations in systems development, hardware selection and review of technological advancements relevant to modern organizations. (F,SP)

244C. MIS: Managerial and Organizational Issues. (2) Two hours of lecture per week. Prerequisites: Business Administration 204, formerly Business Administration 248C. This course covers the management and organizational issues associated with the implementation and growth of organizations in computer-based administrative information systems. A management perspective is maintained throughout and technical issues introduced are subordinate to this management perspective. (F,SP)

244D. Telecommunications. (3) Three hours of lecture per week. Prerequisites: Business Administration 204, formerly Business Administration 248D. This course is intended for students who wish to gain better understanding of one of the most important issues facing management today: the implementation, management and telecommunication and distributed computer systems. The following topics are covered: survey of networking technologies; the selection, design and management of telecommunication systems; strategies for distributed data processing; office automation; and management of personal computers in an organization. (F,SP)

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 information technology. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

251. Human Resources Management. (3) Three hours of lecture per week. Prerequisites: Business Administration 204 or consent of instructor. Formerly Business Administration 251. A study of the problems and techniques associated with managing the personnel function. Topics include the processes of recruitment, selection, placement, training, and evaluation of employees within organizations. The role of the staff manager in the person planning, design, and location of tasks and people 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 processes 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. Course work includes reading, lectures, discussion of case material, and simulations of real negotiations. Emphasis on the role of third parties in resolving disputes. (F)

253. Public Policy and the Management of Human Resources. (3) Three hours of lecture per week. Prerequisites: Business Administration 205 and 207, or consent of instructor. Formerly Business Administration 253. This course will analyze government regulation of personnel, including such issues as age, race, and gender discrimination, affirmative action, equal pay and comparable worth, employment at will, and union relations. Discussion of case studies will focus on corporate and bureaucratic strategy and implementation in light of the rights and responsibilities of employers and employees. (F,SP)

254. Power and Politics in Organizations. (3) Three hours of lecture per week. Prerequisites: Business Administration 205 or consent of instructor. Formerly Business Administration 254. This course examines the concept of power, focusing on the role of third parties in resolving disputes. (F,SP)

255. Creativity in Business. (3) Three hours of lecture per week. Prerequisites: Business Administration 205 or consent of instructor. Formerly Business Administration 255. This course examines the concept of creativity, bringing to light its nature in individuals, groups, and organizations. The course uses reading materials, cases, classroom, and group exercises to help students understand and be able to use creativity in their own working lives. (F,SP)

257. Special Topics in Organizational Behavior and Industrial Relations. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Business Administration 204 or consent of instructor. Formerly Business Administration 257. This course explores the concept of creativity, bringing to light its nature in individuals, groups, and organizations. The course uses reading materials, cases, classroom, and group exercises to help students understand and be able to use creativity in their own working lives. (F,SP)

265. Fprefix=language course for business majors
Cprefix=course satisfies R&C requirement
ACPrefix=satisfies American cultures requirement

Rprefix=course satisfies R&C requirement

*Professor of the Graduate School

Recipient of Distinguished Teaching Award
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 understanding and 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. (F,SP) Staff

261. Marketing Research: Techniques and Data Analysis. Three hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. 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

262. Brand Management and Strategy. (3) Two hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. Formerly Business Administration 262B. This course is designed to develop 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. Internet Strategy. (3) Three hours of lecture per week. Prerequisites: Business Administration 206. Formerly Business Administration 262C. This course is designed to develop 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

264. High Technology Marketing Management. (3) Three hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. Formerly Business Administration 264. This course is designed to develop 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

265. Advertising Management. (2) Two hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. Formerly Business Administration 265. A specialized course in advertising, focusing on management and decision-making. Topics include objective-setting, copy decisions, media decisions, budgeting, and examination of theories, models, and other research methods appropriate to these decision areas. Other topics include social/economic issues of advertising by nonprofit organizations. (SP)

266. Channels of Distribution. (2) Two hours of lecture per week. Prerequisites: Business Administration 206 or equivalent. Formerly Business Administration 266. The success of any marketing program often weighs heavily upon its co-execution by members of the distribution channel. This course seeks to provide an understanding of how the strategic and tactical roles of the channel can be identified and managed. This is accomplished, first, through study of the role of economic forces which govern the channel evolution. It is completed through the examination of tools to select, manage and motivate channel partners. (SP)

267. Topics in Marketing. (1-5) 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)

270. Business and Public Policy. (2) Three hours of lecture per week. Prerequisites: Business Administration 207 or equivalent, or consent of instructor. Formerly Business Administration 270B. 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 government. Compares United States corporate governance systems, public policies and political system to those of Western Europe and Japan. Uses combination of scholarly articles, current periodicals and case studies to explore the processes of government decision-making and policy implementation and how they affect, and are affected by, business interests and institutions. (F,SP)

271. Managing the Political Environment of Business. (2-3) Two or three hours of lecture per week. Prerequisites: Business Administration 207 or equivalent, or consent of instructor. Formerly Business Administration 270C. This course examines the methods and strategies by which business enterprises and associations attempt to influence public policies, primarily in the United States, but also in comparison to Western Europe and Japan. Uses combination of scholarly articles, current periodicals and case studies to explore the processes of government decision-making and policy implementation and how they affect, and are affected by, business interests and institutions. (F,SP)

277. Special Topics in Business and Public Policy. (1-3) One to three hours of lecture per week. Prerequisites: Business Administration 207 or equivalent, or consent of instructor. Formerly Business Administration 270B. Topics vary by semester. Topic areas include advanced techniques for real estate financial analysis and structuring and evaluation; the securitization of real estate debt and equity; issues in international real estate; cyclical behavior of real estate markets; portfolio theory and real estate asset allocation. (F,SP)

279A-279B. Comparative and International Business and Public Policy. (2-3-2-3) Two or three hours of lecture per week. Prerequisites: Business Administration 207 or equivalent, or consent of instructor. Formerly Business Administration 272A-272B. Both courses examine and compare business-government relations, the public policy process, the business enterprise systems and public policies toward business in Europe (272A) and the Pacific Rim (272B). Courses also explore the relations between the United States and Europe, or Pacific Rim nations, respectively. (F,SP)

280. Real Estate and Urban Land Economics. (3) Three hours of lecture and one hour of optional discussion per week. Prerequisites: Consent of instructor. Formerly Business Administration 280. Intensive review of literature in the theory of land use, urban growth, and real estate market behavior; property rights and valuation; residential and nonresidential markets; construction; debt and equity financing; public controls and policies. (F,SP)

282. Seminar in Urban Economic Resource Policy. (3) Course may be repeated for credit. Three 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 economic and decline and urban areas; selected policy issues: housing, transportation, financing, local government, urban redevelopment and neighborhood change are examined. (F)

283. Real Estate Financing. (3) Three hours of lecture and one hour of optional discussion per week. Prerequisites: Business Administration 281. Formerly Business Administration 283. This course provides an overview of 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. Seminar in Real Estate Investment Analysis. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Business Administration 284. Analysis of selected problems and special studies; cases in residential and nonresidential development and financing, urban redevelopment, real estate taxation, mortgage market developments, equity investment, valuation, and zoning. (SP)

286. Housing and the Urban Economy. (3) Three hours of seminar per week. Prerequisites: Public Policy C100 or equivalent. Formerly Business Administration C296. This course considers the economics of urban house 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 policy, taxation, and government subsidy programs. We will also analyze the relative performance of primary and secondary mortgage markets, securitization, and liquidity. Finally, the links between local housing and related markets—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 281. Topics vary each semester. Topic areas include advanced techniques for real estate financial analysis and structuring and evaluation; the securitization of real estate debt and equity; issues in international real estate; cyclical behavior of real estate markets; portfolio theory and real estate asset allocation. (F,SP)

290A. Introduction to Management of Technology. (3) Three hours of lecture per week. Formerly Business Administration 290E. This course gives students an overview of the main topics encompassed by management of technology. It includes the full chain of innovative activities beginning with R&D and extending through production and marketing. Why do many existing firms fail to incorporate new technology? What are the success factors at each stage of innovation? The course introduces students to Haber’s 21st Century College of Engineering faculty working in the relevant areas and student projects at leading high tech firms. (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. Factors 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 design and marketing of successful products and services. (SP) Messerschmitt, Varian

290D. Design as Strategic Management Issue. (2) Two hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration 290K. This course is a study of product design, facilities design, and corporate identity design. It will cover the design decision strategies are integral to product development and the effects of government regulation of existing firms fail to incorporate new technology? What are the success factors at each stage of innovation? The course introduces students to Haber’s 21st Century College of Engineering faculty working in the relevant areas and student projects at leading high tech firms. (F,SP) Staff

290G. International Trade and Competition in High Technology. (2) Two hours of lecture per week. Pre-
requirements: Graduate standing. Formerly Business Administration 290C. This course looks at who is winning or losing ground in international competition in high-technology industries. It will emphasize the interaction between business strategies and the economic and political environments that shape the development and diffusion of new technologies. (F,SP)

290. Managing Innovation and Change. (3) Three hours of lecture per week. Formerly Business Administration 274. This course is designed to introduce students to the innovation process and its management. It provides an overview of technological change and links it to specific strategic challenges; examines the diverse elements of the innovation process and how they are managed; discusses the uneasy relationship between technology and the workforce; and examines challenges of managing innovation globally. (F,SP)

290M. High-Tech Product Design and Rapid Manufacturing. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration 290N. The course presents case studies of projects that required intervention to avert catastrophic failure. Students will discuss case studies and review real management problems of major corporations. They will create strategic plans to alleviate problems and learn how to manage a large project to a successful completion. (F,SP)

290Q. Quality Improvement: Strategy, Processes, and Customers. (3) Three hours of lecture per week. Formerly Business Administration 290Q. This course is intended to provide a strong introduction to students on the importance of an inter-disciplinary approach to improving quality in all facets of business. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

290T. Topics in Management of Technology. (1-3) 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)

291A. Speaking As a Leader. (2) One hour of lecture and two hours of discussion per week. Formerly Business Administration 291A. Leaders must be capable of inspiring and leading their constituencies in competition rather than merely demanding compliance. This course will teach future leaders the elements that are essential to inspire such leadership in increasingly international competition. The course will provide students with the tools and structure that will enable them to better communicate their ideas. (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 Administration 291T. This course helps students provide the students personal experiences in international competition rather than merely demanding compliance. This course will teach leaders the elements that are essential to inspire such leadership in increasingly international competition. The course will provide students with the tools and structure that will enable them to better communicate their ideas. Participants will develop confidence in both the content of their messages and their ability to convey it. (F,SP)

292A. Management in the Public and Not-For-Profit Sectors. (2,3) Forty-five hours of work per unit per term. Prerequisites: Business Administration 210A and 210B or equivalents. Formerly Business Administration 215. Planning-programming-budgeting systems and benefit-cost analysis for resource allocation and planning in the public and nonprofit sectors in public enterprises. Efficiency when profit criteria are absent. Applications in natural resources, medical services, transportation, and education. (F,SP)

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)

293. Individually Supervised Study for Graduate Students. (1-5) Course may be repeated for credit. Prerequisites: Graduate standing. Formerly Business Administration 293. Individually supervised study of subjects not available to the student in the regular schedule, approved by advisor as appropriate for the student's program. (F,SP)

294. Selected Topics for MBA Students. (1) Course may be repeated for credit. Prerequisites: Graduate standing. Formerly Business Administration 294. This course focuses on a specific industry, field of management, or region of the world and is initiated and organized by students. It is usually a survey course. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP)

295A. Entrepreneurship. (3) Three hours of lecture per week. Prerequisites: All core courses or equivalents. Formerly Business Administration 295A. This course is about creating new businesses and how to write a business plan. Students are organized in teams of four around new venture ideas of their own choosing. They conduct research, consult with members of the business community, perform analysis, and write a formal business plan. They then present an appeal for funding to a panel consisting of the instructors and members of the investing community. (F,SP)

295D. New Venture Finance. (2) Three hours of lecture per week. Prerequisites: Business Administration 295A or consent of instructor. Formerly Business Administration 295D. This course is about the financing of new businesses and how to write a business plan. Students are organized in teams of four around new venture ideas of their own choosing. They conduct research, consult with members of the business community, perform analysis, and write a formal business plan. They then present an appeal for funding to a panel consisting of the instructors and members of the investing community. (F,SP)

296. Special Topics in Entrepreneurship. (1-3) Course may be repeated for credit. Formerly Business Administration 296. This is a course about the development and implementation of new business strategies when industrial structures and government policies differ. Efficacy of joint ventures, strategic alliances. Implications for industrial policy and global governance. (F,SP)

297E. Competitive and Corporate Strategy. (3) Three hours of lecture per week. Prerequisites: All core courses. Formerly Business Administration 297E. Examines 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 taxation) affect output and pricing decisions. Social welfare implications of decisions by competitive firms also explored. (F,SP)

299A. Special Topics in Business Administration. (1) Three weeks of lecture during a term. Formerly Business Administration 299A. This is a course about how to start a new business and how to manage a large project to a successful completion. (F,SP)

299D. Special Topics in Entrepreneurship. (1-3) Course may be repeated for credit. Formerly Business Administration 299D. This is a course about the development and implementation of new business strategies when industrial structures and government policies differ. Efficacy of joint ventures,
Students will apply current theory to traditional cases and to current examples of organization adaptation in the business environment. 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)

299T. Strategic Planning: Perspectives and Decisions. (3) Three hours of lecture per week. Prerequisite: A101 or by permission of instructor. An introductory course in strategic planning that will focus on conceptual frameworks for understanding the strategic management process. Attention will be focused on the role of planning in the overall management process and the use of planning as a tool for organizational control and change. The course is designed to provide the knowledge and skills necessary for an understanding of the strategic management process and the planning process. (F,SP)

Evening/Weekend Master's in Business Administration

201A. Economic Analysis for Business Decisions I. (2) Three hours of evening lecture per week for 10 weeks. Prerequisites: E204. Formerly Business Administration E285. Staff: Admission to the program. Course will cover the fundamentals and concepts of microeconomics to analyze decision problems within a business firm. Particular emphasis is placed on the relationship among prices, inputs, and outputs. (F,SP)

201B. Quantitative and Economic Analysis for Business Decisions II. (2) Three hours of evening lecture per week for 10 weeks. Prerequisites: Business Administration E201A. Formerly Business Administration E286. The course builds on the foundations developed in E201A 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. (F,SP)

202. Financial Reporting. (2) Three hours of lecture for 10 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 are necessary for a clear understanding of published financial reports. 

203. Introduction to Finance. (3) Three hours of lecture per week. Formerly Business Administration E203. This course introduces students to the institutions and operation of the international macroeconomic environment; special attention is paid to international financial arrangements relevant for managers of multinational corporations. Topics include balance of payments, exchange and capital markets; the balance of payments; open economy macroeconomics; exchange rate determination; history of the international financial system; arbitrage and hedging; international aspects of financial decisions. (F,SP)

214. Forecasting Methods for Business. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E214B. Formerly Business Administration E220. The course will focus on a variety of currently used forecasting techniques. These include econometric techniques, and more traditional (time series) methods, as well as combinations of more than one procedure. The emphasis is on data analysis; the student will learn a “forecasting process” which can be applied to all types of forecasting problems. To facilitate the “learning by doing” aspect of the course, several computer-oriented problem sets and a forecasting project are required. (F,SP)

218A. International Finance. (3) Three hours of lecture per week. Prerequisites: Business Administration E218. Formerly Business Administration E225. The course will cover a variety of topics in personal or corporate taxation or both. Topics will vary from semester to semester. (F,SP)

231. Corporate Financial Management. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E230. For students interested in management of, and public policies toward, these industries. (F,SP)

232. Money Markets and Financial Institutions. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E238 and E239 or E240. This course will cover a variety of topics in personal or corporate taxation or both. Topics will vary from semester to semester. (F,SP)

233. Financial Institutions and Markets. (3) Three hours of lecture and one hour of optional discussion per week. Prerequisites: 230. Formerly Business Administration E233. This course will analyze the role of financial markets and financial institutions in allocating financial resources among businesses and individuals. The focus will be on the relationship between financial markets and financial institutions and the financial intermediaries and monetary policy. (F,SP)

234A. Futures and Options Markets. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: Business Administration E233. Formerly Business Administration E233. This course will cover a variety of topics in personal or corporate taxation or both. Topics will vary from semester to semester. (F,SP)

235. Advanced Topics in Financial Institutions. (3) Course may be repeated for credit. Three hours of evening lecture per week. Prerequisites: Business Administration E233. Formerly Business Administration E233. This course will cover a variety of topics in personal or corporate taxation or both. Topics will vary from semester to semester. (F,SP)

252. Negotiations and Conflict Resolution. (3) Three hours of lecture per week. Prerequisites: Business Administration E205 or equivalent. This course will emphasize the management of internal and external conflicts and the process of negotiations. Students will learn how to resolve conflicts in groups, organizations, and their industry to address a set of questions relating to the firm’s investment value. (F,SP) Staff

253. Topics in Finance. (1-3) 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) Staff

240. Introduction to Management Science. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E204. Formerly Business Administration E240. Survey of management science and its application to business problems. The topics covered include linear programming, integer linear programming, project management, inventory control, dynamic programming, simulation, and vehicle routing.

242. Strategic Planning of Production and Operations. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E240. Formerly Business Administration E241. Strategic issues involved in planning the production and logistics of a firm and models of those functions that are useful for the firm's strategic planning. Topics include models of a firm's production and capacity expansion, factory location decisions, learning curve strategies, and industry cost models.

244D. Management Information Systems. (3) Three hours of lecture per week. Prerequisites: Business Administration E205. Formerly Business Administration E244D. The course covers the management and organizational issues associated with the implementation and growth in organizations of computer-based administrative information systems. A management perspective is maintained throughout, and technical issues introduced are subordinate to the management perspective.

247A. Topics in Manufacturing and Operations. (1-3) 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) Staff

247B. Topics in Information Technology. (1-3) Course may be repeated for credit. One-half to three hours of lecture per week. Advanced study in the field of Information Technology. Topics will vary from year to year and will be announced at the beginning of each semester. (F,SP) Staff

251. Human Resources Management. (3) One 3-hour evening lecture per week. Prerequisites: Business Administration E205 or consent of instructor. Formerly Business Administration E251. A study of the problems and techniques associated with managing the personnel function. Topics include the processes of recruitment, selection, placement, training, and evaluation in the career redirection of employees. The role of the staff manager with respect to the planning, design, and location of tasks and people is considered, with emphasis on the implications of research for management problems and policies. (F,SP) Staff

252. Negotiations and Conflict Resolution. (3) Three hours of lecture per week. Prerequisites: Business Administration E205 or consent of instructor. Formerly Business Administration E251. A study of the negotiation process, including negotiations among buyers and sellers, managers and subcontractors, companies and organizations, and management and labor. Both two-party and multi-party relations are covered. Course work includes reading, lectures, discussion of cases, and simulations of real negotiations. Emphasis on the role of third parties in resolving disputes. (F,SP) Staff

255. Creativity in Business. (3) Three hours of lecture per week. Prerequisites: Business Administration E205 or consent of instructor. Formerly Business Administration E258. This course examines the concept of creativity, bringing together the nature in individuals, groups, and organizations. The course uses reading materials, cases, classroom, and homework exercises to help students understand and be able to use creativity in their own working lives. (F,SP) Staff

257. Topics in Organizational Behavior and Industrial Relations. (1-3) 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,SP) Staff

260. Consumer Behavior. (3) Three hours of lecture per week. Prerequisites: Business Administration E206 or equivalent. Formerly Business Administration E260. Examines concepts and theories from behavioral science useful for the understanding and prediction of marketplace behavior and demand analysis. Emphasizes applications to the development of marketing policy planning and strategies and various decision areas within marketing. (F,SP) Staff

261. Introduction to Marketing Research. (3) Three hours of lecture per week. Formerly Business Administration E261. Research objectives will be covered and the topics of qualitative research, surveys, experiments, sampling, data analysis, and information system formation.

262. Product Management. (3) Three hours of lecture per week. Prerequisites: Business Administration E206. Formerly Business Administration E262A. The focus of this course is on developing student skills to formulate and critique complete marketing programs including product, price, distribution, and promotion policies. Case analyses are heavily used. Course is primarily designed for students who will take a limited number of advanced marketing courses and wish an integrated approach. (F,SP) Staff

263. Internet Strategy. (3) Three hours of lecture per week. Prerequisites: Business Administration E206. Formerly Business Administration E263. Formerly Business Administration E262B. The objective of this course is to examine the potential of the Internet for firms' strategies in marketing goods and services. We will (1) develop a framework to analyze the Internet's impact on the communication between firms and consumers and among consumers themselves, (2) develop concepts that are useful in evaluating opportunities that arise from the way the Internet changes communication, and (3) apply these insights to strategic choice decision making. (F,SP) Staff

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 goods and services which is subject to technological change at a pace significantly faster than for most goods in the economy. Under such circumstances, the marketplace faced by the high technology firm differs in some ways from the usual. The course will emphasize the implications of research for management and the implications of management for research. (F,SP) Staff

265. Advertising Management. (3) Three hours of lecture per week. Prerequisites: Business Administration E206 or equivalent. Formerly Business Administration E265. A specialized course in advertising and its management. The management and decision-making topics include objective-setting, copy decisions, media decisions, budgeting, and examination of theories, models, and other research methods appropriate to these decision areas. Case studies include social/economic issues of advertising by non-profit organizations. (F,SP) Staff

266. Channels of Distribution. (3) Three hours of lecture per week. Formerly Business Administration E266. The process of any marketing plan is weighed heavily upon its co-execution by members of the firm’s distribution channel. This course seeks to provide an understanding of how the strategies and tactics of the role of the channel can be identified and managed. This is accomplished, first, through studying the broad economic and social forces that govern the channel evolution. It is completed through the examination of tools like product, manage, and motivate channel partners. (SP) Staff

267. Topics in Marketing. (1-3) 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) Staff

271. The Interaction of Business and Government. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E207 or equivalent. Formerly Business Administration E271. Advanced study in the field of the mixed economy. Methods of interaction between government and business include government purchasing, regulation, resource allocation, economic stagnation, planning, and leadership of economic development. “Inter-penetrated” activities include space, defense, atomic energy, public utility, and foreign business operations.

277. Special Topics in Business and Public Policy. (1-3) One to three hours of lecture per week. Prerequisites: Business Administration E207 or equivalent, or consent of instructor. Formerly Business Administration E278. Topics vary by semester at discretion of instructor and by student demand. Topics include business and professional ethics and the role of corporate social responsibility in the mixed economy; managing the external affairs of the corporation, including community, government, media and stakeholder relations; technology policy, research and development, and the effects of government regulation of business on technological innovation and adoption. (F,SP) Staff

280. Real Estate and Urban Land Economics. (3) Three hours of lecture per week. Formerly Business Administration E280. Intensive review of literature in the theory of land utilization, urban growth and real estate market behavior; property ownership and a comparison of residential and non-residential markets; construction, debt and equity financing; public controls and policies.

283. Real Estate Financing. (3) Three hours of lecture per week. Prerequisites: Business Administration E280, and background in the basics of finance, micro-economics, macro-economics, statistics and quantitative analysis. Formerly Business Administration E282. 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. (F,SP) Staff

284. Seminar in Real Estate Investment Analysis. (1-3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Business Administration E284. Analysis of selected problems and special situations cases in residential and commercial development and financing, urban redevelopment, real estate taxation, mortgage market developments, equity investment, valuation, and zoning.

287. Special Topics in Real Estate Economics and Finance. (1-3) Course may be repeated for credit. One hour of lecture per week per unit. Prerequisites: Business Administration E280 and consent of instructor. Formerly Business Administration E287. Advanced study in the field of real estate economics and finance. Topics may be repeated for credit. Staff

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behavior of real estate markets; portfolio theory and real estate asset allocation. (F.SP) Staff

290D. Design as Strategic Management Issue. (2) Two hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration 290C. This course is a study of product design, facilities design, and corporate identity design. It will cover how these decisions can be integral to product development and influence customer satisfaction, quality issues, manufacturing procedures, and marketing tactics. (F.SP)

290G. International Trade and Competition in High Technology. (2) Two hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration E290C. This course looks at who is winning or losing and why in international competition in high technology industries. It will emphasize the interaction between business strategies and the economic and political variables that shape the development and diffusion of new technologies. (F.SP)

290I. Managing Innovation and Change. (3) Three hours of lecture per week. Formerly Business Administration E274. This course is designed to introduce students to the innovation process and its management. It provides an overview of technological change and links it to specific strategic challenges; examines the diverse elements of the innovation process and how they interrelate; discusses the uneasy relationship between technology and the workforce; and examines challenges of managing innovation globally. (F.SP)

290M. Intelligent Manufacturing Systems. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration E290B. This course will study CAD/CAM, rapid prototyping, metal processing, 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 lifecycle, and future trends are also covered. (F.SP)

290N. Managing the New Product Development Process. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Formerly Business Administration E290A. An operationally focused course that aims to develop the interdisciplinary skills required for successful product development. Through readings, 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 topics include process phases: idea generation, product definition, 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 E290L. This course presents case studies of projects that required intervention to avert catastrophic failure. Students will discuss case studies and review real management problems of major corporations. They will create strategic plans to alleviate problems and learn how to manage a large project to successful completion. (F.SP)

290Q. Quality Improvement: Strategy, Processes, and Customers. (3) Three hours of lecture per week. Formerly Business Administration E290Q. This course is intended to provide a strong introduction to students to the innovation process and its management. It provides an overview of technological change and links it to specific strategic challenges; examines the diverse elements of the innovation process and how they interrelate; discusses the uneasy relationship between technology and the workforce; and examines challenges of managing innovation globally. (F.SP)

291A. Speaking As a Leader. (2) One hour of lecture and two hours of discussion per week. Formerly Business Administration E220A. Leaders must be capable of inspiring commitment in their constituencies rather than merely demanding compliance. This course will teach future leaders the elements that are essential to inspire such change. The instructor solicits students’ personal convictions, then provides a structure and method for effectively communicating these beliefs. Participants will develop confidence in both the content of their message and their ability to convey it. (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 291B. This course will provide the student with specialized knowledge in some area of managerial communications. Topics include multimedia business presentations, personal leadership development, diversity management, and making meetings work. Topics will vary from semester to semester. (F.SP) Staff

292A. Management in the Public and Not-for-Profit Sectors. (2,3) Forty-five hours of work per unit per term. Prerequisites: Business Administration E201A and E201B. Formerly Business Administration E215. Planning-programming-budgeting systems and benefit-cost analysis for resource allocation and planning in the public sector. Use of pricing in public enterprise. Efficiency when profit criteria are absent. Applications in natural resources, medical services, transportation, and education. (F.SP) Staff

292T. Topics in Socially Responsible Business. (1-5) Course may be repeated for credit. One-half to three hours of lecture per week. Advance 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. Individually supervised study of subjects not available to the student in the regular schedule, approved by faculty adviser as appropriate for the student’s program. (F.SP) Staff

295A. Entrepreneurship. (3) Three hours of evening lecture per week. Prerequisites: Business Administration E206. Formerly Business Administration E295. 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 methods, including break data, inadequate resources, emerging markets, and rapidly changing environments. (F.SP) Staff

296. Special Topics in Business Administration. (1-3) Course may be repeated for credit. One unit credit represents one hour of lecture per week. Prerequisites: Graduate standing: Formerly Business Administration E296. Advanced topics in business administration. Topics will vary from year to year and will be announced at the beginning of each semester. (F.SP) Staff

299B. Global Strategy and Multinational Enterprise. (3) Three hours of lecture per week. Prerequisites: All core courses. Formerly Business Administration E286. 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 mature firms. Understanding and controlling new product development strategies when industrial structures and government policies differ. Efficacy of joint ventures and strategic alliances. Implications for industrial policy and global governance. (F.SP) Treeze

299E. Competitive Strategy. (3) Three hours of lecture per week. Prerequisites: Business Administration E201A, E201B, E204. Formerly Business Administration E291B, E291C. Leadership and pricing policies for firms in competitive environments; optimal strategies through time; strategies in the presence of imperfect information. Product 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. Strategic Marketing Planning. (3) Three hours of evening seminar per week. Prerequisites: Business Administration E220B, E220D, E206. Formerly Business Administration E267. Strategic planning theory and methods with an emphasis on customer, competitor, and industry environmental analyses and its application to strategy development and choice.

290O. Organizing for Strategic Advantage. (3) Three hours of lecture per week. Prerequisites: Business Administration E250. Formerly Business Administration E250. Course examines current models of strategy, structure, process interaction and their historical foundations. Students will apply 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

Executive Master’s in Business Administration

200Q. Decision Models. (5) 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 managers to optimization techniques, simulation, and project management. (F.SP) Staff

200S. Data Analysis for Management. (2) Ten hours of lecture for three 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

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, the natural rate of unemployment, 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

202A. Financial Accounting. (2) Ten hours of lecture for three weeks. Formerly Business Administration 202A. This course examines accounting measurement and interpretation of economic values in determining real income and the nature of economic changes. It is highly relevant to the student who is considering a career in financial analysis. (F.SP) Staff

202B. Managerial Accounting. (1) Ten hours of lecture for three weeks. This core course emphasizes the use of accounting information throughout the planning, operation, and control stages of managing an organization. The course is divided into three sections to reflect these three stages of management. Course sections include (1) information for planning and decision-making, (2) information received during operations (costing), and (3) information for control and performance evaluation. (F.SP) Staff

203. Finance. (2) Ten hours of lecture for three weeks. This core course examines the wide range of available assets, the institutional structure of U.S. and international financial markets, and the major analytical tools for trading securities. Topics include discounting, capital budgeting, historical behavior of asset returns, and diversification and portfolio theory. The course provides an introduction 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 introduces students with an understanding of the basic issues involved in managing a manufacturing-based business and introduces them to the tools that are used to manage 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 and four hours of laboratory per week for three weeks. Prerequisites: 200S. Formerly Business Administration 205. This core course surveys knowledge-edge about behavior of organizations and in organizations. The course will include study of the issues of individual behavior, group functioning, and the actions of organizations in their environments, and analysis from a number of theoretical perspectives of such problems as work motivation, task design, leadership, communication, organizational design, and innovation. This class will explore the implications of 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 provides an overview of the marketing system and the marketing overview of the marketing system and the marketing

290. Management of Technology. (2) This course examines the use of models that describe the user's decision context. It also addresses issues of accounting information evaluation and accounting for external reporting issues and utilities. The course will include the study of the basic issues involved in managing a manufacturing and services firm. It is designed to provide students with an understanding of the basic issues involved in managing a manufacturing-based business and introduces them to the tools that are used to manage these issues. Students will also learn pertinent fundamental concepts in management science that are applicable to other functional areas. (F,SP) Staff

207. Competitive and Corporate Strategy. (2) Ten hours of lecture for three weeks. Prerequisites: 200S or equivalent. This is a core course designed to introduce managers to the processes involved in industry analysis, the development of business strategy, competitive positioning, planning, and 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 the responsibility for a company's performance in a variety of competitive and corporate contexts. (F,SP) Staff

222. Financial Information Analysis. (2) Ten hours of lecture for three weeks. Prerequisites: 201A or equivalent. This is a core elective course designed to introduce managers to the processes involved in industry analysis, the development of business strategy, competitive positioning, planning, and 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 the responsibility for a company's performance in a variety of competitive and corporate contexts. (F,SP) Staff

290. Management of Technology. (2) Ten hours of lecture for three weeks. Prerequisites: 200S or equivalent. This course provides an overview of the marketing system and the marketing overview of the marketing system and the marketing

230. Fundamentals of Investments. (3) Six hours of lecture for seven and one-half weeks. Formerly Business Administration 230A. This course focuses on the fundamental concepts and tools used to evaluate the use of the standard discounted cash flow analysis and generation. This course provides an overview of the marketing system and the marketing overview of the marketing system and the marketing

230A. Fundamentals of Investments. (3) Six hours of lecture for seven and one-half weeks. Formerly Business Administration 230A. The course focuses on the fundamental concepts and tools used to evaluate the use of the standard discounted cash flow analysis and generation. This course provides an overview of the marketing system and the marketing overview of the marketing system and the marketing

230B. Fundamentals of 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 value financial assets and business entities. 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. 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, swaps, and options, the binomial and Black-Scholes option pricing models and volatility estimation. Programming, modeling, and analysis of derivatives will be covered in depth. (F,SP) Staff

230D. Derivatives: Quantitative Methods. (3) Three to six hours of lecture per week for eight weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230D. This course emphasizes the use of mathematical and financial models to analyze the factors that help determine financial strategy, thereby putting the design of financial packages in perspective. In particular, the course focuses on how corporate financing needs lead to the need for financial engineering and spur financial innovation. (F,SP) Staff

230G. Equity and Currency Markets. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230J. Formerly Business Administration 230G. This course reviews various aspects of equity and currency markets and their relative importance. It provides models and historical evidence on the dynamics and volatility of returns on equities, on the trade-to-trade equity price behavior, on trading volume and patterns, and primary financial risk. Derivative instruments such as forward rates and volatility, volume, high frequency dynamics and dealer behavior are examined. (F,SP) Staff

230H. Financial Risk Management and Management. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230A-230B. Formerly Business Administration 230H. This course examines risk management and management including market risk, credit risk, liquidity risk, settlement risk, volatility risk, kurtosis risk and other types of financial risk. Topics will include risk management techniques for different types of applications, and strategies to achieve the factors that help determine financial strategy, thereby putting the design of financial packages in perspective. In particular, the course focuses on how corporate financing needs lead to the need for financial engineering and spur financial innovation. (F,SP) Staff

230I. Fixed Income Markets. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Business Administration 230J. Formerly Business Administration 230I. This course provides a quantitative approach to fixed income securities and bond portfolio management. Topics include fixed income security markets, pricing and uses for portfolio management or as an investment tool. The focus is to gain a deeper analysis of
numerical and computational issues in pricing and cal-
ibration. The orientation of the course is hands-on, with
heavy use of computational techniques applied to case
projects. The primary objective of this course is to pre-
pare students to tackle the latest challenges in quanti-
tative finance. Students are likely to encounter in cut-
ting-edge financial institutions. (F,SP) Staff

230S. Behavioral Finance. (2) Two to four hours of
lecture per week for eight weeks. Prerequisites: 230D.
Behavioral decision theory has greatly contributed to our
understanding of financial markets. This course discusses
the common biases and heuristics identified by
psychologists. Topics will include over-confidence, the
attribution theory, the representative heuristic, the
availability heuristic, anchoring and adjustment, fair-
ness, and prospect theory. We will try to gain an un-
derstanding of how these biases affect managers, in-
vestors, and financial markets. (F,SP) Staff

Ph.D. in Business Administration
229A. Doctoral Seminar in Accounting I. (3) Stu-
dents will receive no credit for 229A after taking 229A.
Three hours of seminar per week. Prerequisites: Business
Administration 220A or equivalent, and Economics
201A-201B. Formerly Business Administration 229A.
A critical evaluation of accounting literature with
emphasis on seminar contributions. Topics covered in-
clude research methodology in accounting, the private
and social value of information. (SP)

229B. Doctoral Seminar in Accounting II. (3) Course
may be repeated for credit. Three hours of seminar per
week. Prerequisites: Business Administration 220A or
equivalent, and Economics 201A-201B. Formerly Busi-
ness Administration 229B. A critical evaluation of re-
cent accounting literature involving empirical research.
(F,SP)

229C. Doctoral Seminar in Accounting III. (3) Three
hours of seminar per week. Prerequisites: Business
Administration 220A or equivalent, and Economics
201A-201B. Formerly Business Administration 229C.
A critical evaluation of recent and current accounting
literature with emphasis on financial accounting. (F)

229D. Doctoral Seminar in Accounting IV. (2) Two
hours of seminar per week. Prerequisites: Business
Administration 220A or equivalent, and Economics
201A-201B. Formerly Business Administration 229D.
Exploration of issues related to the internal accounting
systems of large firms. The first part of the course fo-
cuses on the theory of mechanism design, while the
second part applies this theory to a variety of man-
egerial accounting questions. (SP)

229S. Research Seminar in Accounting. (2-4) Course
may be repeated for credit. One-half to three hours of
seminar per week. Advanced study in the field of Account-
ing. Topics will vary from year to year and will be
announced at the beginning of each semester. (F,SP)

230A-230D. Doctoral Seminar in Finance. (3,3,3,3)
Students will receive no credit for 230A after taking
229A. Three hours of seminar per week. Prerequisites:
Business Administration 203 and 292C or other in-
troduction to decision theory; Economics 203A-203B.
Formerly Business Administration 230A. Recent
developments in financial economics, including the the-
ory of intertemporal choice under certainty or uncer-
tainty, portfolio optimization, asset market equilibrium,
valuation of uncertainty, probability in information, finan-
cial econometrics, and empirical verification of finan-
cial models. (F,SP)

239S. Research Seminar in Finance. (2-4) Course
may be repeated for credit. One-half to three hours of
seminar per week. Advanced study in the field of Fi-
nance. 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 Busi-
ness Administration 254A. Review of the research lit-
erature on micro-organizational behavior, including its
social psychological and psychological foundations.
Topics include: job design, work attitudes, organiza-
tional commitment, organizational culture, control and
participation, organizational learning, and organizational
theory. This seminar is intended principally for Ph.D.
students but open to advanced MBA students. (F,SP)

259B. 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 liter-
ature on macro-organizational behavior, including its
sociological, political, and economic foundations. Top-
ics include: bureaucracy, authority, power and politics,
control, technology, institutional theory, organizational
ecology, resource dependency and transaction costs.
(F)

259C. Research in Industrial Relations and Labor.
(3) Three hours of seminar per week. Prerequisites:
Ph.D. student or consent of instructor. Formerly Busi-
ness Administration 254D. Review of the research lit-
erature of industrial relations and labor, including its
economic and institutional foundations. Topics include:
unionism, wages, productivity, turnover, collective bar-
gaining, strikes and arbitration, government regulation,
internal labor markets, and implicit contracts. (F)

259D. Special Research Topics in OBIR. (3) Three
hours of seminar per week. Prerequisites: Ph.D. stu-
dent or consent of instructor. Formerly Business Ad-
ministration 254D. Review of special research topics in
organizational behavior and industrial relations not
ordinarily covered in 259 A, B, or C. Possible topics in-
clude: history of organizational research; human re-
source management research; comparative manage-
ment; and organization theory. Context varies from year
to year. (SP)

259S. Research Seminar in Organizational Be-
havior and Industrial Relations. (2-4) Course may
be repeated for credit. One-half to three hours of seminar
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,SP)

269A. Seminar in Marketing: Buyer Behavior. (3)
Three hours of seminar per week. Prerequisites: Con-
sent of instructor. Formerly Business Administration
269A. Advanced topics seminar intended principally
for Ph.D. students but open to advanced MBA students.
(F,SP) Staff

269B. Seminar in Marketing: Choice Modeling. (3)
Three hours of seminar per week. Prerequisites: Con-
sent of instructor. Formerly Business Administration
269B. Advanced topics seminar intended principally for
Ph.D. students but open to advanced MBA students.
(F,SP)

(3) Three hours of seminar per week. Prerequisites:
Consent of instructor. Formerly Business Administra-
tion 269C. Advanced topics seminar intended princi-
pally for Ph.D. students but open to advanced MBA stu-
dents. This section will focus on marketing theory and
the development of marketing thought. (Course of-
fered alternate years.) (F,SP)

269D. Special Research Topics in Marketing. (3)
Course may be repeated for credit. Three hours of
seminar per week. Prerequisites: Consent of instruc-
tor. Formerly Business Administration 269D. Review of
special research topics in marketing not ordinarily cov-
ered in BA 269A, 269B, 269C. Content varies from
year to year. (Course offered alternate years.) (F,SP)

269S. Research Seminar in Marketing. (2-4) Course
may be repeated for credit. One-half to three hours of
seminar per week. Advanced study in the field of Mar-
ing. Topics will vary from year to year and will be
announced at the beginning of each semester. (F,SP)

270A. The Political Economy of Capitalism. (3)
Three hours of lecture per week. Prerequisites: Ph.D.
student or consent of instructor. Formerly Business
Administration 270A. Comprehensive introduction to
historical development of contemporary capitalism. Class
will (1) compare the “classics” in political economy and
their alternative explanations of markets, politics, class,
and culture in industrial development; (2) provide an
overview of the history of the United States 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 standing 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 technolo-
gical change and technology policy; and 2) analyzing
the role of technological and organizational inno-
vation in firm strategy and performance. (F,SP)

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. Advanced
study in the field of Business and Public Policy. Top-
ics 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 with consent of instructor.
Three hours of seminar per week. Prerequisites: Ph.D.
equivalents of micro and macro economics, finance/or-
counting, statistics and econometrics. Formerly Busi-
ness Administration 289A. Doctoral real estate semi-
nar, covering topics related to real estate investment,
finance, and market analysis. The course is rigorous
and technical, applying financial and economic anal-
ysis to the subject areas of real estate finance, urban
real estate economics, and real estate evaluation. (F,SP) Staff

289S. Research Seminar in Real Estate. (2-4) Course
may be repeated for credit. One-half to three hours of
seminar per week. Advanced study in the field of Real
State. Topics will vary from year to year and will be
announced at the beginning of each semester. (F,SP)

297A. Research and Theory in Business: Eco-
nomics and Management Science. (3) Course is re-
quired for first year students in accounting, finance,
and management science. Three hours of lecture per
week. Prerequisites: Ph.D. student or consent of in-
structor. Formerly Business Administration 297A. The
course begins with individual decision making under
uncertainty, and goes on to cover game theory, in-
cluding both static and dynamic games with perfect,
imperfect, and incomplete information. The course also
covers market equilibrium with uncertainty and im-
perfect information, including topics such as signalling,
screening, adverse selection, and moral hazard. (SP)

297B. Research and Theory in Business: Behav-
ioral Science. (3) Course may be repeated for credit.
Three hours of lecture per week. Prerequisites: Ph.D.
student or consent of instructor. Formerly Business
Administration 297B. The course has been designed
to provide students with a rigorous introduction to the
methods of rational choice theory to political problems,
and links relevant theoretical and empirical literatures in
science and public policy. Core topics include explora-
tions of public choice for corporate strategy and business-government relations. (SP)

297C. Research and Theory in Business: Applied
Econometric Methods. (2) Course may be repeated for
credit. Two hours of lecture per week. Prerequisites:
Ph.D. student. Economics 201A-201B, Statistics
203A-203B. Formerly Business Administration 297C.
Reviews recent literature on public decision-making in
government institutions, emphasizing a systematic framework for evalu-
ating questions in public policy formation. Explores
the new institutionalism in political science, applies the
cialized statistical and theoretical techniques found in current journal articles in the fields of Accounting, Economic Analysis and Policy, Finance, and Business and Public Policy. It will be a workshop in format with emphasis on the empirical research problems faced by economics researchers and the alternate methodologies for dealing with these problems. Course content will vary from year to year. (F)

297D. Research and Theory in Business: Applied Behavioral Science Methods. (2) Course may be repeated for credit. Course is required for first-year students in Business and Public Policy, Organizational Behavior and Industrial Relations, and Marketing. Two hours of lecture per week. Prerequisites: Ph.D. student or consent of instructor. Formerly Business Administration 292D. This course will review, critique, and apply statistical techniques found in the behavioral science literature. It will also give students first-hand experience in applying general statistical techniques to their research problems. Course content will vary from year to year. Term paper will be a first pass at the statistical work in a student’s dissertation proposal. (SP)

297T. Doctoral Topics in Business Administration. (5-3) Course may be repeated for credit. One-half to three hours of lectures 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. Permission of Ph.D. student standing and consent of instructor. (F,SP)

601. Individual Study for Master’s Students. (1-5) Course does not satisfy unit or residence requirements for master’s degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Formerly Business Administration 601. Individual study in consultation with field adviser. (F,SP)

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 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)

Celtic Studies
(College of Letters and Science)

Program Office: 6303 Dwinelle Hall #2969, (510) 642-4484
Undergraduate Studies Office: 6303 Dwinelle Hall #2690
http://www.lsl.berkeley.edu/Dept/Celtic/
Director: Gary Holland, Ph.D.
Advisory Committee
Thomas Brady (History)
Gary Helland (Linguistics)
Kathryn Klar (Celtic Studies)
Daniel Metia (Rhetoric, Celtic Studies)
Jennifer Miller (English)
Annalee Rajhong (Celtic Studies)
Eve Teckholme (German, Emeritus)
Joan Keate (Celtic Studies, Emerita)
Blaire Salter (German, Emeritus)
Robert Tracy (English, Emeritus)
Undergraduate Assistant in 6303 Dwinelle Hall:
(510) 642-4661.

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 four semesters of language study and one hour of upper division elective courses, 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, Scandanavian, 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 or Professor Eve Sweetser or Gary Holland, Department of Linguistics, 1203 Dwinelle Hall.

Major Requirements

Lower Division. Celtic Studies 70 plus two semester courses from the following course sequence: 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 32 units including either 128 or 129, 138 or 139, and 168 or 169. One course from the following list must be taken: 102A, 102B, 105A, 105B, 144A, 144B, 145A, 145A, 146B. Also, 8 units must be included from among the following: 118A, 118B, 119A, 119B, 125, or 126. Electives: In addition, upper division elective courses may be selected from Celtic Studies 161, 168, 170, 171, and courses offered in the Linguistics department. 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 or Professor Eve Sweetser or Professor Gary Holland, at the Department of Linguistics, 1203 Dwinelle Hall #2650.

Honors Program

In order for students to graduate with honors in Celtic studies, they must have achieved an overall grade-point average of 3.3 or higher in all work completed in the University, a minimum 3.5 grade-point average in all courses required for the major, and they must have taken both Celtic Studies 128 and 129 (or their equivalents) as freshmen for the major. A thesis is also required, which should normally emanate from H195, 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. Details of the programs are available from Berkeley Programs for Study Abroad, 160 Stephens Hall, (510) 642-1356; http://www.ias.berkeley.edu/psa/.

Graduate Studies

Although no graduate degrees in Celtic studies are offered at present, it is possible to 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, 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 and one hour of discussion per week. Prerequisites: Subject A or equivalent. Formerly 1A-1B. Reading and composition course based on 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 courses will discuss the notion of “Celtic voices”: distinctive modes of 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 beginning course in Modern Irish. Students will learn the basics of Irish grammar, and gain ability to understand, speak, and write the language. (F,SP)

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 is on pronunciation, mastering consonant mutations, using several tenses (present, perfect, imperfect, past), and the acquisition of basic vocabulary and idiom. 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 1st millennium B.C. Eu- rope. 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) Mella

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

85. Intermediate Modern Irish. (4) Three hours language instruction and one hour of laboratory per week. Prerequisites: 15; or 5 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 acquainted with all of the central grammatical constructions of Irish, and will be ready to begin reading access to Irish prose. (F,SP)

86. Intermediate Modern Welsh. (4) Three hours language instruction and one hour of laboratory per week. Prerequisites: 16; or 6 and 76 or consent of instructor. Formerly 6B. Continuing instruction. Major emphasis in 16, emphasizing progress in conversation, grammar,
and idioms. Using tenses previously learned, students will learn how to ask and answer many types of questions that are grammatically similar to Irish. Class sessions will be supplemented with readings and exercises in modern Welsh and students will begin learning about Welsh culture as they learn the language. (SP) Klar, Rejhon

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Individual study or research under staff supervision. 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 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. Sweetser

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. It will follow the curriculum established by the only good Breton text in English, which will be supplemented with readings from current Breton publications and contemporary literature. Sweetser

105A. Old and Middle Irish (105A). Three hours of lecture and one hour of discussion per week. Prerequisites: 5 and 75. Instructor. A detailed introduction to the orthography, phonology and grammar of Old Irish designed to provide the student with the subsequent capacity to read and comprehend Irish texts ranging from medieval literary works to legal texts and historical chronicles. All works will be read in English translation. Rejoijn

120. Modern Celtic Cultures and Folklore. (4) Course may be repeated for half credit under different instructor. Three hours of lecture per week. A comparative study of modern Celtic cultures: principally Irish, Welsh, Scottish Gaelic and Breton. The development and preservation of the minority languages, history of the Celtic language family, philology and paleography of older Celtic texts, documentation of the modern Celtic languages, linguistic characteristics of the Celtic poetic, and oral traditional literature. (F,SP) Staff

125. Irish Literature inTranslation. (4) Three hours of lecture per week. Texts will include novels, short stories, poetry and historical works and will concentrate on translations of works originally written in Irish. All work 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 Welsh. (F,SP) Staff

126. Welsh Literature in Translation. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Formerly 126A-126B. A selective study of key themes in modern Welsh literature. Texts will include novels, short stories, poetry, and historical works and will concentrate on translations of works originally written in Welsh. All work will be read in English, but the course will be coordinated with 76 or 116A-116B for those who wish to do some of the reading in Welsh. (F,SP) Rajnitzky

144A. Modern Welsh Level 3. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 144A or consent of instructor. This course continues the Celtic Studies 16-18 sequence. Advanced grammatical concepts are introduced and vocabulary building and reading of texts with intensive conversation drills to activate the learned vocabulary. Tenses and future tenses are practiced. This course will provide students with relevant background for two semesters of formal instruction. Continued stress on vocabulary building and reading of texts with intensive conversation drills to activate the learned vocabulary. Tenses and future tenses are practiced. This course will provide students with relevant background for two semesters of formal instruction. Continued stress on vocabulary building and reading of texts with intensive conversation drills to activate the learned vocabulary. Tenses and future tenses are practiced. 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Chemical Engineering

Chemical Engineering / 159

Chemical Engineering Major

The College of Chemistry offers a major in chemical engineering leading to the B.S. degree. The program equips the student for professional work in development, design, and operation of chemical processes and of process equipment. Students with good academic 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 128 semester units; Mathematics 1A, 1B, 53, 54, Physics 7A, 7B, 7C or a chemistry elective; Chemistry 4A, 4B, 112A, 120A or Physics 137A; Chemical Engineering 140, 141, 142, 150A, 150B, 154, 157, 150, 162, 185; Engineering 45, 77; Electrical Engineering and Computer Sciences 100; and Molecular and Cell Biology 102. Three units of advanced technical electives plus additional technical courses are required to complete either the open elective program or the course focused options within the chemical engineering program. Students must satisfy the Subject A, the American History and Institutions, and the American cultures breadth requirements, which must be completed in English composition, humanities, and social sciences are required to fulfill the breadth requirement. See the Announcements of the College of Chemistry for additional information about the Chemical Engineering Program.

Undergraduate Research. Students are encouraged to take independent undergraduate research in collaboration with one of the faculty during their junior or senior year.

Double Major Programs with the College of Engineering. Two double major curricula involving the Colleges of Chemical Engineering and Chemistry are offered. These are: (1) Chemical Engineering/Materials Science and Engineering and (2) Chemical Engineering/Nuclear Engineering. These curricula include the core courses in both departments. Details on these curricula can be found in the Announcements of the College of Chemistry and the College of Engineering.

Intercollegiate Transfers. Transfer applicants are expected to complete, at a minimum, courses equivalent to Chemistry 1A-1B, Mathematics 1A-1B, Physics 1A-1B, (Mechanical Engineering 101, 122, Material Science 111, Manufacturing is recommended but not required (e.g., Chemical Engineering 140, 141, 142, 150A, 150B, 154, 157, 150, 162, 185; Engineering 45, 77; Electrical Engineering and Computer Sciences 100; and Molecular and Cell Biology 102). Students who have completed courses in other departments at Berkeley are not considered in the selection of applicants.

Chemical Engineering Minor

A minor in chemical engineering will be awarded to students who have taken the following courses: Mathematics 1A, 1B, 53, 54, Physics 7A, 7B, 7C or a chemistry elective; Chemistry 4A, 4B, 112A, 120A or Physics 137A; Chemical Engineering 140, 141, 142, 150A, 150B, 154, 157, 150, 162, 185; Engineering 45, 77; Electrical Engineering and Computer Sciences 100; and Molecular and Cell Biology 102. Three units of advanced technical electives plus additional technical courses are required to complete either the open elective program or the course focused options within the chemical engineering program. Students must satisfy the Subject A, the American History and Institutions, and the American cultures breadth requirements, which must be completed in English composition, humanities, and social sciences are required to fulfill the breadth requirement. The curriculum is accredited by the Accreditation Board for Engineering and Technology.

Note: Consult with your college or school for information on rules regarding overlap of courses between majors and minors.

Graduate Programs

Students interested in graduate study are invited to write to the Department of Chemical Engineering, University of California, Berkeley, 201 Gillman Hall #1462, Berkeley, CA 94720-1462.

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 passed/not passed basis. The Berkeley Seminar Program is designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small setting. Berkeley Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (SP)

C96. Introduction to Research and Study in the College of Chemistry. (1) One hour of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Freshman standing in Chemistry or Chemical Engineering major or consent of instructor. Chemistry majors enroll in C196. Formerly, BC 96. Introduces freshmen to research activities and programs of study in the College of Chemistry. Includes lectures by faculty, an introduction to college library and computer facilities, the opportunity to meet alumni and advanced undergraduates in an informal atmosphere, and discussion of college and campus resources. Also listed as Chemistry C96. (F)

Upper Division Courses

C133. Microfabrication Equipment Laboratory. (2) One hour of lecture and three hours of laboratory per week. Prerequisites: Electrical Engineering 40 or 100, Mathematics 53 and 54, Physics 7B; an upper division course on microfabrication technology or manufacturing is recommended but not required (e.g., Chemical Engineering 179, Electrical Engineering 133, Mechanical Engineering 101, 122, Material Science 111, 123, 125). Experiments and simulations illustrating the fundamentals of process equipment and measurement technology for microelectronic and microelectromechanical fabrication and manufacturing. The experiments involve investigation and measurements of high aspect ratio structures, plasma-assisted etching and film deposition, high temperature silicon oxidation, photolithography, spin coating, chemical-mechanical polishing, and electroplating. Also listed as Mechanical Engineering C123, Materials Science and Engineering C133, and Electrical Engineering C133. (SP)

140. Introduction to Chemical Process Analysis. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Chemistry 4B or 14 and a grade of C or better; Engineering 77N, Chemical Engineering 9A or 61A, or an acceptable computer programming transfer course for science or engineering students; and Physics 7B (may be taken concurrently). Material and energy balances applied to chemical process systems. Determination of thermodynamic properties needed for such calculations. Sources of data. Calculation procedures. (F, Staff)

141. Chemical Engineering Thermodynamics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 140 with a grade of C or better. Thermodynamic behavior of pure substances and mixtures. Properties of solutions, phase equilibria. Thermodynamic cycles. Chemical equilibria for homogeneous and heterogeneous systems. (F)

B prefix=language course for business majors
C prefix=cross-listed course
R prefix/course satisfies R&C requirement
AC suffix/course satisfies American cultures requirement
†Recipient of Distinguished Teaching Award
*Professor of the Graduate School
142. Chemical Kinetics and Reaction Engineering. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 141. Analysis and prediction of rates of chemical conversion in flow and nonflow processes involving homogeneous and heterogeneous systems. (SP)

150A. Transport Processes. (4) Three hours of lecture and five hours of laboratory per week. Prerequisites: 140 with grade of C- or higher; Math 54, which may be taken concurrently. Principles of fluid mechanics. Emphasis upon development with application to commercial processes. Laminar and turbulent flow in pipes and around submerged objects. Flow measurement. Heat conduction and convection; heat transfer coefficients. (SP)

150B. Transport and Separation Processes. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 150A with grade of C- or higher; Prerequisite may be taken concurrently. Principles of fluid mechanics and separation processes. Emphasis in investigation of relationships important in engineering practice. Experimental design, analysis of results, and preparation of engineering reports are stressed. (F,SP)

157. Transport Processes Laboratory. (3) Two hours of lecture and five hours of laboratory per week. Prerequisites: 140A and 150B, or 150A and 150B may be taken concurrently. Physicochemical properties of materials. Fluid mechanics, heat and mass transfer experiments illustrating principles and applications of transport phenomena in chemical engineering practice. Experiments illustrate application of chemical engineering principles to modern technologies such as microelectronics processing, biotechnology, and materials processing. (F,SP)

160. Chemical Process Design. (4) Three hours of lecture and five hours of laboratory per week. Prerequisites: 140B; 165 or demonstration of competence by exam. Experiments in physical measurement, fluid mechanics, heat and mass transfer, kinetics, and separation processes. Emphasis on investigation of relationships important in engineering practice. Experimental design, analysis of results, and preparation of engineering reports are stressed. (F,SP)

157. Transport Processes Laboratory. (3) Three hours of lecture and five hours of laboratory per week. Prerequisites: 140B; 150B may be taken concurrently. Physicochemical properties of materials. Fluid mechanics, heat and mass transfer experiments illustrating principles and applications of transport phenomena in chemical engineering practice. Experiments illustrate application of chemical engineering principles to modern technologies such as microelectronics processing, biotechnology, and materials processing. (F,SP)

160. Chemical Process Design. (4) Three hours of lecture and five hours of laboratory per week. Prerequisites: 140A and 150B, or 150A and 150B may be taken concurrently. Physicochemical properties of materials. Fluid mechanics, heat and mass transfer experiments illustrating principles and applications of transport phenomena in chemical engineering practice. Experiments illustrate application of chemical engineering principles to modern technologies such as microelectronics processing, biotechnology, and materials processing. (F,SP)

162. Dynamics and Control of Chemical Processes. (4) Two lecture hours, one hour of discussion, and four hours of laboratory per week. Prerequisites: Math 53 and 54. Analysis of the dynamic behavior of chemical processes and methods and theory of their control. Implementation of computer control systems on laboratory processes and process simulation. (F,SP)

170. Biochemical Engineering. (3) Three hours of lecture per week. Prerequisites: 150B; Design, operation, and analysis of processes in the biochemical industries. Fermentation and recovery of biochemical products. (F)

170E. Environmental Biotechnology. (3) Three hours of lecture per week. Prerequisites: 150B or Civil Engineering 105 or equivalent or consent of instructor. This course will focus on the application of biotechnology and chemical engineering to environmental problems. The first part of the course will cover the basic principles of chemical engineering to the environment. In particular, the class will look at homogeneous and heterogeneous systems. The second part of the course will introduce students to microbial growth, physiology, and genetics and how these can be manipulated to remediate toxic contaminants. In the final part of the course, students will use their knowledge of chemical engineering and biotechnology skills to solve some very important environmental problems. Case studies from the literature will be used to demonstrate these principles. Heavy emphasis will be placed upon the recent literature. (SP)

170L. Biochemical Engineering Laboratory. (3) Six hours of laboratory and one hour of lecture per week. Prerequisites: 170E or 170 (may be taken concurrently) or consent of instructor. Laboratory techniques for the cultivation of microorganisms in batch and continuous reactions. Enzymatic conversion processes. Recovery of biochemicals. Also listed as Chemistry C170L. (SP)

170M. Marine Biotechnology. (3) Three hours of lecture per week. Prerequisites: 170 or 170E. Three hour laboratory per week. Prerequisites: 150B. Fundamental principles of chemical engineering applied to the design, operation, and analysis of bioprocesses, with an emphasis on the emerging industry of marine biotechnology. Of particular interest is the cultivation of marine microorganisms and the discovery of marine bioproducts. Topics include new strategies for the discovery and development of new marine bioproducts, bioresource design for marine bacteria and photosynthetic microalgae, including scale-up, and downstream processing of complex marine natural products. (F)

171. Transport Phenomena. (3) Three hours of lecture per week. Prerequisites: 150B. Study of momentum, energy, and mass transfer in laminar and turbulent flow. (SP)

176. Principles of Electrochemical Processes. (3) Three hours of lecture per week. Prerequisites: 141, 150B. Principles and application of electrochemical equilibria, kinetics, and transport processes. Technical electronics and electrochemical conversion. (F)

178. Polymer Science and Technology. (3) Three hours of lecture/laboratory per week. Prerequisites: One semester of organic chemistry and physics recommended; 150A, equivalent fluid mechanics or consent of instructor. Introduction to physical and chemical behavior of organic polymers. Properties of solutions, melts, glasses, elastomers, and crystals. Engineering applications emphasizing processing technology. Experiments in polymerization and characterization. Also listed as Chemistry C178. (SP)

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. Crystal growth and purification. Thin film technology. Application of chemical processing to the manufacture of semiconductors and solid-state devices. (SP)

181. Processing of Advanced Polymeric Materials. (3) Three hours of lecture per week. Prerequisites: 150A or 150B; 178 or equivalent recommended. Study of polymer rheology and polymer processing operations, calendaring, fiber and film formation, compression and injection molding, and extrusion. Process analysis utilizes an understanding of rheology, fluid mechanics, and heat transfer to determine operating characteristics and the development of material structure and properties. (SP)

185. Technical Communication for Chemical Engineers. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 140; Satisfactory completion of UC Subject Requirement; Satisfactory English composition requirement and satisfaction of Chemical Engineering Applications requirement; Satisfaction of Chemical Engineering Applications requirement; open to seniors with consent of instructor. Mathematical formulation and solution of problems drawn from the fields of heat and mass transfer, fluid mechanics, thermodynamics, and reaction kinetics employing ordinary and partial differential equations, variational calculus, and Fourier methods. (F)

196. Special Laboratory Study. (2-3) Course may be repeated for credit. Individual conferences. Prerequisites: Satisfactory passing grade in 150A; consent of instructor. Special laboratory or computational work under direction of one of the members of the staff. (F,SP)

198. Directed Group Study for Undergraduates. (1-3) Course may be repeated for credit. One hour of lecture per week. Must be taken on a pass/no pass 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 the General Catalog.

Graduate Courses

230. Mathematical Methods in Chemical Engineering. (3) Three hours of lecture per week. Prerequisites: 150A and Math 54 or equivalent; 141 or equivalent; open to seniors with consent of instructor. Topics covered include classical and modern methods of resolving and analyzing systems of linear equations; numerical methods of solving non-linear systems of equations; and numerical methods of solving differential equations; and numerical methods of integrating functions; and numerical methods of determining the roots of non-linear equations. (SP)

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 instructor. Topics covered include classical and modern methods of resolving and analyzing systems of linear equations; numerical methods of solving non-linear systems of equations; and numerical methods of solving differential equations; and numerical methods of integrating functions; and numerical methods of determining the roots of non-linear equations. (SP)

241. Molecular Thermodynamics for Phase Equilibria in Chemical Engineering. (2) Two hours of lecture per week. Prerequisites: 141 or equivalent. Engineering-oriented synthesis of molecular models with statistical and classical thermodynamics. Quantitative representation of vapor-liquid, liquid-liquid, and solid-fluid equilibria. In addition, to phase equilibria for conventional, chemical, and petrochemical industries, attention is given to supercritical extraction, polymers, gels, electrolytes, adsorption, hydrates, and to selected topics in biothermodynamics. (SP)

244. Kinetics and Reaction Engineering. (3) Three hours of lecture per week. Prerequisites: 244 or Chemistry 223, or consent of instructor. Adsorption and kinetics of surface reactions; catalyst preparation and characterization; poisoning, 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)

246. Principles of Electrochemical Engineering. (3) Three hours of lecture per week. Prerequisites: Graduation standing or consent of instructor. Electrode processes in electrolysis and in galvanic cells. Charge and mass transfer in ionic media. Criteria of scale-up. (SP)

248. Applied Surface and Colloid Chemistry. (3) Three hours of lecture per week. Prerequisites: 150A or 150B; Molecu-
lar and Cell Biology 102; Chemistry 112B, 120B; or consent of instructor. Application of chemical engineering principles to the processing of biological and biochemical materials. Design of systems for cultivation of microorganisms and for the separation and purification of biological products.

250. Transport Processes. (3) Three hours of lecture per week. Prerequisites: 120A, 120B, or equivalent; open to seniors with consent of the instructor. Basic differential relations of mass, heat and momentum transport for Newtonian and non-Newtonian fluids; exact solutions of Navier-Stokes equations; 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. Fourier analysis of the solutions of the laws governing the transport of momentum, heat, and mass, with special emphasis on chemical engineering applications. Determination of non-linear convection and advection processes. (SP)

295S. Introduction to Experimental Surface Chemistry. (3) Prerequisites: 240 or equivalent. This course is intended to introduce chemical engineering students to the concepts and techniques involved in the study of chemical processes at surfaces. Special emphasis will be placed on the chemistry of semiconductor surfaces. Topics to be covered include thermodynamics and kinetics of adsorption, electronic structures of clean surfaces (metals and semiconductors); adsorption and desorption; surfactant science, and surface kinetics and dynamics including diffusion; growth and etching; surface reaction models; a survey of modern surface analytical techniques including electron diffraction, auger electron spectroscopy, photoelectron spectroscopy, vibrational spectroscopy, scanning tunneling microscopy, and mass spectrometry. (F.SP)

295R. Applied Spectroscopy. (3) Three hours of lecture per week. Prerequisites: Standing in Chemical Engineering or consent of instructor. An introduction to the different areas of surface science, the emphasis placed on application to research problems in applied and engineering sciences. Graduate research projects, includes both theoretical and experimental work in specific areas of interest. (F,SP)

295T. Principles of Membrane Technology. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course is intended to introduce chemical engineering students to the concepts and techniques involved in the study of biological activity through steps leading to a pharmaceutical treatment. Prerequisites: consent of instructor. Students will participate in solving open-ended technical and business problems facing management in an industrial organization. Emphasis will be on problem synthesis, creative and strategic thinking, and communication skills. Objectives of the course are to provide an understanding of what is expected of a new engineer in industry, of the viewpoint of management, and of the skills needed for success. (SP)

C295R. Introduction to Experimental Surface Chemistry. (3) Prerequisites: 240 or equivalent. The course covers new inorganic synthesis and discussions of selected studies from the recent literature. The course will address experimental data obtained by microscopy, light and neutron scattering, imaging, and fracture. When possible, we will develop quantitative models that predict macroscopic behavior. The course will address experimental data obtained by microscopy, light and neutron scattering, imaging, and fracture. When possible, we will develop quantitative models that predict macroscopic behavior.

295S. Introduction to Experimental Surface Chemistry. (3) Prerequisites: 240 or equivalent. This course is intended to introduce chemical engineering students to the concepts and techniques involved in the study of chemical processes at surfaces. Special emphasis will be placed on the chemistry of semiconductor surfaces. Topics to be covered include thermodynamics and kinetics of adsorption, electronic structures of clean surfaces (metals and semiconductors); adsorption and desorption; surfactant science, and surface kinetics and dynamics including diffusion; growth and etching; surface reaction models; a survey of modern surface analytical techniques including electron diffraction, auger electron spectroscopy, photoelectron spectroscopy, vibrational spectroscopy, scanning tunneling microscopy, and mass spectrometry. (F.SP)

295R. Applied Spectroscopy. (3) Three hours of lecture per week. Prerequisites: Standing in Chemical Engineering or consent of instructor. An introduction to the different areas of surface science, the emphasis placed on application to research problems in applied and engineering sciences. Graduate research projects, includes both theoretical and experimental work in specific areas of interest. (F,SP)

295T. Principles of Membrane Technology. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course is intended to introduce chemical engineering students to the concepts and techniques involved in the study of biological activity through steps leading to a pharmaceutical treatment. Prerequisites: consent of instructor. Students will participate in solving open-ended technical and business problems facing management in an industrial organization. Emphasis will be on problem synthesis, creative and strategic thinking, and communication skills. Objectives of the course are to provide an understanding of what is expected of a new engineer in industry, of the viewpoint of management, and of the skills needed for success. (SP)

Professional Courses

300. Professional Preparation: Supervised Teaching of Chemical Engineering. (2) Course may be repeated for credit. Suitable for students interested in careers as professional chemists or wish a thorough grounding in chemical engineering in 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 specialize in one of five options: applied physical science, biotechnology, chemical engineering, environmental science, or science and technology. Also, two B.S. degree double major programs (Chemical Engineering and Materials Science and Engineering), and Chemical Engineering and Nuclear Engineering) are available.

The College offers programs leading to the B.S., M.S., and Ph.D. degrees in both chemical and chemical engineering. The B.S. degree in chemistry is intended for students who are primarily interested in careers as professional chemists or wish a thorough grounding in chemistry in 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 specialize in one of five options: applied physical science, biotechnology, chemical engineering, environmental science, or science and technology. Also, two B.S. degree double 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 structural chemistry of organic and inorganic compounds, chemistry of natural products, theoretical chemistry, nuclear chemistry, physical chemistry, biophysical chemistry, and spectroscopy. Additionally, the course topics include topics such as energy, reaction, and kinetics, and the analysis of large scale laboratory experiments, course development, supervised practice teaching. (F,SP)
Recommended high school preparation for chemistry or chemical engineering should include chemistry (1 year), physics (1 year); mathematics (4 years, including trigonometry, intermediate algebra, and analytic geometry); and a foreign language (2 years, preferably German, Russian, or French).

For a more specific description of the programs for the various degrees, as well as options of specialization, see the Announcement of the College of Chemistry.

Organizational Units

Chemical Engineering
Department Office: 201 Gilman Hall #1462, (510) 642-2291
Chair: Arjun K. Chakraborty, Ph.D.

Chemistry
Department Office: 419 Latimer Hall #1460, (510) 642-5882
Chair: Charles Harris, Ph.D.

Chemistry (Department of)
(College of Chemistry)
Department Office: 419 Latimer Hall #1460, (510) 642-5882
Undergraduate Majors Office: 420 Latimer Hall #1460, (510) 642-3432
http://chem.berkeley.edu
Chair: Charles Harris, Ph.D.

University Professors
Gabor A. Somorjai, Ph.D. University of California, Berkeley. Physical chemistry
Yuan T. Lee (Emeritus), Ph.D. University of California, Berkeley. Physical chemistry

Professors
A. Paul Alivisatos, Ph.D. University of California, Berkeley. Physical chemistry
Richard A. Andersen, Ph.D. University of Wyoming. Physical chemistry
John Arnold, Ph.D. University of California, San Diego. Inorganic chemistry
Paul A. Barsett, Ph.D. Harvard University. Organic chemistry
Robert G. Bergman, Ph.D. University of Wisconsin. Organometallic chemistry
Cynthia R. Bertozzi (Vice Chair), Ph.D. University of California, Berkeley. Chemical biology
Carlos J. Bustamante, Ph.D. University of California, Berkeley. Chemical biology
Joseph Cerny, Ph.D. University of California, Berkeley. Nuclear chemistry
Ange K. Chakraborty, Ph.D. University of Delaware. Chemical engineering
Derrick E. Clutter, Ph.D. Harvard University. Theoretical chemistry
Jonathan A. Ellman (Vice Chair), Ph.D. Harvard University. Organic chemistry
John A. Emsley, Ph.D. University of London. Physical chemistry
Charles B. Harris (Chair), Ph.D. Massachusetts Institute of Technology. Theoretical chemistry
Robert A. Harris, Ph.D. University of Chicago. Theoretical chemistry
Martin Head-Gordon, Ph.D. Carnegie-Mellon University. Theoretical chemistry
Clayton H. Heathcock, Ph.D. University of Colorado. Organic chemistry
Sung-Hou Kim, Ph.D. University of Pittsburgh. Chemical biology
Jack F. Kirsch, Ph.D. Rockefeller University. Chemical biology
Judith P. Klinman, Ph.D. University of Pennsylvania. Chemical biology
John Kuriyan, Ph.D. Massachusetts Institute of Technology. Chemical biology
Stephen R. Kuszewski, Ph.D. University of California, Berkeley. Physical chemistry
William A. Lester, Jr., Ph.D. Harvard University. Theoretical chemistry
Marc O. Maitland, M.D. University of Southern Illinois. Electrochemistry
Michael A. Marletta, Ph.D. University of California, San Francisco. Chemical biology
Richard A. Mathies, Ph.D. Cornell University. Chemical biology
William 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
Heino Nitsche, Ph.D. Freie Universität Berlin. Nuclear chemistry
Alexander Pines, Ph.D. Massachusetts Institute of Technology. Physical chemistry
Kenneth N. Raymond, Ph.D. Northwestern University. Physical, inorganic, and biophysical chemistry
Richard J. Saykally, Ph.D. University of Wisconsin-Madison. Physical chemistry
Charles V. Shank, Ph.D. University of California, Berkeley. Physical chemistry
Kevin Shokat, Ph.D. University of California, Berkeley. Chemical biology
Angelika M. Stacy (Vice Chair), Ph.D. Cornell University. Inorganic and physical chemistry
Herbert L. Strauss, Ph.D. Columbia University. Physical chemistry
T. Don Tilley, Ph.D. University of California, Berkeley. Inorganic chemistry
K. Peter C. Vollhardt, Ph.D. University College London. Physical chemistry
T. Don Tilley, Ph.D. University of California, Berkeley. Physical chemistry
Neil Bartlett (Emeritus), Ph.D. King’s College, University of Durham. Inorganic chemistry
Leo Brewster (Emeritus), Ph.D. University of California, Berkeley. Physical chemistry
James Cason, Jr. (Emeritus), Ph.D. Yale University. Organic chemistry
Robert E. Comnick (Emeritus), Ph.D. University of California, Berkeley. Physical chemistry
John G. Hasted (Emeritus), Ph.D. California Institute of Technology. Chemical biology
Darleen C. Hoffman (Emeritus), Ph.D. Iowa State University. Nuclear chemistry
Harold S. Johnston (Emeritus), Ph.D. California Institute of Technology. Physical chemistry
William J. Jolly (Emeritus), Ph.D. University of California, Berkeley. Inorganic chemistry
Samuel S. Markowitz (Emeritus), Ph.D. Princeton University. Nuclear and environmental chemistry
G. Bradley Moor (Emeritus), Ph.D. University of California, Berkeley. Physical chemistry
Rolfe J. Myers (Emeritus), Ph.D. University of California, Berkeley. Physical chemistry
Donald S. Noyes (Emeritus), Ph.D. Columbia University. Organic chemistry
Chester T. Otsuka (Emeritus), Ph.D. Northwestern University. Chemical biology
Norman E. Phillips (Emeritus), Ph.D. University of Chicago. Physical chemistry
John O. Rasmussen (Emeritus), Ph.D. University of California, Berkeley. Physical chemistry
Kenneth Sauer (Emeritus), Ph.D. Harvard University. Physical chemistry
David A. Shirley (Emeritus), Ph.D. University of California, Berkeley. Physical chemistry
Andrew Streitwieser, Jr. (Emeritus), Ph.D. Columbia University. Organic chemistry
Igancio Tinoco, Jr. (Emeritus), Ph.D. University of Wisconsin. Chemical biology
Rossi Professor
Ronald C. Cohen, Ph.D. University of California, Berkeley. Atmospheric chemistry

Assistant Professors
Adam Arkin, Ph.D. Massachusetts Institute of Technology. Biophysical chemistry and bioengineering
Krisite A. Boering, Ph.D. Stanford University. Atmospheric chemistry
Jamie H. Cate, Ph.D. Yale University. Chemical biology
Matthew Francis, Ph.D. Harvard University. Organic chemistry
Jay T. Groves, Ph.D. Stanford University. Chemical biology
Jeffrey R. Long, Ph.D. Harvard University. Inorganic chemistry
F. Dean Toste, Ph.D. Stanford University. Organic chemistry
Dirk Trauner, Ph.D. University of Vienna. Physical chemistry
Osamu Tsuboi, Ph.D. University of California, Berkeley. Physical chemistry
Wei-Ping Yang, Ph.D. Harvard University. Inorganic chemistry

Adjunct Professors
J. Robert Leary, Ph.D. Massachusetts Institute of Technology. Mass spectrometry
William McCurdy, Ph.D. California Institute of Technology. Theoretical chemistry

Lecturers
Ahmed I. Al-Jalali, Ph.D. Harvard University. Organic chemistry
Mark Kubicek, Ph.D. University of California, Berkeley. Physical chemistry and NMR spectroscopy
Steven F. Pedersen, Ph.D. Massachusetts Institute of Technology. Inorganic and organic chemistry

Individual Major in Chemical Biology

The College of Chemistry offers an individual major in chemical biology leading to a Bachelor of Science degree. The chemical biology major is intended to provide a solid background in chemistry as it affects areas like biochemistry, molecular biology, bioengineering, structural biology, drug design, pharmacology, and medicine. Students who are interested in the individual major in chemical biology may obtain additional information in the Undergraduate Majors Office.

Chemistry Major in the College of Letters and Science

Major Requirements
Mathematics: 1A, 1B, and 53 is strongly recommended. Physics: 7A, 7B, 7C. Chemistry: 1A, 1B, and 5 (or 4A, 4B); 104A, 104B, 112A, 112B, 120A, 120B, and a choice of one of the following: 105, 108, or 125.

Honors at Graduation
Upper division students may be admitted to the honors program (Chemistry H194) if they have an overall Berkeley grade-point average of at least 3.4. To be eligible to receive honors in chemistry, candidates for the B.A. degree must (1) earn a grade-point average of at least 3.5 in upper division courses in the major; and (2) complete at least 3 units of...
Chemistry Minor in the College of Chemistry

A minor in chemistry will be awarded to students who have successfully completed one year of organic chemistry (3A-3B or 112A-112B or equivalent), one year of physical chemistry taken at Berkeley (120A-120B or 130A-130B), and two additional semester courses in division chemistry courses taken at Berkeley (with the exception of courses numbered 190-199). All of the courses taken for the minor must be taken for a letter grade. Students must achieve at least a 2.0 grade-point average in the courses taken for the minor for each of the following: upper division courses taken at Berkeley, and organic chemistry courses if taken at another institution and accepted by the College of Chemistry as equivalent to 3A, 3B, 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 Announcement of the School of Education.

Graduate Programs

Students interested in graduate study are invited to write to the chair of the Department of Chemistry, University of California, Berkeley, 419 Latimer Hall #1460, Berkeley, CA 94720-1460.

Laboratory Fees

The College of Chemistry charges a laboratory fee for each of the following laboratory courses: Chemistry 1A, 1B, 3A, 3B, 4A, 4B, 5, 105, 108, 112A, 112B, 115, 123, 125, and 146.

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, ideal and real gases, acid-base and solubility equilibrium, oxidation-reduction reactions, thermochemistry, introduction to thermodynamics, nuclear chemistry and radioactivity, the atoms and elements, and the periodic table. Laboratory sections focusing on environmental chemistry are available. See Schedule of Classes for details. (F,SP)

1B. General Chemistry. (4) Courses 3A and 4B will restrict credit if completed before 1B. Two hours of lecture, one hour of discussion, and four hours of laboratory per week. Prerequisites: 1A or a score of 3, 4, or 5 on the Chemistry AP test. Three hours of lecture and four hours of laboratory per week. Prerequisites: High school chemistry recommended. Chemical bond, molecular structure, introduction to chemical kinetics, qualitative analysis and descriptive chemistry, introduction to organic chemistry. Special topics: Research topics in modern chemistry and biochemistry, physical chemistry, nuclear chemistry, inorganic chemistry and chemical engineering. (SP)

3A. Chemical Structure and Reactivity. (5) Courses 1B, 4B, and 112A will restrict credit if completed prior to 3A. Three hours of lecture, one hour of discussion, 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. Introduction to chemical structures, bonding, chemical reactivity, and organic chemistry (alkanes, alkyl halides, alcohols, amines, aldehydes, ketones, carbonyl compounds and organometallics). (F,SP)

3B. Chemical Structure and Reactivity. (4) Course 112B will restrict credit if completed prior to 3B. Three 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. Students will receive no credit for 4B after taking 3A; students with credit in 1B or 5 will receive no credit for 4B. Three hours of lecture and four hours of laboratory per week. Prerequisites: High school chemistry and calculus (may be taken concurrently). High school physics is recommended. 4A-4B is intended for majors in the chemical sciences. This series presents the foundation principles of chemistry, including stoichiometry, ideal and real gases, acid-base and solubility equilibrium, oxidation-reduction reactions, nuclear chemistry, entropy, nuclear chemistry and radioactivity, the atoms and elements, the periodic table, quantum mechanics, 4B. Introduction to bonding, molecular structure, chemical kinetics, and descriptive chemistry. Examples and applications will be drawn from diverse areas of special interest such as atmospheric, environmental, marine, materials, polymer and computational chemistry, and biochemistry. Laboratory emphasizes quantitative work. Equivalent to 1A-1B plus 5 as prerequisite for further coursework in chemistry. (F,SP)

5. Quantitative Analysis. (3) Courses 4A and 4B will restrict credit if completed prior to 5. Two hours of lecture and four hours of laboratory per week. Prerequisites: 1A or a score of 5 on Chemistry AP exam; 1B or 3A recommended. Minimum grade of C required in 1A, 1B or 3A. Acid-base, redox, complex formation equilibria and their applications to volumetric analytical methods. Principles and applications of spectrophotometry, potentiometry, coulometry, polarography, and ion exchange chromatography. Selected additional topics in instrumental analysis. (F,SP)

10. Chemical Attractions. (3) For nonscience majors. Three hours of lecture and one hour of discussion per week. The principles of chemistry permeate everything in the world around us. From the protection of sunscreen to the production of perfumes to the processes of DNA fingerprinting and art restoration to the foods and pharmaceuticals we ingest, chemistry is a crucial player in our everyday lives. The course will introduce the nonscience major to chemical principles by exploring various “themes” such as perfumes and chemical communication, pesticides and the environment, drugs and blood chemistry, art restoration, criminology, and plastics. In lieu of traditional problem sets and laboratories common in chemistry courses, students will prepare critiques of science as it is presented in the media, participate in solving a mock crime, and stage debates about the risks and benefits of our lives. The course will culminate with group projects whereby students pursue a question or “theme” of their own interest. (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 all 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, semester to semester. Enrollment limited to 15 freshmen.

49. Supplementary Work in Lower Division Chemistry. (1-4) Course may be repeated for credit. Meets 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)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, integrative courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate.

98. Introduction to Research and Study in the College of Chemistry. (1) One hour of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Freshman standing in chemistry or chemical engineering major or consent of instructor. Chemistry majors enroll in C96 and chemical engineering majors enroll in Chemical Engineering C96. Formerly 98. Introduces freshmen to research activities and programs of study in the College of Chemistry. Includes lectures by faculty, an introduction to college library and computer facilities, and a visit to meet alumnae and advanced undergraduates in an informal atmosphere, and discussion of college and campus resources. Also listed as Chemical Engineering C96. (F)

98B. Issues in Chemistry. (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. Prerequisites: A score of 3, 4, or 5 on the Chemistry AP test, or 1A or 4A (may be taken concurrently). This seminar will focus on one or several related issues in society that have a significant bearing on chemistry. Particular topics will differ from course section to course section and from year to year. Representative examples: atmospheric ozone, nuclear waste, solar energy, water, agrichemicals. Students will search information sources, invite expert specialists to speak, prepare oral and written reports. (F,SP)

98W. Directed Group Study. (1) Course may be repeated for credit. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. One hour of work per week per unit. Must be taken on a passed/not passed basis. Prerequisite: consent of instructor. Group study of selected topics.

989. Issues in Chemistry. (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. Prerequisites: A score of 3, 4, or 5 on the Chemistry AP test, or 1A or 4A (may be taken concurrently). This seminar will focus on one or several related issues in society that have a significant bearing on chemistry. Particular topics will differ from course section to course section and from year to year. Representative examples: atmospheric ozone, nuclear waste, solar energy, water, agrichemicals. Students will search information sources, invite expert specialists to speak, prepare oral and written reports. (F,SP)

Upper Division Courses

100. Communicating Chemistry. (2) Course may be repeated for credit. Two hours of lecture and one hour of fieldwork per week. Formerly 20. For undergraduate and graduate students interested in gaining the ability to communicate their scientific knowledge by teaching chemistry in elementary schools. The course will combine instruction in inquiry-based chemistry teaching methods and learning pedagogy with 10 weeks of supervised teaching experience in a local school classroom. Thus, students will practice communicating scientific knowledge and receive mentoring on how to improve their presentations. Approximately three hours per week, including time spent in school classrooms. (SP)

104A-104B. Advanced Inorganic Chemistry. (3,3) Three hours of lecture per week. Prerequisites: 1B, 4B, or 3A. 104A is the prerequisite to 104B. The chemistry of metals and nonmetals including the application of physical chemical principles. (F,SP)

105. Instrumental Methods of Analysis. (4) Two hours of lecture and eight hours of laboratory per week. Prerequisites: 4B or 5; 104A (may be taken concurrently). Principles and applications of spectrophotometric, chromatographic, and electrochemical methods including atomic spectroscopy, mass spectrometry, gas chromatography, surface characterization methods, voltametric techniques. Discussion of instrument de-
sign and capabilities. Hands-on laboratory work emphasizes independent projects involving real-life samples. (F,SP)

108. Inorganic Synthesis and Reactions. (4) Two hours of lecture and eight hours of laboratory per week. Prerequisites: 4B or 5; 104A with grade of C or higher; and 104B (may be taken concurrently). The preparation of inorganic compounds using the 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. (5-5) Courses 3A-3B will restrict credit if completed prior to 112A-112B. Three hours of lecture, one hour of laboratory, and five hours of laboratory per week, Prerequisites: 112A: 1B or 4B with grade of C or higher; 112B: 112A 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 study includes theoretical aspects, reaction mechanisms, multistep syntheses and the chemistry of naturally occurring and synthetic organic 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 Organic Chemistry. (3) Three hours of lecture and eight hours of laboratory per week. Prerequisites: 3B or 112B. Study of advanced topics in organic chemistry including linear free energy relationships, orbital symmetry, mechanisms, and complex synthesis including heterogeneous systems. (SP)

115. Organic Chemistry—Advanced Laboratory Methods. (4) One hour of lecture and eleven hours of laboratory per week. Prerequisites: 112B with a grade of C or higher. Advanced synthetic methods, chemical and spectroscopic structural methods, designed as a preparation for experimental research. (SP)

120A. Physical Chemistry. (3) Course 120B will restrict credit if completed prior to 120A. Three hours of lecture per week. Prerequisites: 1B or 4B; Mathematics 53; 54 may be taken concurrently; and Physics 7C. For Chemical Engineering majors, the prerequisites of Physics 7C is waived and Physics 7B is required. Quantum mechanics of atoms and molecules including one-and many-electron atoms, the periodic table, chemical bonding, intermolecular interactions, and elementary spectroscopy of diatomic molecules. (F,SP)

120B. Physical Chemistry. (3) Courses 130A and 130B will restrict credit if completed prior to 120B. Three hours of lecture per week. Prerequisites: 1B or 4B; Mathematics 53, Physics 7C, Mathematics 54 (may be taken concurrently). Thermodynamics, statistical mechanics and kinetics with applications to chemical engineering, including gases, solutions, phase transitions, and chemical equilibrium. (F,SP)

122. Quantum Mechanics and Spectroscopy. (3) Three hours of lecture per week. Prerequisites: 120B. Postulates and methods of quantum mechanics and group theory applied to molecular structure and spectra. (F)

125. Physical Chemistry Laboratory. (3) One hour of lecture and five hours of laboratory per week. Prerequisites: Needs two of the following: 120A, 120B, 130A, 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,SP)

130A. Biophysical Chemistry. (3) Course 120B will restrict credit if completed prior to 130A. Two hours of lecture and one hour of discussion per week. Prerequisites: 1B or 4B, 120A, and at least one semester course in calculus. Designed for students majoring in the biological sciences. The weekly one-hour discussion will complement the laboratory experiments and the application of calculus in physical chemistry. Bioenergetics, equilibrium and non-equilibrium states, molecular distributions, active and passive transport, reaction rates and mechanisms, enzyme reactions. (F,SP)

130B. Biophysical Chemistry. (3) Courses 120A and 120B will restrict credit if completed prior to 130B. Two hours of lecture and one hour of discussion per week. Prerequisites: 130A or consent of instructor. The weekly one-hour discussion is for problem solving and the application of calculus to 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, 120A or 130A, consent of instructor. One-semester introduction to biochemistry, aimed toward chemistry majors. (SP)

143. Nuclear Chemistry. (2) Two hours of lecture per week. Prerequisites: Physics 7C 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 5; 143 is recommended. Formerly C144. Experiments illustrating the interrelation between chemical and 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)

C170L. Biochemical Engineering Laboratory. (3) Six hours of laboratory and one hour of lecture per week. Prerequisites: Chemical Engineering 170 or 170E (may be taken concurrently) and consent of instructor. Laboratory techniques for the cultivation of microorganisms in batch and continuous reactions. Enzymatic conversion processes. Recovery of biological products. Also listed as Chemical Engineering C170L (SP)

C178. Polymer Science and Technology. (3) Three hours of lecture/laboratory per week. Prerequisites: Chemical Engineering 150A, equivalent fluid mechanics or consent of instructor. Introduction to physical and chemical behavior of organic polymers. Properties of solutions, melts, glasses, elastomers, and crystals. Engineering applications emphasizing processing technology. Experiments in polymerization and characterization. Also listed as Chemical Engineering C178. (SP)

C182. Atmospheric Chemistry and Physics Laboratory. (3) One hour of lecture and five hours of laboratory per week. Prerequisites: College-level calculus, chemistry, and physics or equivalent. Instructor: Fluid dynamics, radiative transfer, and the kinetics, spectroscopy, and measurement of atmospherically relevant species are explored through laboratory experiments, numerical simulations, and field observations. The course is intended for Earth and Planetary Science majors and other majors interested in chemistry, physics, astronomy, biology, and engineering majors whose interests may lie in science applied to the atmosphere of Earth and other planets. Also listed as Earth and Planetary Science C182. (SP)

192. Individual Study for Advanced Undergraduates. (1-3) Course may be repeated for credit. Individual conferences. Prerequisites: Consent of instructor and adviser. All properly qualified students who wish to pursue a problem of their own choice, through reading or laboratory study, may do so if their proposed project is acceptable to the members of the staff. (F,SP)

H194. Research for Advanced Undergraduates. (2-4) Course may be repeated for credit. Minimum of three hours of work per week per unit of credit. Prerequisites: Minimum GPA of 3.4 overall at Berkeley and consent of instructor and adviser. Students may pursue original research under the direction of one of the members of the staff. (F,SP)

195. Special Topics. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Special topics will be offered from time to time. Examples are: photochemical air pollution, computers in chemistry. (SP)

196. Special Laboratory Study, (2-4) Course may be repeated for credit. Laboratory. Prerequisites: Consent of instructor and adviser. Special laboratory work for advanced undergraduates. (F,SP)

197. Supervised Independent Study and Research. (1-8) Course may be repeated for credit. Nonlaboratory study only. Must be taken on a pass/no pass basis. Enrollment is restricted by regulations listed in the General 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, spectroscopy, thermodynamics and kinetics, and arrow-pushing formalisms. (F)

201. Fundamentals of Inorganic Chemistry. (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)

206. 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 practice of modern, single-crystal X-ray diffraction. Groups of four students determine the crystal and molecular structure of newly synthesized materials from the College of Chemistry. The laboratory work involves the mounting of crystals and initial evaluation by X-ray diffraction film techniques, the collection of intensity data by automated diffractometer procedures, and structure analysis and refinement. (SP)

220A. Thermodynamics and Statistical Mechanics. (3) Three hours of lecture per week. Prerequisites: 221A and 223A. Quantum statistical mechanics and applications to complex systems. (F)

221A. Advanced Quantum Mechanics. (3) Three hours of lecture per week. Prerequisites: 120B and 122 or equivalent. Introduction, one dimensional problems, matrix mechanics, approximation methods. (F)


223B. Chemical Dynamics. (3) Three hours of lecture per week. Prerequisites: 120B and 122 or equivalent. Chemical dynamics. (SP)

224. 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: 200 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 five weeks. Prerequisites: 250A or consent of instructor. This course will offer a detailed study of infrared, Raman, and electron spectroscopy and emphasis will be placed on the use of these techniques for the analysis of complex inorganic compounds.

251A. Coordination Chemistry I. (1) Three hours of lecture per week for five weeks. Prerequisites: 254A or consent of instructor. This course will focus on the chemistry of transition metal complexes, with an emphasis on the coordination chemistry of metal ions.

251B. Coordination Chemistry II. (1) Three hours of lecture per week for five weeks. Prerequisites: 251A or consent of instructor. This course will continue the study of coordination chemistry, with a focus on the synthesis and properties of complex metal compounds.

252A. Organometallic Chemistry I. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or 201 or consent of instructor. This course will introduce students to the field of organometallic chemistry, with a focus on the synthesis and properties of organometallic compounds.

252B. Organometallic Chemistry II. (1) Three hours of lecture per week for five weeks. Prerequisites: 252A or consent of instructor. This course will continue the study of organometallic chemistry, with a focus on the catalytic and pharmaceutical applications of organometallic compounds.

253A. Materials Chemistry I. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or 201 or consent of instructor. This course will introduce students to the field of materials chemistry, with a focus on the synthesis and properties of materials for energy and electronic applications.

253B. Materials Chemistry II. (1) Three hours of lecture per week for five weeks. Prerequisites: 253A or consent of instructor. This course will continue the study of materials chemistry, with a focus on the synthesis and properties of materials for biological and medical applications.

254. Bioorganic Chemistry. (1) Three hours of lecture per week for five weeks. A survey of the roles of biochemistry in biology, taught as a tutorial involving class presentations. (SP)

255. Advanced Analytical Chemistry I. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly 250A. State-of-the-art techniques in modern analytical chemistry will be presented in an overview of mass spectrometry, electrochemistry, and separations. Emphasis will be on instrumentation, methods, detection, and recent applications. (SP)

256. Electrochemical Methods. (1) Three hours of lecture per week for five weeks. The effect of structure and kinetics on the appearance of cyclic voltammetry, cyclic voltammetry, square wave voltammetry, and the thermodynamics, kinetics, and mechanisms of electrochemical reactions. (SP)

260A. Reaction Mechanisms I. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or 201 or consent of instructor. Reaction mechanisms, acidities, bond energies, mechanistic analysis, MO theory and aromaticity, kinetics and isotope effects. (F)

260B. Reaction Mechanisms II. (1) Three hours of lecture per week for five weeks. Prerequisites: 260A or consent of instructor. Reaction intermediates, photochemistry, solvent and substrate effects. (F)

261A. Organic Reactions I. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or 201 or consent of instructor. Topics include addition, substitution, and elimination reactions. (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)

262. Metals in Organic Synthesis. (1) Three hours of lecture per week for five weeks. Prerequisites: 261B or consent of instructor. The manipulation of metal reagents in organic synthesis. (F)

263A. Synthetic Design I. (1) Three hours of lecture per week for five weeks. Prerequisites: 262 or consent of instructor. This course will provide the general principles of transition metal reactivity, coordination chemistry, and stereochemistry.

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)


264B. Properties and Applications of Macromolecules. (1) Three hours of lecture per week for five weeks. Prerequisites: 264A or consent of instructor. Characterization of macromolecules. Structure-property relationships of polymers and their applications: polymers in therapeutics, biomedical polymers and implants, conducting polymers, polymers in microelectronics and photonics, polymers in separations and molecular recognition, supramolecular chemistry, and self-assembly. (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. The theory behind practical nuclear magnetic resonance spectroscopy and a survey of its applications to chemical compounds. (SP)

266. Mass Spectrometry. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or 201 or consent of instructor. Basic mass spectrometric ionization techniques and analyzers as well as some 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 different mass spectrometers; an in-depth instruction on the use of mass spectrometry for the analysis of biomolecules such as proteins, peptides, carbohydrates, and lipids. (SP)

267. Organic Specialties. (3) Three hours of lecture per week for five weeks. Prerequisites: Graduate-level standing or consent of instructor. Underlying principles and applications of methods for biophysical analysis of biomolecular macromolecules. (F)

270A. Advanced Biophysical Chemistry I. (1) Three hours of lecture per week for five weeks. Prerequisites: 200 or consent of instructor. Undergraduate-level understanding of organic synthesis or consent of instructor. A survey course focusing on the topic of organic chemistry, with emphasis on the synthesis of pharmaceuticals and macromolecules, focusing on the chemistry behind the reactions and the three-dimensional structures that carry out the transformations. (SP)

270B. Advanced Biophysical Chemistry II. (1) Three hours of lecture per week for five weeks. Prerequisites: 270A or consent of instructor. More 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: 200 or consent of instructor. This course will present the structural, functional, and mechanistic analysis of biomolecules 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 II: 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 bioanalytical techniques will be emphasized. (SP)

272A. Bio X-Ray I. (1) Three hours of lecture per week for five weeks. Prerequisites: 270A-270B or consent of instructor. Theory and application 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 application of X-ray crystallography to biomacromolecules. (SP)

273A. Bio NMR I. (1) Three hours of lecture per week for five 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 application of multidimensional NMR in probing structure, interactions, and dynamics of biological molecules will be described. (SP)

273B. Bio NMR II. (1) Three hours of lecture per week for five weeks. Prerequisites: 273A. Triple resonance methods for determination of protein and nucleic acid resonance assignments, and for generation of structural restraints (distances, anisotropies, etc.). Methods for calculating biomolecular structures from NMR data and the quality of such structures will be discussed. (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. Lecture series on topics of current interest. Recently offered topics: mass spectroscopy, polymer chemistry, mass and magnetic resonance, and self-assembly. (SP)

299. Research for Graduate Students. (1) Course may be repeated for credit. Laboratory. Prerequisites: Graduate standing. The facilities of the laboratory are available at all times to graduate students pursuing original investigations toward an advanced degree at this University. (S,SP)

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for credit. 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 themselves for the various examinations required of candidates for the Ph.D. degree. May not be used for all graduate degree requirements. (F,SP)

Professor of the Graduate School
Recipient of Distinguished Teaching Award
300. Professional Preparation: Supervised Teaching of Chemistry. (2) Course may be repeated for credit. Prerequisites: Graduate standing and appoint- ment as a graduate student instructor. Discussion, curricular development, class observation, and practice teaching in chemistry. (F,SP)

301A. 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 passed/not passed basis. Prerequisites: Junior standing or consent of instructor; 1A-1B with grade B- or higher. Tutoring of students in 1A-1B laboratories. Students attend one hour of the regular GSI prepara- tory meeting and hold one office hour per week to answer questions about laboratory assignments. (F,SP)

301B. 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. Prerequisites: Sophomore standing; 1A-1B with grade B- or higher. Formerly 301. Tutoring of students in 1A-1B. Students attend a weekly meeting on tutoring methods at the Student Learning Center and attend 1A-1B 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 labora- tory preparation meeting for one hour, assist in the laboratory section for four hours, and help in the de- velopment and testing of experiments for one hour. (F,SP)

301T. Undergraduate Preparation for Teaching or Instruction in Teaching. (2) Course may be repeated for a maximum of 8 units. Two or three hours of lecture and four or five hours of tutorial per week. Prerequi- sites: Junior standing, overall GPA 3.1, and consent or instructor. (F,SP)

301W. Supervised Instruction of Chemistry Schol- ars. (2) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: Sophomore standing and consent of instructor. Tu- toring of students in the College of Chemistry Scholars Program who are enrolled in 1A-1B or 112A-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
Chair: To be announced

Professors
Norma Alarcón, Ph.D.
José D. Saldívar, Ph.D.
Laura Pérez, Ph.D.

Associate Professors
Alfred Atienza, Ph.D.
Carlos Muñoz, Jr., (Emeritus), Ph.D.

Adjunct Lecturer
Lourdes Parra, Ph.D.

Undergraduate Major Advisor: Ms. Jimenez-Olvera.

Undergraduate Program

The Chicano studies major offers an interdisciplinary curriculum of academic study that critically examines the historical and contemporary experi- ences of Chicano/a 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 curriculum includes particular aspects of Mexican history, culture and politics as they bear upon the Chicano community, past and present. Emphasis is given to the study of developing a broad knowledge of the Chicano ex- perience. Thus, the major stresses the analysis of the interrelationships in the historical background, cultural patterns, and artistic expression of the Chi- cano community in order to acquire a well-rounded, in-depth understanding of the contemporary in- terface 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 na- ture of our curriculum, the major is aimed at prepar- ing students for incorporation into the world of work and for a wide range of advanced graduate work and/or professional training in various fields.

Major Requirements

The major in Chicano studies consists of 12 courses for a total of 48 units.

Lower Division. Ethnic Studies 10A, 10B; completion of two courses from Chicano Studies 20, 40, and 50.

Upper Division. Ethnic Studies 101A, 101B, and 103; completion of four courses from Chicano Studies 101, 141, 143, 150B, 159, 161C, or an approved course from another department; Chicano Studies 197 (4 units cumulative).

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 pro- ject. For more information, contact the Chicano Stud- ies advisor in 532 Barrows Hall.

The Minor in Chicano Studies

Requirements. The minor in Chicano studies con- sists of five upper division courses for a total of 20 units: Ethnic Studies 101A or 101B; and comple- tion of four of the upper division courses listed in the major requirements (not including Chicano Studies 197).

Lower Division Courses

6A. Chicano Spanish. (4) Four hours of lecture per week. Designed and scheduled to be structured to de- velop confidence in the Chicano student’s ability to communicate effectively in Spanish through an em- phasis on class discussion, composition, in- dividual and group presentations, lectures, movies and selected readings. Newly acquired confidence in and facility with the Spanish language will be continually re- firmed through class presentation, written and oral re- ports and researched topics. (F,SP) Parra

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 and to critical analyses of a variety of their writings. (SP) Parra

20. Introduction to Chicano Culture. (4) 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 his- torical interaction between Chicanos and American so- ciety 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. (SP)

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 3-4 to be graded on a passed/not passed basis. The Freshman Seminar Program has been de- signed 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 de- partment to department and semester to semester. En- rollment limited to 15 freshmen. (F,SP) Staff

40. Introduction to Chicano Literature in English. (4) Four hours of lecture per week. The course will in- troduce students to modern Chicano literature written in English, and will provide necessary background for understanding more specialized courses in the area. (SP) Alarcón, Perez

50. Introduction to Chicano History. (3) Hours of lecture per week. A general overview of the Chicano historical experience in the U.S. (F,SP)

70. Latino Politics. (3) Three hours of lecture and one hour of discussion per week. A critical analysis of the Latino political experience in the United States. The course compares and contrasts the ideologies, politi- cal organizations, and political leadership in the Mex- ican American, Cuban American, Puerto Rican, and Central American communities. The contemporary is- sues confronting Latinos are critically examined. (F) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring de- partment. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

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 as- pects of Chicano studies. (F,SP) Staff

98. Supervised Group Study. (1-3) Course may be repeated for credit. Enrollment is restricted; see the In- troduction to Courses and Curricula section of this cat- logo. 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 sopho- mores 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: Consent of in- structor. Individual research by lower division students. Limited to freshmen and sophomores. (F,SP)

Upper Division Courses

101. Paradigms in Chicano Studies. (3) Three hours of lecture and one hour of discussion per week. Pre- requisites: Majors and minors only. A critical assess- ment of paradigms and intellectual traditions in Chi- cano Studies. (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 mu- ral movement and the relationship between artistic production and the development of Chicano symbols and cultural production.

133. Chicano Music. (3) Three hours of seminar per week. What is Chicano music? When did it begin? Who are considered Chicano musicians? Has Chicano music changed in relationship to the histori- cal changes in the Chicano community? How has Chi- cano music helped shape and been shaped by pop- ular music and popular culture? How is Chicano
music been a music accommodation and/or resistance? What role have Chicano artists/musicians played in Chicano cultural work? Has Chicano music have a political agenda? How have Chicano artists and recording companies fared in the music industry? These are just a few of the questions we will explore in this course. Course goals and objectives will be accomplished through readings, research, guest lectures, performance, film, and listening to Chicano music. Classroom discussion will be the key ingredient to the success of this course.

135. Chicano/Latino Film. (4) Three hours of lecture per week. Prerequisites: Sophomore standing. Analysis of films by and about Latinos in the United States. Features are emphasized, with limited coverage of documentaries. This course serves both as introduction to the Latino experience and to the analysis of narrative film. (F,SP) Staff

141. Chicano Feminist Writers and Discourse. (4) Four hours of lecture per week. Prerequisites: 40. A critical and theoretical analysis of contemporary Chicana and Chicano Feminist Discourse. (F) Alarcón

142. Major Chicano Writers. (4) Three hours of lecture per week. Prerequisites: 40. Critical analysis of the works of major Chicano playwrights, poets and fiction writers. (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 literature of protest as a constant element from the Conquest to the present. (SP) Alarcón

145. Contemporary Issues of Chicanas. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 50 required. This course examines contemporary issues facing Chicanas in the U.S. The scope is historical, structural and examines political, and economic arrangements related to class and gender-based inequities. An individual and community scope examines the variations of: a) class, racial/ethnic and gender identity; b) social integration, and c) responses to structural barriers. (F)

148. Chicano/Latino Theatre Workshop. (5) Course may be repeated for credit. Four hours of lecture and two hours of laboratory per week. Prerequisites: 40 and 20 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 related to class and gender-based inequities. An individual and community scope examines the variations of: a) class, racial/ethnic and gender identity; b) social integration, and c) responses to structural barriers. (F)

196. Contemporary Chicana/o Family Studies. (3) 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) Staff

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 arrangements can be made with a faculty sponsor and written reports required. (F,SP) Staff

161. Central American Peoples and Cultures. (4) Three hours of lecture per week. A comparative survey of the peoples and cultures of the Central American Isthmus from a historical and contemporary perspective. (F,SP) Staff

162. Central American Peoples and Cultures. (4) Three hours of lecture per week. A comparative survey of the peoples and cultures of the Central American Isthmus from a historical and contemporary perspective. (F,SP) Staff

172. Chicanos and the Educational System. (3) Three hours of lecture per week. Prerequisites: 70 recommended. An examination of the development and function of the Chicano community in the United States. The student will also study intensively craft in Chicano literature, issues and barriers. (F) Staff

176. Chicanos and Health Care. (3) Three hours of lecture per week. Prerequisites: 70 recommended. An examination of the development and function of the Chicano community in the United States. The student will also study intensively craft in Chicano literature, issues and barriers. (F) Staff

179. Chicana/o Families. (3) Three hours of lecture and one hour of discussion per week. This course provides an overview of Chicana/o family structures, using historical, Chicano and feminist perspectives for analysis of familial patterns. Special attention is given to the use of traditional-cultural explanations of household gender relations, extended families, and Chicana/o communities.

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) Staff

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)

197. Field Work 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. Individual arrangements must be taken on a pass/no pass basis. Prerequisites: Upper division standing; consent of instructor. Supervised independent field experience in the community relevant to specific aspects of the Chicano studies curriculum. Regular meetings with faculty sponsor and written reports required. (F,SP)

198. Directed Group Study. (1-3) Course may be repeated for credit. Individual arrangements must be taken on a pass/no pass 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 pass/no pass 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)
Department Overview

The planning of cities is as old as urban civilization, but the present-day planning profession has emerged in response to the rapid growth, changing character, and critical problems of 20th-century urban development. As an established part of urban government, city planners have continued their primary responsibility of making recommendations for the physical development and design of urban areas. Planning techniques are likewise employed by large scale private developers. Theorists and researchers in other disciplines have become increasingly interested in urban problems, and their work, often in partnership with urban planners, is contributing to greater knowledge and more sophisticated methods in planning practice. City and regional planning claims more than 25,000 professionals in the United States, most of them members of the American Planning Association or the American Institute of Certified Planners.

Characteristically, city, county, and metropolitan regional planning agencies are responsible for recommending guidelines for channeling the urban physical development of their respective jurisdictions. City planners are also relied upon in other types of agencies and federal and state offices; city and regional planning can be taken on a "required" basis or on the student's official transcript. Students may obtain course lists, requirements, and further information by writing to the department by courses in the basic structure and theoretical understanding necessary to attack city planning problems. Some of these courses are open to students to the characteristics of urban transportation and can do in terms of policies, programs, and local planning. Attention will be given to the economics of disabilities, to the politics of producing change, and to transportation, housing, public facilities, independent living, employment, and income policies. Options will be assessed from the varying perspectives of those with disabilities and the broader society.

115. Urbanization in Developing Countries. (3) Three hours of lecture/discussion per week. Lectures will cover the following topics: development, urbanization, and the impact of regional interactions on the physical development of their respective jurisdictions; urban growth; the role of international organizations; Third World energy problems. (F,SP)

116. Urban Planning Process—The Undergraduate Planning Studio. (4) Four hours of lecture/discussion per week plus fieldwork. Prerequisites: Upper division standing; 110 or consent of instructor. An interdisciplinary course in the planning process with an emphasis on planning techniques. Classes typically work on developing an area or other community plan. Some lectures, extensive field and group work, oral and written presentations of findings.

117. Minorities and Gender in Planning. (3) Three hours of lecture/discussion per week. Examination of the physical development of cities and urban programs has highlighted the lives and social roles of minority groups and women, and vice-versa. Assessment of past and current alternative future planning policies that are equitable will be emphasized.

118AC. The Urban Community. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 110 or consent of instructor. This course looks at the idea and practice of community in cities and suburban areas. Major topics include the role of local community economic development, the planning process, the political economy of neighborhoods, planning for neighborhoods, and civic engagement. Instructors emphasize different topics. Class size limits depend on the instructor. This course satisfies the American cultures requirement. (F) Blaustein, (Sp) Oglivie

119. Planning for Sustainability. (3) Three hours of lecture/discussion per week. Prerequisites: Open to majors in all fields. This course examines how the concept of sustainable development applies to cities and urban regions and gives students insight into a variety of contemporary urban planning issues through the sustainability lens. The course combines lectures, discussions, student projects, and guest appearances by leading professionals in Bay Area sustainability efforts. Ways to coordinate goals of environment, economy, and equity at different scales of planning are addressed, including the region, the city, the neighborhood, and the site.

120. Community Planning and Public Policy for Disability. (3) Three hours of lecture per week. This course reviews what society and local communities can do in terms of policies, programs, and local planning to address the needs of citizens with disabilities. Attention will be given to the economics of disabilities, to the politics of producing change, and to transportation, housing, public facilities, independent living, employment, and income policies. Options will be assessed from the varying perspectives of those with disabilities and the broader society. Cofgen

197. Field 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 field work per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Supervised experiences in the study of off-campus organizations relevant to specific aspects of city planning. Regular individual meetings with faculty sponsor and written report are required.

198. Special Group Study. (1-5) Course may be repeated for credit. Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Three hours of lecture/discussion per week. Must be taken on a passed/not passed basis. Group studies developed to meet specific needs of students.
201. Urban Social Theory and Policy. (3) Three hours of lecture per week. Students will be introduced to and discuss the evolution of North American planning practice and theory since the late 19th century; some comparative and earlier material. (F) Landis

202. Public Economics. (3) Three hours of lecture/discussion per week. Prerequisites: 113A or equivalent. Roles of governmental agencies as producers of urban services and facilities. Required core-course.

203. Development Theories and Practices. (3) Three hours of lecture per week. This course examines how concepts and theories of "development" have been produced, maintained, used, and challenged in different regions of the world economy. It will offer a framework for analyzing how changing roles and responsibilities of the state, and changing opportunities and constraints upon the state, influence the formulation of strategies and analytic methods for planners. Each module will cover a cluster of methods. Required core-course. (C214)

204. Analytic and Research Methods for Planners. Course may be repeated for credit as modules vary. A series of course modules on research design strategies and analytic methods for planners. Each module will run for all or for a segment of a semester and will cover a cluster of methods. Students may take sequentially two or three modules in one semester.

204A. Methods of Planning Data Analysis. (2,4) Three hours of lecture and one and one-half hours of laboratory per week. Introduction to the use of quantitative measurement and techniques to solve planning and policy problems. Course focuses on (I) basic planning techniques for analyzing and presenting data; (II) decision-making models; (III) data reduction and advanced multivariate techniques such as multiple regression (weeks 9-15). For the two-unit option, students may take the first half of the class (weeks 1-8). (F) Chapple, Landis

204B. Research Methods for Planners. (2,4) Three hours of lecture/discussion per week for 10 weeks (2 units). Three hours of lecture/discussion per week for 15 weeks (4 units). Research methods for planning, including problem definition, observation, social science research and evaluation techniques as well as practical ways of managing usable research. With permission of the instructor, students who wish to complete only half of the assignments for their individual research may take the course for 2 units only.

204C. Introduction to GIS and City Planning. (3) Three hours of lecture/laboratory per week. Introduction to the principles and practical uses of desktop mapping software. The course is intended for graduate students with exposure to using spreadsheets and database programs for urban and natural resource analysis, and who wish to expand their knowledge to include basic GIS concepts and GIS methods. Prior GIS or desktop mapping experience not required. (Landis)

204D. Multivariate Analysis in Planning. (3) Four hours of lecture/discussion per week for 10 weeks. Prerequisites: 204A or equivalent. Theory and application of advanced multivariate methods in planning. Emphasis on causal modeling of cross-sectional data. Topics include: multiple regression analysis; residual analysis; weighted least squares-linear models; path analysis; log-linear models; logit and probit analysis; principal components; factor and cluster analysis. Completion of two computer assignments, using several microcomputer statistical packages, is required. (Cervero)

210. Urban Planning and Design. (3) Three hours of lecture/discussion per week. An introduction to the American legal process and legal framework within which public policy and planning problems are addressed. The course stresses legal methodology, the basics of legal research, and the common-law decisional method. Statutory analysis, administrative law, and constitutional interpretation are also covered. Case studies and policy responses to these issues. We will identify and discuss future policy options. (C214)

210A. Poverty and Economic Policy. (3) Three hours of lecture/discussion per week. Prerequisites: 113A or equivalent. Roles of governmental agencies as producers of urban services and facilities. Required core-course.

210B. Urban Planning and Environmental Policy. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Duties and role of the physical planning agency in municipal and metropol-itan governments; major alternative definitions of city planning; relation of operational plan to urban development agencies; significance of city planning legislation in reorganization of local government. (C205)

210C. Urban Planning and Transportation. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Issues in urban transportation planning. Topics vary, focusing on specific urban sites and multi-modal issues, including those related to planning for mass transit and non-motorized transportation. Recent emphasis given to planning and designing for transit villages and transit-based housing. (C205)

211. Public Policy and Environmental Planning. (3) Three hours of lecture per week. Covers comparative planning and policy topics in urban, regional, and rural transportation that are transnational in nature. Builds on planning for urban and rural transportation planning for mobility, accessibility, and sustainability in different political and contextual settings. Case studies are drawn from both developed and developing countries. (C214)

212. The Regional and Economic Planning. (3) Three hours of lecture/discussion per week. Prerequisites: 113A or equivalent. Analysis of the urban, metropolitan, and regional economics for economic base and other macro models; impact analysis and projection of changing labor force and industrial structure; economic-demographic interaction; issues in growth, income distribution, planning controls; inter-regional growth and population distribution issues. (Saxenian)

213. Transportation and Urban Planning. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Duties and role of the physical planning agency in municipal and metropol-itan governments; major alternative definitions of city planning; relation of operational plan to urban development agencies; significance of city planning legislation in reorganization of local government. (C205)

214. Infrastructure Planning and Policy. (3) Three hours of lecture per week. Survey of basic knowledge and the techniques of physical infrastructure systems: transportation, water supply, wastewater, storm water, solid waste management, community energy facilities, and environmental quality. The course will cover the economic and financial dimensions of urban transpor-tation systems, including highway finance and user fees, toll financing and congestion pricing, transit finance, and land and subsidy policies. Class will re-view debates over the full social costs of transportation systems and current issues, including the politics of transportation sales taxes. Also listed as Civil and Environ-mental Engineering C2290U. (Cervero)

215. Introduction to Planning and Environmental Law. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Duties and role of the physical planning agency in municipal and metropol-itan governments; major alternative definitions of city planning; relation of operational plan to urban development agencies; significance of city planning legislation in reorganization of local government. (C205)
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in policy, methods, and patterns of regional development, through student/faculty research papers and class discussions.�


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 Middle East, it highlights the role of physical planners as community activists involved in practices such as slatter development slum upgrading, sites and services, and self-help. (SP) Alsayyad

C234. Housing and the Urban Economy. (3) Three hours of seminar per week. Prerequisites: Public Policy 210A or 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—including land use policy, taxation, and government subsidy programs. We will also analyze the links between primary and secondary mortgage markets, securitization, and liquidity. Finally, the links between labor and land markets and related markets—such as transportation and public finance—will be explored. Also listed as Public Policy 2275. (F) Quigley

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. Prerequisites: Graduate standing or consent of instructor. Formerly Interdepartmental Studies 235.

236. Development—Design Studio. (4) Two hours of lecture/seminar and four hours of studio per week. Prerequisites: Consent of instructor. The seminars will review the limits of design and the realities of private and public sector developments, in central city and suburb locations. Landsis

238. Development—Design Studio. (4) Two hours of lecture/seminar and four hours of studio per week. Prerequisites: Consent of instructor. The seminars will review the limits of design and the realities of private and public sector developments. (SP) Hester

C239. Housing Policy Seminar. (3) Three hours of seminar/discussion per week. Prerequisites: Consent of instructor. Formerly Interdepartmental Studies 239. The seminars will review the limitations and possibilities of observations for policy planning. The field trips on foot, will look at, measure, record and learn from a variety of urban environments, including physical, social and economic conditions and trends.

247. The Educative City. (1-3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. The seminars will focus on a range of topics on educational theory, history, methods and practice of local community development. (SP) Alsayyad

248. Advanced Studio: Urban Design/Environmental Planning. (4) Two hours of seminar and four hours of studio per week. Prerequisites: 208 or 240. Advanced problems in urban design and land use, and in environmental planning.

249. Urban Design in Planning. (3) Three hours of seminar/discussion per week. Prerequisites: Consent of instructor. Formerly Interdepartmental Studies 249. This seminar will focus on urban design in the planning process, the role of design professionals, methods of community involvement, problem identification, goal formulation and alternatives generation, environmental media and presentation, design guidelines and review, environmental impact analysis, and impact assessment. Case studies. (SP) MacDonald

250. Introduction to Land Use Planning. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Interdepartmental Studies 250. This seminar will introduce the student to the organizing and conduct of local land use planning as practiced in California. The course will cover the following topics: city and county land use, major land use regulations, zoning, CEQA, specific plans and how to do them, and managing a planning department. Landsis

251. Environmental Planning and Regulation. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Interdepartmental Studies 251. 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. Ogilvie

C252. Citizen Involvement in the City Planning Process. (3) Students will not receive credit for both C251 and C252. An introduction to the process of citizen involvement in the planning process. The 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. Ogilvie

C253. Environmental Law and Resource Management. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Interdepartmental Studies 253. An introduction to the American legal system governing the use and management of natural resources, and an overview of the major techniques that have been developed by courts, legislatures, and administrative agencies for environmental protection. Topics include nuisance law, constitutional constraints, environmental impact assessment, permit systems for development control, pollution control, natural resources planning law. Also listed as Landscape Architecture C253. (F) Deakin

255. Urban Planning Applications of Geographic Information Systems. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. The seminars will explore the application of GIS to land use planning. (SP) Radke

258. Land Use Planning Studio. (4) Two hours of lecture and four hours of studio per week. Prerequisites: 208 or 240. A capstone studio for graduate students interested in neighborhood, municipal, and regional land use planning. Depending on the particular project and client, students will learn how to design, evaluate, and implement neighborhood specific plans, general plan land use elements, and/or strategic plans.

259. Seminar in Land Use Planning. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: 206 and 258. An exploration of current land use and environmental issues confronting California communities, with topics varying from year to year. Efforts to develop remedies are made; student papers are required. Chapelle

260. Theory, History, and Practice of Community Development. (3) Three hours of lecture per week. Prerequisites: 208 or 240. An exploration of the history of community involvement and action. It will present alternative explanations for different paths of neighborhood and community change. Ogilvie

265. Community Development Practicum. (2-4) Course may be repeated for credit. Three hours of seminar per week. Analysis of planner’s role in urban community development, focusing on a diverse set of local programs, visits from practitioners, and related readings. Group projects conducted in association with innovative community building initiatives which combine physical and social development. Ogilvie

266. Program Planning and Evaluation. (4) Four hours of lecture and four hours of laboratory per week. Prerequisites: 208 or 240. A capstone course examining the planning and evaluation of programs and projects aimed at achieving objectives. Examination of broad range of methodological issues using case studies. Organizational and political strategies for effective program planning. Cases drawn from local social programs, municipal agencies, and the analysis of new programs and policies regarding land use and urban development at federal and local levels.

268. Community Development Studio/Workshop. (4) Two hours of lecture and four hours of studio per week. Prerequisites: 208 or 240. A capstone studio experience in analysis, policy advising, and implementation at the community level. The course has three sections: (1) an introduction to the discourse on sustainable development; (2) a series of general leading assignments to incorporate sustainability principles into planning, policy advising; and urban design; (3) an examination of European attempts to establish metropolitan patterns and urban designs for a more sustainable “green urbanism.” Duane

275. Urban Planning Applications of Geographic Information Systems. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. The seminars will introduce students to the relatively 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, modelling, and analytical measurement. (SP) Ogilvie

280. Program Planning and Evaluation. (4) Four hours of lecture and four hours of laboratory per week. Prerequisites: 208 or 240. A capstone course designed to integrate the analysis of new programs and policies regarding land use and urban development at federal and local levels.
mentation in an urban setting. Students will engage in group work for real clients (e.g., community-based organizations, local government agencies), culminating in a final report or proposal. Oglvie

270. Regional and Urban Development Strategies in Third World Countries. (3) Three hours of lecture/discussion per week. Competing theories of regional and urban development strategies and policy responses in a variety of countries throughout the developing world, including housing delivery, urban infrastructure, economic and environmental productivity, and environment quality. Policy responses of international organizations, national and local governments, and parastatal organizations will be assessed. Students will be required to write and present a case study paper.

275. Comparative Analysis of Urban Policies. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. This course examines urban development problems and policy responses in a variety of cities throughout the world, including housing delivery, urban infrastructure, economic and environmental productivity, and environment quality. Policy responses of international organizations, national and local governments, and parastatal organizations will be assessed. Students will be required to write and present a case study paper.

276. Doctoral Seminar. (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. Advanced study in city and regional planning. Specific topics to be announced at the beginning of each semester. (F,S,P)

281. Theories of Planning Practice. (3) Three hours of seminar per week. Prerequisites: Graduate standing. Suitable for graduate students in professional programs who are interested in the practice of 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 positivist, interpretive, and critical theory views of knowledge and link these to policy analysis, interactive planning, group processes, and emerging models of critical planning practice. Innes

282. Planning and Governing. (3) Three hours of lecture-discussion per week. Competing theories of regional and urban development strategies and policy responses in a variety of countries throughout the world, including housing delivery, urban infrastructure, economic and environmental productivity, and environment quality. Policy responses of international organizations, national and local governments, and parastatal organizations will be assessed. Students will be required to write and present a case study paper. Oglvie

285. Regional Development Strategy and Planning. (3) Three hours of seminar per week. Prerequisites: 282, 221, 202 or equivalent. Prerequisites. Consent of instructor. Analysis of selected top-ics 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 may be offered, taking advantage of guest visitors. Check department for modules at start of semester. (F,S,P)

295. Supervised Research in City and Regional Planning. (1-2) Course may be repeated for credit. Regular meeting to be arranged with 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 counted toward a total of 6 units maximum toward the M.C.P. degree. A maximum of 3 units of 295 may be used for degree requirements. (F,S,P)

297. Supervised Field Study in City and Regional Planning. (1-2) Course may be repeated for credit. Regular meeting to be arranged with 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 specific aspects of practice in city or regional planning. Any combination of 295, 297 courses may be counted toward 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,S,P)

298. Group Studies. (1-3) Course may be repeated for credit. One to three hours of independent study per week. Sections A-L to be graded on a letter-graded basis. Sections M-Z to be graded on an In-Progress basis only. Prerequisites: Consent of instructor. Topics to be announced at the beginning of each semester. No more than 3 units may be taken in one section.

299. Individual Study or Research. (1-12) Course may be repeated for credit. Regular meeting to be arranged with faculty sponsor. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor and graduate standing. Individual study or research program; must be worked out with instructor in advance of signing up for credit. Maximum number of individual study units (295, 297, 299) counted toward the M.C.P. degree credits is 9. (F,S,P)

502. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Regular meeting to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Ph.D. students only. Individual study in consultation with the major field advisor, intended to provide an opportunity for qualified students to prepare for examinations for the various examinations required of candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree. Students may earn 1-8 units per semester or quarter. Consent of instructor. No student may accumulate more than a total of 16 units of 502. (F,S,P)

Professional Courses

300. Supervised Teaching in City and Regional Planning. (1-2) Course may be repeated for credit. Regular meeting to be arranged with faculty sponsor. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in department and appointment as a graduate student instructor. Supervised teaching experience in courses related to planning. Course may not be applied toward the M.C.P. degree. (F,S,P)

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Civil and Environmental Engineering

Department Office: 760 Davis Hall #1710, (510) 642-3261
http://www.ce.berkeley.edu/
Chair: Gregory L. Fenves, Ph.D.

Professors
Lisa Alvarez-Cohen (Fred and Claire Sauer Chair of Environmental Engineering), Ph.D. Stanford University Environmental microbiology, biomessureation, hazardous waste management.
Abhghan Ashtian-Adi, Ph.D. University of Michigan Environmental research, design, technology.
Robert G. Bea, Ph.D. University of Western Australia, Nedlands. Ozone and coastal management, risk assessment and management.
Alex Backer, Ph.D. McGill University Exploration geophysics.
John D. Bray, Ph.D. University of California, Berkeley Earthquake engineering, geotechnical engineering, numerical modeling, geoenvironmental engineering.
A. K. Chopra (Horace, Dorothy and Katherine Johnson Professor of Engineering), Ph.D. University of California, Berkeley Dynamics of structures, earthquake engineering.
George A. Coder, Ph.D. University of California, Berkeley Petroleum engineering.
Carl Joseph (Robert Horonjeff Professor of Civil Engineering), Ph.D. University of Michigan Transportation theory, mathematical analysis.
Armen Der Kneuphen (Taisel Professor of Civil Engineering), Ph.D. University of California, Berkeley Structural risk, reliability analysis.
John A. Drucer, Ph.D. University of California, Berkeley Water resource systems, surface water hydrology, hydraulic modeling.
Gregory L. Falencia (Chair and T.Y. and Margaret Lin Professor of Engineering), Ph.D. University of California, Berkeley Structural dynamics, earthquake engineering, computer-aided engineering.
Filip C. Filip (Vice Chair, Research and Technical Support), Ph.D. University of California, Berkeley Analysis, design of concrete structures.
Moshe Aloni, Ph.D., S.C. Massachusetts Institute of Technology. Coastal and offshore engineering.
Robert A. Harely (Vice Chair, Academic Affairs), Ph.D. California Institute of Technology Environmental control strategies.
Alexander A. Karp, Ph.D. University of Dundee, Scotland. Ecological engineering, ecology of aquatic systems.
James W. Hunt, Lawrence E. Pierce Professor of Civil Engineering, Ph.D. California Institute of Technology Chemical, structural, contaminant transport.
C. William Ibb, Ph.D. University of California, Berkeley. Project and construction management, management of technology.
Adib Kanafi, Ph.D. University of California, Berkeley. Transportation planning, air transport management.
Samar Mirdamari, Ph.D. Massachusetts Institute of Technology. Transportation infrastructure management, statistical methods.
Stephen A. Mahr (Byron L. and Elvia E. Nahisan Professor of Civil and Structural Engineering), Ph.D. University of California, Berkeley. Structural behavior, earthquake engineering.
Nicola Maturi, Ph.D. State University of New York at Buffalo. Structural mechanics, seismic protection of structures.
Jack P. Moore (Director, Pacific Earthquake Engineering Research Center and Ray W. Carlson Distinguished Professor of Civil Engineering), Ph.D. University of California, Berkeley. Structural mechanics, seismic protection of structures.
Karl L. Morris (Robert Hororjeff Professor of Civil and Environmental Engineering Emeritus), M.S. University of California, Berkeley. Transportation engineering, pavement design, pavement materials.
Paul J. Montero (Roy W. Carlson Distinguished Professor of Civil Engineering), Ph.D. University of California, Berkeley. Concrete behavior, structural materials.
H. Frank Morrison (P. Malozemoff Professor of Mineral Engineering), Ph.D. California Institute of Technology. Geomechanical systems analysis.
Tadeusz Patzek, Ph.D. Silesian Technological University. Petroleum engineering.
Jonathan D. Bray, Ph.D. University of California, Berkeley. Transportation planning, air transport management.
Jamee L. Hess, Ph.D. University of California, Berkeley. Geotechnical engineering, earthquake engineering, soil mechanics.
Nicholas Stair (Director, Earthquake Engineering Research Center), Ph.D. Stanford University. Geotechnical and environmental engineering.
Rodney J. Stiebel, Ph.D. Imperial College, London. Coastal, estuarine, and wetlands hydrodynamics.

B prefix=language course for business majors
C prefix=cross-listed 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
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Garrison Sposito, Ph.D. University of California, Berkeley. Environmental geochemistry
Robert L. Taylor (T. Y. and Margaret Lin Professor of Engineering) (Emeritus) University of California, Berkeley. Mechanics of solids, computational mechanics
Iris D. Tommelen, Ph.D. Stanford University. Lean construction, supply chain management, site logistics, decision support systems
Kerr S. Udell, Ph.D. University of Utah. Environmental restoration processes
Martin Wachs (Emeritus). Institute of Transportation Studies and Roy W. Carlson Distinguished Professor of Civil Engineering. 2001-2004, Ph.D. Northwestern University. Urban transportation planning, transportation economics and freight transportation
William C. Webster (Emeritus). Vice Provost, Academic Planning and Facilities. Professor of Engineering, Site Director, Earthquake Engineering Research Institute. University of California, Berkeley. Nonlinear coupled behavior of structures, operations research, shallow water wave mechanics
K. Brady Williamson, Ph.D. Harvard University. Fire research, materials engineering
James M. Anderson, Ph.D. (Emeritus)
Vitello Bertorelli, Sc.D. (Roy W. Carlson Distinguished Professor of Civil Engineering Emeritus and Byron L. and Elvia E. Nielson Professor of Structural Engineering (Emeritus))
Jack G. Bouwkamp, C.I. (Emeritus)
Tor L. Brekke, Dr. Ing. (Emeritus)
Ray W. Clough, Jr., Sc.D. (Byron L. and Elvia E. Nielson Professor of Structural Engineering (Emeritus))
Keith C. Crandall, Ph.D. (Emeritus)
William G. Godden, Ph.D. (Emeritus)
Ben C. Gerwick, Jr., B.S. (Roy W. Carlson Distinguished Professor of Environmental Engineering Emeritus)
William G. Gooden, Ph.D. (Emeritus)
Richard E. Grant, Ph.D. (Emeritus). Edward G. and John R. Cahill Professor of Civil Engineering Emeritus)
James M. Kelly, Ph.D. (Emeritus)
Tung Yen Lin, M.S. (Emeritus)
Jacob Lubin, Ph.D. (Emeritus)
Adolfo D. May, Jr., Ph.D. (Emeritus)
Hugh D. McNiven, Ph.D. (Emeritus)
Povindar K. Mehra, D. Eng. (Roy W. Carlson Distinguished Professor of Environmental Engineering Emeritus)
James M. Mitchell, Sc.D. (Edward G. and John R. Cahill Professor of Civil Engineering Emeritus)
Francis H. Moffit, M.C.E. (Emeritus)
William B. Ogden, Ph.D. (Emeritus)
Joseph Penzien, Sc.D. (Emeritus)
Kari S. Pister, Ph.D. (Roy W. Carlson Professor of Engineering Emeritus)
Graham H. Powell, Ph.D. (Emeritus)
Jennifer L. Seelye, Sc.D. (Emeritus)
Alexander C. Scordelis, M.S. (Byron L. and Elvia E. Nielson Professor of Structural Engineering Emeritus)
Robert E. Seilack, Ph.D. (Emeritus)
Hsien W. Shen, Ph.D. (Emeritus)
Jerome Thomas, Ph.D. (Emeritus)
David K. Twiss, Ph.D. (Emeritus)
Robert L. Wiegel, M.S. (Emeritus)
Edward L. Willson, D.Eng. (T. Y. and Margaret Lin Professor of Engineering Emeritus)

Associate Professors
Francisco Armans, Ph.D. Stanford University. Mechanics of solids, computational mechanics
Michael J. Ayers, Ph.D. University of California, Berkeley. Traffic operations and control, traffic flow theory
Steven D. Glaser, Ph.D. University of Texas. Rock mechanics, soil dynamics, system identification, tunneling
Sanjay G. Gokhale, Ph.D. Stanford University. Theoretical and computational solid mechanics
Mark Hanes, Ph.D. University of California, Berkeley. Air transportation, transportation information systems, transportation planning
Stawome W. Hernandez, Ph.D. University of Toronto. Biologically-based wastewater treatment
Claudia P. Ostertag, Ph.D. University of California, Berkeley. Fiber reinforced plastic, mechanical behavior, toughening mechanisms
Juan M. Paolino-Nascimento, Sc.D. Massachusetts Institute of Technology. Geotechnical engineering, constitutive modeling, soil behavior
David L. Siedek, Ph.D. University of Wisconsin at Madison. Environmental aquatic chemistry

Assistant Professors
Arpad Horvath, Ph.D. Carnegie Mellon University. Environmental and economic analysis of civil infrastructure systems, life cycle assessment, environmental design and management
Shafat M. Khan, Ph.D. Northwestern University. Theoretical and applied mechanics, micromechanics, and computational mechanics
Xu Liang, Ph.D. University of Washington, Seattle. Surface-water hydrology, land atmosphere interactions, hydrometeorology, hydro-informatics, remote sensing
Khalid M. Morsy, Ph.D. Cornell University. Behavior of reinforced concrete and masonry structures, fracture and damage mechanics
Xiaoqing Ni, Ph.D. University of California, Berkeley. Control of water pollution, natural pollutant systems for water quality improvement, appropriate technology
Paja Niasari, Ph.D. University of California, Los Angeles. Control systems theory, wireless networks, transportation, unmanned aerial vehicles
Mark T. Stacey, Ph.D. Stanford University. Environmental fluid mechanics, mixing and transport processes, interaction of fluid mechanics and biology

Bozidar Stojevicinovic, Ph.D. University of California, Berkeley. Steel and composite structures, earthquake engineering

Adjunct Professor
Alexander Skabardonis, Ph.D.

Associate Adjunct Professors
H. Glenn Ballard, Ph.D.
Michael F. Riemer, Ph.D.

Program Overview

The objective of the civil engineering program at Berkeley is to provide the needed background for students who wish to pursue engineering as a profession and teach for students who wish to engage in engineering research. This program also provides a broad technical education for other purposes. The program is based on the concept that civil and environmental engineers should be well grounded in the sciences, broadly educated in the humanistic and social studies, cognizant of economic factors, skilled in communicating technical ideas, and knowledgeable about the broad principles that underlie the practice of the profession.

The four-year undergraduate curriculum leading to the B.S. degree provides an education that is sufficiently broad to include all areas of civil and environmental engineering, and prepares young people who wish to embark on a professional career directly after graduation and keep abreast of new developments in civil and environmental engineering practice. The program also serves as a preparation for graduate study in any of the specialized branches of civil and environmental engineering. The B.S. program is accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. (410) 347-7700.

Students may receive a bachelor’s degree at the end of four years and a master’s degree at the end of five years, provided they have been accepted for graduate study.

In addition, the department offers a minor in structural engineering, designed particularly for students in the Department of Architecture, but also available to any student who has completed the prerequisites and who is enrolled in a non-civil engineering program. For details, contact the Civil and Environmental Engineering Academic Affairs Office, 750 Davis Hall.

Civil and environmental engineering includes the following major areas of professional specialization:

Program and project management deals with planning, organizing, leading, constructing, designing, operating, and maintaining projects during the lifecycle of civil systems. This program is concerned with the fundamental principles and knowledge that underlie engineering and leadership, human organizational principles, quality and safety assessments, lifecycle engineering and management processes, engineering and the environment, construction engineering and management, and implementation processes and strategies.

Environmental engineering involves 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, hazardous waste management, ecological engineering, hydrology and water resources management, and environmental management.

GeoEngineering is concerned with planning, design, and construction on, in, or with soil and rock, and with protection and enhancement of the environment. It includes the fields of soil mechanics, foundation engineering, geotechnical engineering, rock mechanics, environmental geotechnics, groundwater, and geotechnical aspects of earth-quake engineering.

Engineering geosciences complements the conventional coverages within geotechnical engineering but adds geophysics, reservoir modeling, and petroleum engineering. Engineering geophysics encompasses a broad range of intrusive remote sensing and imaging methods, at scales from microns to kilometers, with broad applications, and especially in all major areas of civil engineering.

Structural engineering is concerned with the analysis and design of all types of structures, including earthquake-resistant design. Some structures, such as bridges, dams, office buildings, power plants, and harbors, are directly within the field of civil engineering. Other structures, such as aircraft, ships, space vehicles, missiles, and radio telescopes, are in related fields.

Mechanical engineering develops structures for the most part, but strengthens the scientific background of the student. The field employs the disciplines of materials, mechanics, and thermodynamics to the engineering sciences to examine a wide range of problems in the behavior of structural elements and to deepen and expand their fundamental description of material properties.

Structural materials engineering is concerned with the development of construction materials for engineering applications. Primary emphasis is placed on the understanding of basic material properties such as mechanical and thermal response, microstructure behavior and durability. Some materials may include steel, concrete, aluminum alloys, timber, plastic, and composite materials.

Transportation engineering is concerned with the planning, design, construction, operation, performance, evaluation, maintenance, and rehabilitation of transportation systems and facilities such as highways, railroads, urban transit, air transportation, logistical supply systems and their terminals.

Civil and environmental engineering systems integrates engineering, science, and management tools and techniques for solving complex civil and environmental engineering problems. To understand the interdisciplinary nature and many scales of civil and environmental engineering problems, students take courses in technical tools (e.g., informatics), and management tools, and human dimensions (e.g., economics, public policy, management, city and regional planning), in addition to deepening and expanding their fundamental knowledge base in engineering and sciences as applied to the physical world.

Curriculum for the Bachelor’s Degree

The undergraduate curriculum provides a broad general education in civil engineering and environmental engineering. The curriculum requires a total of 120 units. The programs of study are described in detail in the Announcement of the College of Engineering (available without charge from the College of Engineering, University of California, Berkeley; Berkeley, CA 94720-1702).

All students must complete six courses of at least 3 units each in humanities and social studies selected from an approved list of courses (please see the Humanities and Social Studies’ section of the Announcement of the College of Engineering). Other requirements of the curriculum include:

Lower Division. Required: Mathematics 1A-1B, 53 and 54, Chemistry 1A, Physics 7A-7B, Engineering 11, 28, 36, and 77; Civil Engineering 60, 70, 92, and 93, and a basic science elective (Physics 7C or Chemistry 1B).

Upper Division. Civil Engineering 100, 130, 192, an environmental science elective (Mechanical Engineering 104 or Engineering 111), four of seven courses in the elective core (Civil Engineering 103, 111, 120, 152, 155, 167, and 175), a design elective (Civil Engineering 104N, 112, 122, 123, 153, 177, or 180) and 15 units of environmental electives (upper division courses in civil and environmental engineering).
Graduate Study

The Department of Civil and Environmental Engineering offers the following graduate degrees:

- Engineering and Project Management: Environmental Engineering, Geoenvironmental Engineering, Structural Engineering, and Materials (SEMM), and Transportation Engineering.

A new cross-disciplinary program focuses on civil engineering systems within each group, specialized programs, and interdisciplinary programs, including earthquake engineering, ocean engineering, water resources engineering, air quality, and groundwater hydrology, are also available. Students who may pursue the academic degrees of M.S. and Ph.D., and the professional degrees of M.Eng. and D.Eng. The M.S. program is normally of one year's and the M.Eng. program of two years' duration; the doctoral programs require at least two years after the attainment of a master's degree, and include a dissertation or equivalent design project. The department also offers programs leading to dual degrees in the following areas: (1) M.S. in Engineering Mechanics and Materials (SEMM) and the Department of Architecture, (2) M.S. in Engineering and Master of City Planning (Transportation and the City and Regional Planning).

For more details, please consult the Announcement of the College of Engineering, or contact the department's Academic Affairs Office in 750 Davis Hall.


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 are graded on a pass/fail basis. Sections 3-4 are graded on a pass/needed basis. The Berkeley Seminars Program has been designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small group setting. Berkeley seminars are offered in all campus departments, and topics vary from department to department and semester to semester. Staff.

39. Freshman/Sophomore Seminars. (2-4) 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 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.

60. Structure and Properties of Civil Engineering Materials. (3) Students may receive two units of credit for 60 after taking Engineering 45. One unit of a deficient grade may be removed in Engineering 45 with 60. Two hours of lecture and three hours of laboratory per week. Introduction to structure and properties of civil engineering materials such as asphalt, cement, concrete, geological materials (e.g. soil and rocks), steel, polymers, and wood. The properties range from the macroscopic to the microscopic and fracture processes and porosity and thermal and environmental responses. Laboratory tests include evaluation of behavior of these materials under a wide range of conditions. (F.S.P) Monteiro, Ostergaard, Williamson.

70. Engineering Geology. (2) Three hours of lecture/laboratory demonstrations per week. Prerequisites: Chemistry 1A-1B, Geology 2A-2B, and Physics 9A-9B or consent of instructor. This course is offered on an a pass/fail 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.S.P) Glaser, Sitar.

92. Introduction to Civil and Environmental Engineering. (1) Course is offered on a pass/fail basis. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Supervised study and research by lower division students. (F.S.P)

99. 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 grade point average of 3.0 required. Supervised independent study by lower division students. (F.S.P)

Upper Division Courses

100. Elementary Fluid Mechanics. (4) Three hours of lecture and one hour of recitation per week, plus computer laboratory. Prerequisites: Engineering 60, or equivalent. The oceans and the atmosphere, thermodynamic equilibrium, static equilibrium, potential temperature, kinematics of the environment, acceleration on a rotating earth, wind and current with weak stratification, the Ekman layer in the ocean, atmospheric boundary layer, instabilities at the air-sea interface, geophysical applications. (SP) Foda, Rubin, Stacey.

112. Environmental Engineering Design. (3) Three hours of lecture per week. Prerequisites: Engineering 60, 111, or consent of instructor. Quantitative overview of the properties of environmental contaminants and the transformation processes that govern their concentrations in air and water. Fundamental topics include environmental chemical equilibria and kinetics, reactor models, and elementary transport phenomena. Selected applications to issues in water quality engineering, air quality engineering, and hazardous waste management. (F.S.P) Alvarez-Cohen, Nazaroff.

115. Introduction to Civil and Environmental Engineering. (3) Three hours of lecture per week. Prerequisites: 100, 111, or consent of instructor. The role of civil and environmental engineers in solving societal problems and unit operations used for treatment of water and for water pollution and control. Fundamentals and application of linear and nonlinear systems, physical, chemical, and biological processes (like sedimentation, filtration, coagulation, flocculation, adsorption, membrane transport, and anaerobic processes) are discussed. The focus of the course is on the technical analysis of the processes with some design component. (F) Hermanowicz.

116. Environmental Engineering Design. (3) Three hours of lecture per week. Prerequisites: Engineering 60, 111, or consent of instructor. Quantitative overview of the properties of environmental contaminants and the transformation processes that govern their concentrations in air and water. Fundamental topics include environmental chemical equilibria and kinetics, reactor models, and elementary transport phenomena. Selected applications to issues in water quality engineering, air quality engineering, and hazardous waste management. (F.S.P) Alvarez-Cohen, Nazaroff.

117. Lakes and Reservoirs: Ecology and Management. (3) Three hours of lecture per week. Prerequisites: Engineering 60, 111 or consent of instructor. The role of civil and environmental engineers in solving societal problems and unit operations used for treatment of water and for water pollution and control. Fundamentals and application of linear and nonlinear systems, physical, chemical, and biological processes (like sedimentation, filtration, coagulation, flocculation, adsorption, membrane transport, and anaerobic processes) are discussed. The focus of the course is on the technical analysis of the processes with some design component. (F) Hermanowicz.

120. Geophysical Fluid Mechanics. (3) Three hours of lecture per week. Prerequisites: One of 100, Chemical Engineering 11 or equivalent. Focus on understanding and solving environmental engineering problems in the aquatic ecosystems using engineered devices and its component specialty areas. (F,SP) Nazaroff.

121. Hydrology. (3) Three hours of lecture per week and 2 hours of laboratory every other week. Prerequisites: Math 53, 54, Engineering 77 or equivalents. Principles and practice of surface and subsurface hydrology. Hydrologic cycle, precipitation, snowfall, stormwater, infiltration, streamflow. Rainfall-runoff analyses, unit hydrograph, overland flow, snowmelt. Frequency analysis, field data, risk, extreme value theory, Flood routing through reservoirs and watershed modeling. Groundwater hydrology, steady and unsteady porous media flow, well hydraulics, modeling. (SP) Sobey, Liang.

126. Environmental Engineering. (3) Three hours of lecture per week. Prerequisites: Engineering 60, 111 or consent of instructor. Quantitative overview of the properties of environmental contaminants and the transformation processes that govern their concentrations in air and water. Fundamental topics include environmental chemical equilibria and kinetics, reactor models, and elementary transport phenomena. Selected applications to issues in water quality engineering, air quality engineering, and hazardous waste management. (F.S.P) Alvarez-Cohen, Nazaroff.

127. Environmental Microbiology. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A-1B. The modern environmental engineering requires a fundamental knowledge of microbial processes with specific application to water, wastewater and the environment. Topics may cover basic microbial physiology, biochemistry, metabolism,
growth energetics and kinetics, ecology, pathogenicity, and genetics for application to both engineered and natural environmental systems. (F) Advanced in

115. Water Chemistry. (3) Three hours of lecture per week. Prerequisites: 111 or equivalent. Chemical mechanisms of reactions controlling the fate of pollutants in the subsurface environment and the interactions in subsurface waters. Geochemical pathways of detoxification. Chemical modeling of pollutant geochemistry. Also listed as Environmental Science, Policy, and Management C128. (SP) Spotts

117. Environmental Organic Chemistry. (2) Two hours of lecture per week. Prerequisites: Chemistry 1A or consent of instructor. Aspects of organic chemistry relevant to environmental fate and effect of chemicals are addressed. Topics selected from nomenclature, environmentally important reactions and properties of organic chemicals and their prediction; photoreaction in water and air; production and removal of odorous compounds; natural organic matter; natural and synthetic polymers; biologically important reactions; and recyclable concepts. Methods of analysis in environmental samples. (SP)

117L. Environmental Organic Chemistry Laboratory. (1) Students will receive no credit for 117L after taking 117 prior to Fall 1994. One hour of lecture and three hours of laboratory alternating every week. Prerequisites: 117 (may be taken concurrently) or consent of instructor. Practical laboratory aspects of important organic chemical aspects used in assessment of water quality and the efficiency of water and wastewater treatment systems. Laboratories on topics such as biochemical and chemical oxygen demands, dissox, oxygen reactions, nitrogen determinations, oil and grease measurements, and chromatography. This course is designated to accompany lectures in 117. (SP)


120. Structural Engineering. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 60 (maybe taken concurrently), 130. Introduction to design and analysis of structural systems. Loads and load placement. Proportioning of structural members in steel, reinforced concrete, and timber. Structural analysis theory. Hand and computer analysis methods, validation, computer-aided design computer analysis applications, including bridges, building frames, and long-span cable structures. (F,SP) Moeahi, Fenves

121. Advanced Structural Analysis. (3) Three hours of lecture per week. Prerequisites: 120 Theory of application of structural analysis. Stiffness and flexibility methods, with emphasis on the direct stiffness method. Equilibrium and compatibility. Virtual work. Response of linear analysis computer programs to static loads. Use of computer programs for structural analysis. Modelling of two- and three-dimensional structures. Verification and validation of structural response. (F) Fenves, Filippou

122. Design of Steel Structures. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 120. Behavior and design of structural members and connections. Introduction to Resistance Factor Design (LRFD) methods: tension members, compression members, beams and beam-columns; typical steel 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 resistance to earthquake loads. Laboratory includes problem-solving sessions and actual testing of steel components. (F,SP) Astarneh, Stojadinovic

123. Design of Reinforced Concrete Structures. (3) Three hours of lecture per week. Prerequisites: 120. Characteristics and properties of wood as a structural material; design and detailing of structural elements and entire structures of wood. Topics include allowable stresses, design and detailing of solid sawn and glue laminated columns, nailed and bolted connections, plywood diaphragms and shear walls. Case studies. (F) Mahin, Filippou

124. Structural Dynamics and Earthquake Engineering. (3) Three hours of lecture per week. Prerequisites: 120. Characteristics and properties of wood as a structural material; design and detailing of structural elements and entire structures of wood. Topics include allowable stresses, design and detailing of solid sawn and glue laminated columns, nailed and bolted connections, plywood diaphragms and shear walls. Case studies. (F) Mahin, Filippou

125. Mechanics of Materials I. (3) Three hours of lecture per week. Prerequisites: 60 or Engineering 45 and Engineering 36. Introduction to mechanics of deformable solids: elastic 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. (F,SP) Govindjee, Armero, Li

130. Mechanics of Materials I. (3) Three hours of lecture per week. Prerequisites: 60 or Engineering 45 and Engineering 36. Introduction to mechanics of deformable solids: elastic 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. (F,SP) Govindjee, Armero, Li

131. Advanced Mechanics of Materials. (3) Three hours of lecture per week. Prerequisites: 130; senior or graduate standing. Mechanics of load-carrying members: stress, strain, elastic stress-strain relations, work and energy, boundary-value problems. Torsion. Bending of beams and plates: asymmetric bending, thermoelastic bending, thin-walled and sandwich beams, introduction to plate theory. Buckling of bars. (F) Armero, Makris

C133. Engineering Analysis Using the Finite Element Method. (3) Three hours of lecture and two hours of laboratory per week. Prerequisites: Engineering 77 or Computer Science 61A: Mathematics 53 and 54; senior status in engineering or applied sciences. This is an introductory course on the finite element method and is intended for seniors in engineering and applied sciences. The course covers the basic topics of finite element technology, including domain discretization, polynomial interpolation, application of boundary conditions, assembly of global arrays, and solution of the resulting algebraic systems. Finite element formulations for some important field equations are introduced using both direct and integral approaches. Particular emphasis is placed on the use of ANSYS for simulation and analysis of realistic engineering problems from solid and fluid mechanics, heat transfer, and electromagneticity. The course uses Finite Element Procedures in Materials Sciences and Engineering, Second Edition. Combined computer-based assignments will emphasize the practical aspects of finite element model construction and analysis. Also listed as Mechanical Engineering C180. (SP) Govindjee, Papadopoulos

140. Failure Mechanisms in Civil Engineering Materials. (3) Three hours of lecture per week. Prerequisites: 60. The failure mechanisms of civil engineering materials (cement-based materials, metallic-and polymer-based materials) are associated with processing, microstructure, stress states, and environmental changes. Fracture mechanics of brittle, quasi-brittle, and ductile materials; cracking processes in monolithic, particulate, and fiber reinforced materials; examples of ductile/brittle failure transitions in civil engineering structures; retrofitting of existing structures; non-destructive techniques for damage detection. (SP) Orelanta

150. Transportation Engineering. (3) Two hours of lecture and three hours of laboratory per week. Operation, management, design, and evaluation of transportation systems including streets and highways, transit, rail, and water systems. Conestion reduction techniques. Operations analysis methods: time-space diagrams, queuing theory. Economic and environmental impact analysis of transportation effects; air pollution, noise. Design of safety and efficiency: horizontal and vertical alignment, earthwork, pavements. Laboratory project: design of a simple freeway interchange to allow carpoools and ramp-metering; evaluation of reduced congestion and environmental effects. (SP) Cassidy, Daganzo, Madanat

152. Civil and Environmental Engineering Systems Analysis. (3) Two hours of lecture and three hours of computer laboratory per week. Prerequisites: Engineering 77 and Statistics 25 or equivalents. This course is organized around five real-world large-scale CEE systems problems. The problems provide the motivation for the study of quantative tools that are used for 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, design of pavement and replacement policies for reinforced concrete bridge decks, traffic signal control for an arterial street, scheduling in a large-scale construction project. (SP) Madanat, Stegman

153. Transportation Facility Design. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 150 or 151, Engineering 28. Geometric design of transportation facilities based on capacity, site constraints, and safety considerations. Pavement design and rehabilitation. Emphasis on airports, including land and air-side features. (SP) Kanatani, Madanat, Skabardonis

C154. Introduction to Urban and Regional Transportation Planning. (3) Three hours of lecture/discussion per week. This course is designed to introduce 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. Also listed as City and Regional Planning C114. (SP)

165. Concrete Materials and Construction. (3) Three hours of lecture per week. Prerequisites: 150 or 151, Engineering 28. Geometric design of transportation facilities based on capacity, site constraints, and safety considerations. Pavement design and rehabilitation. Emphasis on airports, including land and air-side features. (SP) Kanatani, Madanat, Skabardonis

165. Concrete Materials and Construction. (3) Three hours of lecture per week. Prerequisites: 60. Consideration of the broad aspects of use of concrete in construction; technical requirements of materials; control of quality; types of concrete and construction methods used for buildings, highways, airfields, bridges, dams and other hydraulic structures. Laboratory demonstration on concrete testing and evaluation methods, field trip to construction sites. Group and individual projects on concrete construction. (SP) Monteiro
166. Construction Engineering. (3) Two hours of lecture and three hours of laboratory or fieldtrip per week. Prerequisites: Upper division standing, 167 recommended. Introduction to construction engineering and field operations. The construction industry, construction technology, production improvement, equipment selection, site layout formwork, erection of steel and concrete structures. Labs demonstrate the concepts covered. Field trips to local construction projects. (F) Horvath

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: Upper division standing. Principles of economic decision making, and law applied to company and project management. Business ownership, liability insurance, cash flow analysis, and financial management. Project life cycle, design-construction interface, contracts, estimating, scheduling, cost control. (F,SP) Ibbas, Tommelein

168. Fire Protection Engineering. (3) Three hours of lecture per week. Prerequisites: 60. Formerly 168N. Introduction to fire protection engineering, providing the framework for solving fire problems. Model building codes, with emphasis on fire safety provisions. Relationship between codes and fire protection engineering. Identification and evaluation of plastics and polymers for fire-safe usage. (F) Williamson

169A. Web-Based Systems for Engineering and Management. (3) Two hours of lecture per week 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 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, homework assignments, and a project. The project is an opportunity for students to develop a database application suitable to their own interests. (F) Horvath, Tommelein

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 segment of the semester, and will 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. Students will be learning 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. (F) Horvath

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. Emphasis on computer methods and tools for engineering and management, emphasizing the systems approach. Each 1-unit module will run for a segment of the semester, and will cover theory and hands-on laboratory exercises. Students may take 1-3 modules per semester. Represenation, simulation, visualization, use of different graphic formats, and simulation in engineering and management research and 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. (F) Tommelein

171. Introduction to Geological Engineering. (3) Three hours of lecture per week. Prerequisites: 70 or an introductory course in physical geology and upper division standing in Engineering. Geological and geo-physical exploration of structures in rock properties, and behavior of rock masses; rock slope stability; ge-ological engineering of underground openings; eval-uation of rock masses, including dams. No final ex-amination. (SP) Glaser

172. Introduction to Rock Mechanics. (3) Students will receive no credit for C172 or Material Science C172 taken prior to Fall 2001. Three hours of lecture and laboratory demonstration per week. Prerequisites: 10, 70, 130 (one of which may be taken concurrently). Soil formation and identification. Engineering properties of soils. Fundamental aspects of soils, including soil mineralogy, soil-water move-ment, effective stress, consolidation, and soil strength. Geotechnics and material interface properties. The use of soils and geosynthetics in geotechnical and geo-environmental applications. Site investigation tech-niques. Laboratory testing and evaluation of soil com-position and properties. (F,SP) Bray, Pestana, Seed, Sitar

173. Groundwater and Seepage. (3) Three hours of lecture and one hour of discussion/laboratory per week. Prerequisites: Upper division standing in engineering or science, 100 recommended. Introduction to principles of groundwater flow, including steady and transient flow through porous media; numerical analysis, pump- ing tests, groundwater geology, contaminant transport, and design of waste containment systems. (F,SP) Ru-bin, Sitar

175. Geotechnical and Geoenvironmental Engi-neering. (3) Two hours of lecture and three hours of discussion/laboratory demonstration per period. Prerequisites: 70, 100, 130 (one of which may be taken concurrently). Soil formation and identification. Engineering properties of soils. Fundamental aspects of soils, including soil mineralogy, soil-water movement, effective stress, consolidation, and soil strength. Geotechnics and material interface properties. The use of soils and geosynthetics in geotechnical 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 characterization of wastes, fate, and transportation of contaminants in soil, soil-water-contaminant inter-actions, engineering soil properties; use of earth and geosynthetic materials in waste containment applica-tions; principles, design, and construction of linear and leachate collection systems; application to landfill de-sign. (SP) Pestana

177. Foundation Engineering Design. (3) Three hours of lecture per week. Prerequisites: 120 and 175 or consent of instructor. Principles of foundation en-gineering. Shallow foundations related to design and 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

178. Applied Geophysics. (3) Two hours of lecture and three hours of laboratory/field exercise per week. Prerequisites: Mathematics 53, 54, Physics 7A, 7B, and an introductory course in geology. Formerly En- gineering C145, 145L, Earth and Planetary Sciences C145, 145L, and Materials Science and Engineering C145, 145L. The theory and practice of geophysical methods for determining the subsurface distribution of physical rock and soil properties. Measurements of gravity and magnetic fields; electrical and electromagnetic fields, and seismic velocity are interpreted to map the subsurface distribution of density, magnetic susceptibility, electrical conductivity, and mechanical properties. Also listed as Earth and Planetary Science C178. (F) Becker, Morrison, Rector

179N. Pavement Engineering. (3) Two hours of lecture and three hours of laboratory per week. A first course in pavement engineering for highways and airfields, including failure mechanisms, design ap-proaches, new pavement and rehabilitation design, ef-fects of materials and processes on pavement per-formance. Emphasis on understanding of fundamental issues of pavement engineering, approaches to eval-uation and design for new pavements and mainte-nance, and rehabilitation design. Formerly with asphalt concrete materials and tools used for evaluation and design of pavements, understanding of construc-tion issues, and effects on pavement perfor-mance. (F) Harvey

C180. Construction, Maintenance, and Design of Engineered Systems. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 120, 167, and 175 or consent of instructor. Use of equipment, and techniques to construct, maintain, and design steel and concrete structures and foundations. Management and quality assurance, and control of these activities. Class team projects address design, construction, and maintenance of contemporary civil and environmental engineered systems. Teams identify and are aided by experienced engineers and con-sultants, after which they construct a physical model of the system or a critical part of the system. Finally they develop a formal report that addresses the team project results to a panel of judges at the end of the semester. Also listed as Ocean Engineering C180. (SP) Bernhardt

184. Surveying and Engineering Measurements. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Math 53, 54. Statistics 25. Stan-dards, units, calibration; measurement of distance, el-evations, angles; systematic and random analysis; adjustment of measurements; weighting; principles of least squares; directions; traversing; horizontal and ver-tical angles; and Global Positioning Systems (GPS). (F) Staff

191. The Art and Science of Civil and Environmen-tal Engineering Practice. (1) One hour of lecture per week. Prerequisites: Senior standing in civil and environmental engineering. A series of lectures by dis-tinguished professionals designed to provide an appreci-ation of the role of science, technology, and the engineering profession in conceiving projects, designing the interplay of conflicting demands, and utilizing a variety of disciplines to produce unified and efficient systems. (SP) Staff


197. Field Studies in Civil Engineering. (1-4) Course may be repeated for credit. Consent of instructor. Course may be repeated for credit. Field study in civil engineering. Includes field trips and study of civil engineering field efforts. The course is an opportunity to see new and established techniques in solving civil engineering problems. (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. Supervised experience in off-campus companies relevant to specific aspects and applica-tions of civil engineering. Written report required at the end of the semester. (F,SP) Staff

199. Supervised Independent Study. (1-4) Course may be repeated for a maximum of four units per semester. 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 se-lected topic or topics in civil engineering. (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. Prerequi-sites: 100, Mathematics 53, 54, or equivalents. For-merly 105. Fluid mechanics of the natural water and air

non-credit

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
environment. Flux equation analyses; unsteady free surface flow; stratified flow; Navier-Stokes equations; boundary layers, jets, and plumes; turbulence, Reynolds equations, turbulence modeling; mixing, diffusion, dispersion, and contaminant transport; geophysical fluid dynamics and oceanic and atmospheric unsteady flow in polar media. Application to environmentally sensitive flows in surface and groundwater and in lower atmosphere. (F) Sobei

20B. Numerical Modeling of Environmental Flows, (3) Three hours of lecture per week. Prerequisites: 105 or 200A, or consent of instructor. Formerly 200. Introduction to the philosophy and practice of numerical modeling of environmental flow processes. Topics will change each semester. Course of structured computer modeling assignments on a single topic in environmental sciences, geometry, and drainage and irrigation, and contaminant transport. Hands-on applications using numerical modeling and analysis of real-life problems and field experiments will be emphasized. (F) Robin

20B. Geostatistics and Stochastic Hydrogeology. (3) Students will receive no credit if 290S completed before fall 1999. Three hours of lecture per week. Prerequisites: 173 or equivalent. Formerly 200. 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. A theoretical framework for modeling these phenomena will be presented, followed by applications in the areas of drainage and irrigation, and contaminant transport. Hands-on applications using numerical modeling and analysis of real-life problems and field experiments will be emphasized. (F) Rubin

20B. Surface Water Hydrology. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Occurrence and movement of water over the earth’s surface, precipitation and streamflow measurement and characteristics, frequency analysis of precipitation and runoff, relationship between rainfall and runoff, flood routing, time series analysis, and stochastic data generation models. (SP) Staff

204N. Coastal and Estuarine Analysis. (3) Students will receive no credit for 200 taken prior to Spring 2000. Three hours of lecture per week. Prerequisites: Civil Engineering 100, Mathematics 53, 54 or equivalents. Formerly 200. Analysis of flows, processes, and data in the coastal and estuarine environment. Linear wave theory, refraction, diffraction, breaking waves, tsunamis, harbor resonance, real sea states, spectra, wave loads, and wave generation. Wave climates, Astronomical tides, forcing, harmonic analysis, tidal propagation in estuaries, inertial dynamics. Meteorological tides, Nonlinear wave theory. Also listed as Ocean Engineering C204N. (SP) Sobei

205A. Coastal Processes. (3) Three hours of lecture per week. Breakers and surf, breakwaters, surf-zone dynamics, coastal sediment transport, shore protection, submarine structures. Also listed as Ocean Engineering C205A. Offered odd-numbered years. (F) Foda

205B. Load Engineering. (3) Three hours of lecture per week. Prerequisites: 25, 193 or equivalents and senior design experience. Processes and procedures to determine loadings to design or requalify structure and foundation systems. Dikes, bridges, building, transportation, harbor, coastal, and offshore structures. Sources of loadings, load processes, loading effects. Reliability, probability, economic, and social considerations. Operating, accidental, and environmental loadings including those due to wind, current and wave, ground movements, ice, snow, explosions, and fires. Also listed as Ocean Engineering C205B. (F) Bea

206. Water Resources System Analysis. (3) Three hours of lecture per week. Prerequisites: 103 or consent of instructor. Course emphasizes fundamental and practical issues of system analysis in water resources planning and management. Quantitative overview of system analysis methods and their application in water resources and environmental engineering will be presented. Topics include system analysis methods applied to river basin modeling, water quality management, flood routing, time series analysis, and stochastic data generation models. Also listed as Ocean Engineering C206. Offered even-numbered years. (F) Foda

20A. Vadose Zone Hydrology. (3) Students will receive no credit for 202A after taking 202 before fall 1998. Three hours of 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. A theoretical framework for modeling these phenomena will be presented, followed by applications in the areas of drainage and irrigation, and contaminant transport. Hands-on applications using numerical modeling and analysis of real-life problems and field experiments will be emphasized. (F) Robin

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). Surveillance routine and cycle of common and emerging organisms, detection methods (based on molecular techniques), human and animal sources, fate and transport in the environment, treatment and disinfection technology, regulatory approaches, water reuse. (SP) Nelson

211. Water Treatment Engineering. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 111 or 115 and 117 (may be taken concurrently). Water quality requirements for beneficial uses, standards, and regulations. Concepts of mass balance and chemical reaction theory applied to water quality improvement. Specific topics include gas transfer, particulate removal processes, chemical precipitation, ion exchange, adsorption, and disinfection. (F) Hunt

211B. Environmental Biological Processes. (3) Three hours of lecture per week. Prerequisites: 111 or equivalent and course 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 knowledge in microbiology into a quantifiable engineering context to describe, predict, and control behavior of environmental biological systems. Topics include the stoichiometry, energetics and kinetics of microbial reactions, suspended and biofilm processes, carbon and nutrient cycling, and bioremediation applications. (SP) Alvarez-Cohen

212. Wastewater Treatment Engineering II. (3) Three hours of lecture per week. Prerequisites: 113, 115, or equivalent, or consent of instructor. Formerly 210N. Interdisciplinary course for students who intend to carry out research on damaged ecosystems, supervising actual restorations or enhancement, and also students who are simply interested in this field. The course format is based on the Dahlem system where students prepare and present orally and in writing, one or more projects of the topic and participate in an all-day conference on aquatic restoration/enhancement. Wetlands, rivers, lakes, and estuaries, and coastal oceans are covered. Forms part of a sequence following 113, 116. Offered odd-numbered years. (SP) Home

213B. Research Methods and Ethics in Ecology and Environmental Engineering. (2) Two hours of lecture/seminar per week for ten weeks and six hours of fieldwork per week for five weeks. Prerequisites: Introduction to statistics course recommended. Formerly 210N. Experimental design of field and laboratory experiments, experiments, enclosures, exclusions, emphasizing aquatic ecosystems. Course uses group and individual exercises at local stream sites, wetlands, rivers, reservoirs, and estuaries; effects of stratification on mixing; theory of jets and plumes, and introduction to intakes and outfalls. (SP) Liang

214. Environmental Analytical Chemistry. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 115 or equivalent. This course adresses 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, transport and degradation as well as techniques for remediating environmental contamination. During the final third of the course, students will implement independent projects to characterize contaminants of their choice. (SP) Sedlak

215. Process Engineering Laboratory. (3) 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, transport and degradation as well as techniques for remediating environmental contamination. During the final third of the course, students will implement independent projects to characterize contaminants of their choice. (SP) Sedlak
Delta and large deformation theory. Analysis of stability.

Environmental Chemical Kinetics. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor; 115 or 214 or equivalent. Kinetic aspects of chemical fate and transport in aquatic systems. Quantitative descriptions of the kinetics of intermedia transport and pollutant transformation by abiotic, photochemical, and biological reactions.

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Professor of the Graduate School
Recipient of Distinguished Teaching Award

Civil Air Quality Engineering. (3) Three hours of lecture per week. Prerequisites: Graduate standing in engineering 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 the air pollution system; sources and control techniques, atmospheric transformation, atmospheric transport modeling, and air quality forecasting. (F) Nazaroff, Harley

Civil Air Pollution Engineering. (3) Three hours of lecture per week. Prerequisites: 218A. Study of the behavior of gaseous and particulate air pollutants, with application to understanding fate of pollutants, control device performance, and measurement system. Particulate and gaseous deposition. Light scattering and visibility impairment. Particle-gas interactions. Issues in monitoring and experimentation. (SP) Nazaroff, Harley

Civil Contaminant Transport Processes. (3) Three hours of lecture per week. Prerequisites: 100 and 111 (173 recommended). The fate of contaminants in the environment and transport processes within a single media and between media. The similarities in contaminant dispersion in air, water, and groundwater will be emphasized. Interphase transport processes, including volatilization and adsorption will then be considered from an equilibrium perspective followed by the kinetics of mass transfer across environmental interfaces. (SP) Hunt


Civil Nonlinear Structural Analysis. (3) Three hours of lecture per week. Prerequisites: 220. Theory, modeling, and computation for analysis of structures with materially or geometric nonlinearities. Sources of non-linearity. Solution strategies for static and dynamic loads. Modeling of inelastic materials and members. P-delta and large deformation theory. Analysis of stability. Prerequisites: 220. (SP) Filippou, Fenves

Civil Finite Element Methods. (3) Three hours of lecture per week. Prerequisites: 220 or equivalent, 131 or 231. Approximation theory for analysis of deformation and stress fields. Finite element formulations for frame, plane stress/strain, axisymmetric, torsion, and three-dimensional elastic problems. The isoparametric formulation and implementation. Plane and shell elements. Finite element modeling of structural systems. (SP) Fenves, Govindjee

Civil Computer-Aided Engineering. (3) Three hours of lecture per week. Advanced methods for computer-aided engineering, with emphasis on structural design and analysis. Dynamic analysis, finite element modeling of engineering systems. Database models and systems. Fundamentals of geometric modeling and computer graphics. Engineered-steel and concrete methodologies for developing computer-aided engineering systems. Offered odd-numbered years. (F) Fenves

Civil Dynamics of Structures. (3) Three hours of lecture per week. Prerequisites: 218A or equivalent. Evaluation of deformations and forces in structures, idealized as single-degree of freedom or discrete-parameter multi-degree of freedom systems, due to dynamic forces. Evaluation of earthquake-induced deformations and forces in structures by linear response history analysis; estimation of maximum response by response spectrum analysis effects of inelastic behavior. Laboratory demonstrations. (F) Chopra, Fenves

Civil Random Vibrations. (3) Three hours of lecture per week. Prerequisites: 218A. Introduction to probability theory and random processes. Correlation and power spectral density functions. Estimation of correlation functions and ergodicity. Stochastic dynamic analysis of structures subjected to random and non-stationary random excitations. Crossings, first-excitation probability, and distributions of peaks and extremes. Applications in earthquake engineering and ocean engineering. Offered odd-numbered years. (F) Der Kureghian


Civil Structural Reliability. (3) Three hours of lecture per week. Introduction to probability theory. Formula of reliability for structural components and systems. Exact solution methods and second-order reliability methods, simulation methods. Analysis of model uncertainty and Bayesian reliability methods. Stochastic load models and load combinations. Bases for probability design codes. Time-variant and finite element reliability methods. (SP) Der Kiureghian

Civil Mechanics of Solids. (3) Students will receive no credit for 231 for taking 231A or 231B prior to Fall 1992. Three hours of lecture per week. Prerequisites: 220: Graduate standing or consent of instructor. Mechanical response of materials: Simple tension of elastic, plastic and viscoelastic. Continuum mechanics: The stress and strain tensors, equilibrium, compatibility. Three-dimensional elastic, plastic and viscoelastic problems. Thermal, transformation, and devoloping stresses. Applications: Plane problems, stress concentrations at defects, metal forming problems. Also listed as Materials Science and Engineering 221F. (F) Govindjee

Civil Structural Mechanics. (3) Three hours of lecture per week. Prerequisites: 231 or consent of instructor. The goal of this course is to study the theories of structural mechanics: strain and displacement fields of nonlinear continuum mechanics of solids. Finite elasticity; invariance;
Concrete frame and frame-wall structures for gravity and lateral loads. (F) Moehle, Filippou

245. Behavior of Reinforced Concrete. (3) Three hours of lecture per week. Prerequisites: 123 and 220. Advanced topics in reinforced concrete construction, including inelastic flexural behavior; applications of plastic analysis to reinforced concrete frames; behavior in shear, torsion, fire, and blast. Probabilistic models of structures. The use of computer-based structural engineering design aids, computer-aided design, and finite-element analysis of steel and concrete behavior under cyclic and reversed loading; seismic re-

246. Prestressed Concrete Structures. (3) Three hours of lecture per week. Prerequisites: 244 or consent of instructor. Behavior and design of statically de-
terminate prestressed concrete structures under bending moment, shear, torsion and axial load effects. Design of continuous prestressed concrete beams, frames, slabs, and shells. Time-dependent effects and reflections of prestressed concrete structures. Anal-
culations to the design and construction of bridges and buildings. (SP) Filippou, Moehle

247. Design of Steel and Composite Structures. (3) Three hours of lecture per week. Prerequisites: 122 or equivalent. Design of steel plate girders and shear walls. Design of bracings for stability. De-

248. Behavior and Plastic Design of Steel Struc-

tures. (3) Three hours of lecture per week. Prerequi-
sites: 122 or equivalent. Topics related to inelastic be-
havior including design of steel members and structures. Plastic behavior of hinge in members sub-
ected to bending moment, axial force, shear, and their combination; analysis of mechanisms of steel members and structures such as moment frames and braced systems. Inelastic cyclic behavior of steel components. Introduce to fracture and fatigue of steel compo-
nents. Offered even-numbered years. (F) Astanine, Mahin

249. Experimental Methods in Structural Engi-

250. Logistics, (3) Students will receive no credit for 256 after taking 264C prior to Fall 1997. Three hours of lecture per week. Prerequisites: Consent of in-

251. Operation of Transportation Facilities. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. The manage-

252. Systems Analysis in Transportation. (3) Three hours of lecture per week. The systems approach and its application to transportation planning and engi-

eering. Prediction of flows and level of service. Pro-
duction of congestion and demand. Quality of service and cost optimization. Utilization, flow, and demand modeling. Transportation network anal-

253. Intelligent Transportation Systems. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. The use of advanced surveillance, navigation, communication, and computer technology to monitor, analyze, and im-
prove the performance of transportation systems. En-
abling technologies. Application to monitoring, analy-
sis, evaluation, and prediction of transportation system performance and behavior. Intervention and business strategies. Feasibility studies. Human factors and institutional is-
sues. Case studies. In the laboratory, students carry out a term project under the supervision of an ITS re-

254. Transportation Economics. (3) Three hours of lecture per week. Prerequisites: 252 or consent of in-
structors. Application of micro-and macro-economic concepts to transportation systems. Regional travel demand analysis. Freight demand. Pro-
ject and program evaluation. Social welfare theory. Analysis of social cost, benefits, and economic impact. Analysis and pricing theory. Economic impact analysis. Role of eco-

255. Highway Traffic Operations. (3) Three hours of lecture per week. Prerequisites: 252 or consent of in-
structors. Operational planning and management of the highway transportation system. The highway system is presented as a facility that provides services to cities using each with its unique analytical framework. Major top-
ics to be covered include policy and institutional issues, selection of strategies and tactics, evaluation of ob-
jectives and measures of effectiveness. (SP) Cassidy

256. Transportation Management and Planning. (3) Three hours of lecture/seminar per week. Trans-
portation planning from the perspective of the firm; how the transportation firm plans and how the contracting firm plans for its use of transportation. Course is designed to introduce student to the application of modern plan-
ning, economics, and management approaches to transportation activities in different sectors of the econ-
omy. Applications will include freight transportation across all modes. Some treatment of urban transport and airfreight will be considered. Course is designed to treat business problems with some quantitative modeling and empirical analysis. (SP) Staff

257. Air Transportation. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Nature of civil aviation; structure of the air-
line industry; aircraft characteristics and performances; aircraft noise; navigation and air traffic control; airport planning and design; airline operations; aviation sys-
tem planning. (F) Hansen, Kanafani

261. Transportation Infrastructure Management. (3) Three hours of lecture per week. Prerequisites: 252 or consent of instructor. Concepts and methods for analyti-
cal methods and technologies for the management of transportation facilities over their life. Condition sur-
veys, sampling, and life cycle considerations. Per-
formance models development and application. Agency costs and user impacts. Maintenance, rehabili-
tation and replacement, economic and facility level and network-level infrastructure management. Overview of existing pavement, bridge and rail management sys-

262. Analysis of Transportation Data. (3) Three hours of lecture per week. Prerequisites: College calculus or consent of instructor. Probabilistic models in transportation. The use of field data. Data gathering techniques, sources of errors, considerations of sam-
ple size, basic design for data collection and transportations analysis. Analysis tech-
iques. (F) Daganzo, Hansen, Madanat

263. Operations of Transportation Terminals. (3) Three hours of session per week. Prerequisites: Con-
graduate standing or consent of instructor. Characteristics of terminals on a mode by mode basis (sea ports, rai-

266B. Marketing and Management of International Construction and Engineering. (3) Three hours of lecture per week plus individual meetings with stu-
dents. Prerequisites: Graduate standing in Engineer-
ing, Architecture, or Business School. Business de-
velopment by engineers and contractors with emphasis on the international market. Development in communication, contracts and negotiations. Manage-
ment of international projects, including investigation, planning, procurement, logistics, personnel and financ-
ing. Special problems of adverse environments. (SP) Genwick

267B. Advanced Concrete Construction. (3) Three hours of lecture per week. Prerequisites: 122. Utiliza-
tion of concrete for construction, lightweight, high, strength, and architectural concrete. Uses of admix-
tures and processes for resolving problems associated with field processing of concrete. Application to build-

268E. Civil Systems and the Environment. (3) Three hours of lecture per week. Prerequisites: 166 or 167 or equivalent. Methods and tools for economic and en-

environmental analysis of civil engineering systems. Oc-
cus on construction, transportation, and operation, and maintenance of the built infrastructure. Life-cycle plan-
ing, design, costing, financing, and environmental as-

268F. Risk Assessment and Management of Technology. (3) Three hours of lecture per week. Pro-

269H. 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, materials, and subcontract resources, scheduling techniques, earned
290R. Advanced Topics in Geological Engineering. (1-2) Course may be repeated for credit. Seminar meetings each week. Prerequisites: Consent of instructor. Selected topics in the mathematical analysis of transport systems. Topics will vary from year to year. (SP) Sitar

C290U. 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 transportation systems; performance evaluation models of transport systems and land use; impact of transportation systems on land use impacts. Staff

C290V. Transportation Finance. (3) Three hours of lecture/discussion per week. This course will explore the economic and financial dimensions of urban transport systems, including highway finance and user fees, toll financing and congestion pricing, transit finance, and fare and subsidy policies. Class will review debates over the full social costs of transportation systems and current topics, including the politics of transportation sales taxes. Also listed as City and Regional Planning C213. Cervero

C290A. Planning for Traffic Safety and Injury Control. (3) Three hours of lecture per week. Prerequisites: 260 (may be taken concurrently). Current developments in air transportation. Topics of current interest, including methods of systems operations analysis, airport and airline planning, and issues of air transportation policy. Staff

C291A. Planning for Traffic Safety and Injury Control. (1-12) Course may be repeated for credit. One to twelve hours of fieldwork per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Multidisciplinary approach to planning for traffic safety and injury control. Topics include: pre-crash, crash, and post-crash medical; roles of vehicle, roadway, built environment, and crash injuries; vehicle and occupant dynamics; accident investigation; crash and injury control measures; costs of injury and countermeasures; policy issues; safety and injury control programs. Also listed as Public Health C285. (SP) Ragland

297. Field Studies in Civil and Environmental Engineering. (1-12) Course may be repeated for credit. One to twelve hours of fieldwork per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Supervised experience in off-campus companies relevant to specific aspects and applications of civil and environmental engineering. 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. 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. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to prepare for the viva voce examination. (F,SP) Staff

Professional Courses

301. Workshop for Future Civil and Environmental Engineering Teachers. (1-3) Course may be repeated for credit. Three hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Teaching assistant or graduate student status. The course will include supervised teaching of laboratory sections of civil engineering courses, group analysis of videotapes, reciprocal classroom visits, and an individual project. (F,SP) Staff

Major Advisers: (Greek, Latin, Classical Languages, and Literature, Mr. Knapp.

Graduate Advisers: (Classics), Ms. Kurke; (Classical Archaeology), Mr. Miller.

Department Overview

The Department of Classics offers a complete undergraduate and graduate program in the Greek and Latin languages, literatures, and civilizations. It groups its courses of instruction under the headings of Greek, Latin, and Classics. The object of the Greek and Latin courses is to teach undergraduates to read major works of ancient literature in the original languages and to give a general understanding of the achievements of classical civilization. The purpose of the Classics undergraduate courses is to provide instruction in Greek and Roman civilization in all its aspects—literature (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, all requiring knowledge of one or both of the 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 Greek. Elementary Greek (either Greek 1 or Greek 10) or the Greek Workshop, offered during Summer Sessions; 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 or Latin 10) or the Latin Workshop, offered during Summer Sessions; Latin 40 (may be taken concurrently with upper division courses); Latin 100, 101, and 102; four courses chosen from Latin 115-140; 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 Classical Languages. Elementary Greek (either Greek 1 or Greek 10 or the Greek Workshop, offered during Summer Sessions), Latin (either Latin 1 or Latin 10 or the Latin Workshop, offered during Summer Sessions); 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 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 (UGIS 44A 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.

(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), Greek Language (five Greek courses including up to two lower division), Latin Language (five Latin courses including up to two lower division).

(d) Area of breadth: two courses from any combination of upper and lower division offerings in a non-classics department (please consult with the Classics undergraduate adviser in selecting these courses).

(e) Two additional upper division courses from a list of some courses without duplication of any other requirements; all students in this major must take Classics 130.

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.

Honors 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, Latin, 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 H119S (for Greek or classical languages majors), Latin H119S (for Latin or classical languages majors), or Classics H119S (for classical civilizations majors); and (c) a senior thesis. Students interested in undertaking 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 courses from Courses 100A, 100B, 121, 130, 132, 155A, 155B, 163, 170, 175, 178, 180, Greek 100-102, 105, 115-123, Latin 100-102, 115-123, 140, 150.

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). For those desiring only a master’s degree in Greek or Latin, the corresponding major in Greek or Latin may suffice, but some knowledge in the other language is normally necessary. These programs should be regarded as minimum requirements. Students are urged to supplement these requirements for the major in Classical Languages with two or three senior reading courses (Greek 115-123, Latin 115-123). They are strongly advised also to have an adequate reading knowledge of French and German, since they must pass examinations in both for the Ph.D. degree, and in one of them for the M.A. degree. Prospective graduate students are also encouraged to take Advanced Prose Composition in Greek and Latin (Classics 250, 260) since the graduate programs require demonstration of competence in prose composition. Note that the major in Classical Civilizations is not considered to be adequate preparation for graduate study.

The Graduate Program

The Master of Arts degree may be taken in Greek, Latin, Classics (under Plan B: a program of 24 units in graduate and advanced undergraduate courses, and a series of examinations), or Classical Archaeology (under Plan A: a program of 20 units of graduate and advanced undergraduate courses, and a dissertation).

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 work 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 enter courses in epigraphy, comparative grammar, and Greek dialects when they are offered, since choices between offerings of each is at least 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 4 units (for a letter grade) or 2 units (on 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 10A, 10B, etc.) 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 B.C.E. Key works of literature, history, and philosophy (read in English translation) will be examined in their political and social context, and in relation to other ancient Mediterranean cultures and to 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 main achievements and tensions in Roman culture from Romulus to the High Empire. Key sources for history, literature, and philosophy will be studied to understand Roman civilization in its political and social context. All materials are read in English. (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 Greek world from the Bronze Age to 323 B.C. will be studied, with emphasis on the cultural period 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 B.C. to the advent of Christianity will be studied as a means of understanding the development of the cultural traditions of ancient Greece and 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 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 mentor 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 Classic Myths. (4) Three hours of lecture and one hour of discussion per week. A survey 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 B.C.E through 500 CE) asvested in literary, epigraphic, and papyrological sources. Attention is paid to the overall Mediterranean context and, in particular, to Egyptian and Near Eastern influences on Greco-Roman traditions. Consideration is given to ways of analyzing and understanding magical practices, and the relationship between 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. (FSP)

35. Greek Tragedy. (4) Three hours of lecture/discussion per week. Greek tragedy with readings of Aeschylus, Sophocles, and Euripides. (F,SP)

36. Greek Philosophy. (4) Three hours of lecture 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, topical from department to department and from semester to semester. (F,SP) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/No Passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students interested in majoring in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (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 pass/No 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 pass/No Passed basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor; 3.3 overall GPA. (F,SP)

Upper Division Courses

100A. Greek Literature. (3) Three hours of lecture per week. Readings in Greek writers at the upper division level. (F)
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100B. Latin Literature. (4) Three hours of lecture per week. Prerequisites: Greek 1-2, 10. The Greek classics. (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 topics vary. Three hours of lecture per week. Topics 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.

130. Topics in Ancient Greek and Roman Culture. (4) Course may be repeated for credit. 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 topics vary. Three hours of lecture/discussion per week. Study of topics in gender, feminism, and sexuality in ancient cultures. Topics vary from year to year.

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 25A 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 B.C. (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)

175B. Rome. (4)

175C. Sanctuaries of Greece. (4)

175D. Pompeii and Herculanenum. (4)

175F. Roman Wall Painting. (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 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. 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. 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 Attic prose and sight-reading: grammar review. (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. Prerequisites: Restricted to freshmen and sophomores; consent of instructor; 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. 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 Crat, 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 classical plays and/or prose literature of fifth century Athens. (F)

103. 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. (SP)

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. (F,SP)

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. Selected readings from Greek tragedy and/or comedy. (F)

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. (F,SP)

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. (SP)

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. (SP)

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. (SP)

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. (SP)

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)

Latin

Courses in this group are designated Latin 1, 2, 40, etc.

Lower Division Courses

1. Elementary Latin. (4) Three or four hours of lecture per week. Beginners' course. (F,SP)

2. Elementary Latin. (4) Three to four hours of lecture per week. Prerequisites: 1 or equivalent. Beginners' course. (F,SP)

10. Intensive Elementary Latin. (8) Five hours of lecture and one hour of discussion per week. Beginners' course (intensive); equivalent to Latin 1-2. (F,SP)

40. Intermediate Latin Prose Composition. (4) Three hours of lecture per week. Prerequisites: 2, 10, or 15. Formerly Latin 40A. Development of skills in writing Latin prose and sight-reading; review of grammar. (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. Prerequisites: Consent of instructor; 3.3 overall GPA; restricted to freshmen and sophomores. (F,SP)

99. Supervised Independent Study and Research. (1-4) Enrollment is restricted; see the Introduction to Courses and Curricula section of this catalog. Prerequisites: Consent of instructor and 3.3 overall GPA; restricted to freshmen and sophomores. (F,SP)

Upper Division Courses

100. Republican Prose. (4) Three hours of lecture per week. Prerequisites: 2, 10, or 15. Selected readings in Caesar, Sallust, and Cicero; some review of grammar. (F,SP)

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. Readings in Callimachus and his school. (F,SP)

115. Roman Drama. (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 comedy (Plautus and/or Terence) and Tragedy (Seneca).
11.6. Lucrètius, 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.

11.7. Elegiac 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.

11.8. Satire. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 101 or 102. Readings in Roman satirists.

11.9. Latin Epic. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101 or 102. Readings in Latin epic poetry.

12. 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 140. Readings in Latin prose authors such as Sallust, Cicero, Caesar, and Livy.

12.1. Taclitus. (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.

12.2. 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.

12.3. Petronius and Apuleius. (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 Petronius and Apuleius.

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 Renaissance, with emphasis on certain periods.

140.1. Medieval Latin. (4) Three hours of lecture per week. Prerequisites: 100 or consent of instructor. Introduction to Medieval Latin: Selected readings in prose and poetry from Late Antiquity to the end of the Middle Ages, with attention to the special characteristics of the Latin language during this period. Also listed as Medieval Studies C140. (F,SP)

155A-155B. 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 texts 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 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 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 pass/not pass 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 pass/not pass basis. Prerequisites: Restricted to senior honors students. (F,SP)

Graduate Courses

Classics

The seminar-prosopograph (Classics 200) is prerequisite to all graduate seminars; this requirement does not apply to graduate courses that are not seminars, or that may be waived only with special permission of the graduate adviser. Courses vary from year to year and are not necessarily given in alternate years.

200. Seminar. (3) Three hours of seminar per week. An introduction to the general literature of classical philosophy, to methods of research, and to textual criticism. (F)

210A-210B. Seminar of Greek Literature. (4) Three hours of lecture per week. A sequence of readings and lectures on Greek literature. Offered alternate years. (F,SP)

220A-220B. Seminar 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. Prerequisites: 200 or consent of instructor. Introduction to basic methods of literary analysis and interpretation, and study of particular critical approaches of significance for the understanding of Classical literature. Close reading of selected passages of Greek and Latin will be emphasized. The critical approaches that are to be studied may vary from year to year. The course will be read taught.

204. Seminar in Classical Archaeology. (2,4) 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) Staff

210. Greek Hexameter 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 210A. Homer, Heinsius, Hesiod, hexameter poetry. (F,SP)

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. Topics in iambic, elegiac, and lyric poems 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 topics in Hellenistic poetry and poetics. (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.

216. Greek Historians. (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 210A-F. Study of Herodotus, Thucydides, Aristotle (Constitution of Athens), or other topics in the Greek historians or historiography.

217. Greek Oratory and Rhetoric. (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. Topics in the orators or the Greek rhetorical tradition. Staff

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. Formerly 216A-D. Study of PreSocrates, Plato, Aristotle, Hellenistic Philosophy, or other topics in ancient Greek philosophy through Plotinus.

219. Ancient Novel. (2,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. 2 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, Petronius, Apuleius, or other topics in Greco-Roman romance or novel.

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

221. Greek Psychology. (2,4) Course may be repeated for credit as topic varies. 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. Ancient reflections on the soul, consciousness, and various aspects of mental life, especially constructs of the self.

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 or 101 or 102. Study 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 the linguistic characteristics of a few literary and epigraphic dialects will be compared.

223. Comparative and Historical Grammar of Latin. (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. Formerly 101 and 102 or graduate standing. Survey of the evolution of Latin from its reconstructed ancestor, Proto-Indo-European, as attested in antiquity. The development of Latin phonology, morphology, and syntax will be examined, and the linguistic characteristics of a few literary and epigraphic examples will be compared.

224. Classical Poetics and Rhetoric. (2,4) Course may be repeated for credit as topic varies. 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. Advanced view of literature, theories and practice of criticism, scholarship, and education, from Homer to Byzantium.

225. Papyrology. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. The course introduces students to Greek papyrology. Its principal aim is to develop the skills necessary to edit and to interpret papyrological texts. Students will be introduced to the techniques of papyrology and to investigating historical issues to which the papyrological corpus has much to contribute (the ancient economy, gender in antiquity, education, etc.) The course will be made of Berkeley's outstanding collection of papyri from Tebtunis. (F,SP) Staff

226. Myth and Literature. (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. Advanced view of literature, theories and practice of criticism, scholarship, and education, from Homer to Byzantium.
Ancient Society and Law. (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 238B. Study of social, legal, or administrative structures of the Greek or Roman world.

Ancient Religion. (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 cults and rituals with regard to fundamental aspects of Greek or Roman religion or both, such as sacrifice, purification, cult and literature, hero cult, politics and religion, and life after death.

Latin Poetry of the Republic and Early Empire. (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 235A-235B. Study of Plautus, Terence, Seneca, or other topics in Latin drama (F).

Latin Roman 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 235A-235B. Study of Plautus, Terence, Seneca, or other topics in Latin drama (F).

Roman Historians. (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 237A-B. Study of Caesar, Sallust, Livy, Tacitus, or other topics in Latin history or historiography.

Latin 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. Formerly 237A. Study of Cicero, Seneca, or other topics in the history of Roman philosophy.

Latin Oratory and Rhetoric. (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 237A. Study of Cicero, Quintilian, or other topics in Latin oratory and rhetoric.

Topics in Roman Literature, History, and Culture. (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. Select problems in Roman imperial literature and history from 69-235 A.D.

Greek and Roman Literature 100-500 A.D. (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. Topics in the literature of the 2nd through 5th centuries.

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.

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 or consent of instructor. Graduate readings in Medieval Latin with attention to the evolution of literary forms and genres from Late Antiquity to the close of the Middle Ages. Students who take the course for 2 units must enroll on a satisfactory/unsatisfactory basis. Students who take it for 4 units must enroll for a letter grade. Also listed as Medieval Studies C241. (F,SP)

245. Reading Seminar. (2) Course may be repeated for credit. Two hours of discussion per week. 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)

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.

251. Greek Dialogues. (2,4) Three hours of lecture per week. Two units to be graded on satisfactory/unsatisfactory basis. Four units to be graded on a letter-grade basis. Prerequisites: 200. Formerly 235B. Study of Greek literature or both, such as sacrifice, purification, Pan-Hellenic centers with particular emphasis on Nemea.

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 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. Formerly 235A-B. Study of Pan-Hellenic centers with particular emphasis on Nemea.

279. Field Study in Archaeology. (2-12) Course may be repeated for a maximum of 15 units. Supervised study in archaeology. Normally reserved for upper division courses in Medieval Latin with attention to the evolution of literary forms and genres from Late Antiquity to the close of the Middle Ages. Students who take the course for 2 units must enroll on a satisfactory/unsatisfactory basis. Students who take it for 4 units must enroll for a letter grade. Also listed as Medieval Studies C241. (F,SP)

299. Special Study. (1-4) Course may be repeated for credit. Special individual study for graduate students. (F,SP)

301. 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)

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

(College of Letters and Science)

Group Major Office: Undergraduate and Interdisciplinary Studies, 301 Campbell, (510) 642-3628 http://ls.berkeley.edu/ugis/cogsci/

Director and Major Adviser

Eve Sweetser (Linguistics/Celtic Studies)

Faculty Members

Martin Banks (Optometry)
Mark D’Espése (Psychology)
Andrew Dilliss (Educational Psychology)
Susan Envi-Tripp (Psychology)
Jerome Feldman (Computer Science)
Alison Gopnik (Psychology)
Enrin Halter (Psychology)
Richard Irwy (Psychology)
Lucia Jankowska (Psychology)
John Kristoff (Psychology)
Robert Knight (Psychology)
George Lakoff (Linguistics)
Jindra Malk (Computer Science)
Sam McGinn (Linguistics)
John Ohta (Linguistics)
Stephen Palmer (Psychology)
William Prinzmetal (Psychology)
Michael Pinker (Psychology)
Richard Rhodes (Linguistics)
Lynn Robertson (Psychology)
Eleanor Rosch (Psychology)
Stuart Russell (Computer Science)
Kanica Sekar (Mathematics/Computer Science)
K. Seiwa (Philosophy)
Arish Shimpuru (Psychology)
Dan Stolin (Psychology)
Robert Wiserney (Computer Science)
Emeritus Faculty

Hubert Drydas (Philosophy)
Charles Fillmore (Linguistics)
Paul Kay (Linguistics)
Lott Zadeh (Computer Science)

Student Affairs Officer: Ms. 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. This interdisciplinary program is designed to help students an understanding of questions dealing with human cognition, such as concept formation, visual perception, the acquisition of knowledge 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 cognitive science. The structure of the major follows:

Prerequisites for the Major: Cognitive Science C1/Education C1, Computer Science 61A, Mathematics 1A, Molecular and Cell Biology 61, and one of the following: Mathematics 55 or Computer Science 70.

Upper Division Core Requirements: Cognitive Science C100/Psychology C120B and Cognitive Science C101/Linguistics C105.

In addition to the two core courses required of all majors, students must complete three courses from their chosen area of concentration and a single course from each of the other areas of non-concentration. The areas of concentration are: Cognitive Neuroscience, Cognitive Psychology, Computational Modeling, Linguistics, and Philosophy. Programs must include a minimum of 30 upper division units.
Cognitive Neuroscience


Cognitive Psychology

Students concentrating in Cognitive Psychology must take Psychology 101; one course from the core course list: Psychology/Cognitive Science C124, Psychology/Cognitive Science 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 24A, 227, 229A. Students not concentrating in Cognitive Psychology must take a course from the core course list.

Computational Modeling

Students concentrating in Computational Modeling must take Computer Science 18B and two courses from the following: Computer Science 18B, Computer Science C182/ Cognitive Science C110/Linguistics C109, Computer Science 160, 170, 173, 245/245L, 261, 267, 268, 269. Students not concentrating in Computational Modeling must take Computer Science 188.

Linguistics


Philosophy

Students concentrating in Philosophy must take Philosophy 132 and two other courses, at least one of which must come from the core course list: Philosophy 100, 122, 131, 132, 135, 137. Additional courses include Philosophy 129, 130, 140, 174, 175, 176, 178, 185, 186, 188, Cognitive Science/Linguistics C108. Students not concentrating in Philosophy must take a course from the core course list.

Honors Program.

Cognitive science majors who wish to graduate with honors must have an overall grade-point average of 3.30 or higher in all work completed in the University and a 3.30 grade-point average 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 3 units of course H195A-H195B or 199.

Students interested in the major should consult with the student affairs officer in 349 Campbell Hall, (510) 642-2628.

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 in such fields as 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.

84. Sophomore Seminar. (1) 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 letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholarship in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

Upper Division Courses

C100. Basic Issues in Cognitive Science. (4) Students will receive no credit for 100 after taking Psychology 120A. Three hours of lecture and one hour of discussion per week. Formerly 100. 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, psychology, computer science, and physiology. Particular emphasis will be placed on the interaction between, and limitations of, the computational model of mind. Also listed as Psychology C120B. (F)


C102. Scientific Approaches to Consciousness. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: C1 or Psychology 1; or Psychology 120A or 120B, or C100. 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 computational models. Also listed as Psychology C129. J. Kihlstrom

C107. The Mind and Mathematics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Some background in either cognitive science, mathematics, philosophy, linguistics, or another relevant discipline. The analysis of mathematical ideas from the perspective of cognitive science. How ordinary mechanisms of mind (e.g., conceptual metaphor and blending) generate laws of arithmetic, sets, logic, trigonometry, exponentials, and imaginary numbers. The Basic Metaphor of Infinity and its application to infinite sets of numbers, transfinite numbers, and limits. The meaning of Euler’s equation e(pi) + 1 = 0. Why mathematics is not an objective feature of the universe. Also listed as Linguistics C107. G. Lakoff

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 the metaphorical thought. The course rethinks philosophy from a cognitive science perspective, including basic philosophical concepts—time events, causation, perception, reason, decision, and morality—and the cognitive structure of the philosophical theories of the Presocratics, Plato, Aristotle, Descartes, Kant, analytic philosophy (especially Quine), and Chomsky. Also listed as Linguistics C110. G. Lakoff

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. Linguistic and cognitive basis of the neural structures of the human brain shape the nature of thought and language? Methods in the study of the Neural Theory of Language (NTL), which focuses 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 learning phenomena. Also listed as Computer Science C182 and Linguistics C109. (SP) Feldman, G. Lakoff

C124. Psycholinguistics. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: An introductory course in linguistics or consent of instructor. Introduction to psycholinguistics, emphasizing effects of psychological variables on the learning and use of language, influence of language behavior on psychological processes; special attention to psychological applicability of modern linguistic theory and to social psychological aspects of language behavior. Also listed as Psychology C124.

C126. Perception. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Psych 101 recommended. An introduction to principal theoretical constructs and experimental procedures in visual and auditory perception. Topics include the nature of psychophysics; perception of form, shape, and motion; pattern recognition and perceptual attention. Also listed as Psychology C126.

C127. Cognitive Neuroscience. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Psych 142, or consent of instructor. Psych 101 recommended. An introduction to the Neural Theory of Language (NTL), which focuses 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 learning phenomena. Also listed as Psychology C127.

H195A-H195B. Special Study for Honors Candidates. (1-3-1-3) Course may be repeated for a maximum of 6 units. Individual conferences. Prerequisites: Open only to senior cognitive science majors in the 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 pass/not passed basis. Prerequisites: Upper division standing and consent of instructor. Seminar for the group study of selected topics. Prerequisites: Open only to upper division students subject to the approval of the major advisor. (F,SP) Staff

199. Supervised Individual Study. (1-4) Course may be repeated for credit. Must be taken on a pass/not passed basis. Prerequisites: Restricted to juniors and seniors. Independent study and research by arrangement with faculty. (F,SP) Staff

Graduate Courses

C200. Graduate Issues in Cognitive Science. (3) Three hours of seminar per week. Prerequisites: Graduation standing or consent of instructor. This course will consist of an introduction to cognitive science at the graduate level. The class will include consideration of major topics in 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? Methods in the study of 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 learning phenomena. Also listed as Psychology C220F.

201. Graduate Seminar in the Mind and Language. (4) Four hours of seminar per week. Prerequisites: Graduation standing or consent of instructor. This course will explore the concept of thought as grounded in the sensorimotor system, and to grow out of the nature of the physical brain and body. A human reason also makes extensive and fundamental use of imaginative mechanisms such as...
College Writing Programs
(Progs. of Letters and Science)

Office: 112 Wheeler Hall, (510) 642-5570
http://www.writing.berkeley.edu

Lecturers
Stephanie Bobb, Ph.D.
Yuval-Sim D. Chiang, Ph.D.
Caroline Coz, Ph.D.
Melinda E. Erickson, M.A.
Jane Haughey, Ph.D.
Carolyn Hill, Ph.D.
John Lang, Ph.D.
John Levine, M.F.A.
Kaya Cakar, M.F.A.
Gail Offerman, M.A.
Kevin Pavian, Ph.D. (Director)
Magisa E. Shivonji, Ph.D.
Jain Stanley, Ph.D. (Assistant Director)
Pat Steenland, Ph.D.
Sarah Stone, M.F.A.
Tilman H. K. Toftelson, M.A.

Program Overview
College Writing Programs, a unit within the Division of Undergraduate and Interdisciplinary Studies in the College of Letters and Science, offers courses that introduce students to 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: Self-selected 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 writing and to identify high frequency non-idiomatic uses of English. Intensive, individualized practice will be provided for students from different language backgrounds. (F) Staff

R1.A. Accelerated Reading and Composition. (6) Five hours of lecture/discussion and one hour of workshop per week. Prerequisites: Placement by Subject A examination. Formerly 1A. An intensive, accelerated course designed to satisfy the requirements of Subject A and the first half of Reading and Composition. Readings will include imaginative, expository and argumentative texts representative of the range of those encountered in the undergraduate curriculum and 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

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 passed/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 or consent of instructor. 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) Sokolik

Interdepartmental Studies Courses
Upper Division Courses
IDS 140. Technical Communication for Non-Native Speakers of English. (3) Three hours of lecture per week. Prerequisites: English 1A, or equivalent course; upper division or graduate standing. Emphasis on improving language skills and use of the rhetorical conventions of technical presentations. This course is designed to prepare non-native speakers for the more advanced work in Engineering 190, Sponsoring department: College Writing and the College of Engineering. (F,SP) Jones

Comparative Biochemistry (Interdepartmental Graduate Programs)

Chair: Jack Kirsch, Ph.D.

Professors
Bruce N. Ames, Ph.D. (Molecular and Cell Biology and Lawrence Berkeley National Laboratory)
George A. Brooks, Ph.D. (Biological Engineering)
Bob B. Buchanan, Ph.D. (Plant and Microbial Biology)
John E. Casida, Ph.D. (Environmental Science, Policy, and Management)
Douglas S. Clark, Ph.D. (Chemical Engineering)
Bobo D. de Lumen, Ph.D. (Nutritional Sciences and Toxicology)

Associate Professors
Nancy Amy, Ph.D. (Nutritional Sciences and Toxicology)

Adjunct Faculty
James C. Bartholomew, Ph.D. (Lawrence Berkeley National Laboratory)

Advisers: Ms. Amy, Mr. Casida, Mr. Sensabaugh, Mr. Shane.
Comparative Literature

(Chair of Letters and Science)

Department Office: 4118 Dwinnelle Hall, (510) 642-1200 http://www.berkeley.edu/dept/compl/dept.html

Chair: Eric Naiman, Ph.D.

Professors
Robert Alter, Ph.D. Harvard University. Modernism, Hebrew and biblical poetry (Hebrew), comparative literature. (Emeritus)
Judith Butler, Ph.D. Yale University. Philosophy, sociology, gender studies (Feminist theory). (Emeritus)
Michael A. Brenner, D.Phil. Oxford University. Literary theory, history and literature, modernism, proverbs (Hebrew).
Joseph Duggan, Ph.D. Ohio State University. Medieval literature, (1) at least four Approved upper division units in literature, including a second language sufficient to qualify for advanced study in Comparative Literature. For further information, see the College Writing Programs section of this catalog.

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 professional activities.

The junior course (CL 100) is designed to introduce students to a variety of literary texts and critical and theoretical approaches. Students will be encouraged to formulate their own standards and responses. The senior course (CL 190) is designed to help students apply 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 adequate work in at least one foreign language sufficient 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 majoring in the humanities who have been admitted to the honors program, with the approval of the chair, in consultation with the appropriate undergraduate advisor, may petition to take the honors literature requirement (CL 190) instead of the senior seminar. Students majoring in the humanities who have been admitted to the honors program, with the approval of the chair, in consultation with the appropriate undergraduate advisor, may petition to take the honors literature requirement (CL 190) instead of the senior seminar. Students majoring in the humanities who have been admitted to the honors program, with the approval of the chair, in consultation with the appropriate undergraduate advisor, may petition to take the honors literature requirement (CL 190) instead of the senior seminar.

Requirements: Upper Division. A minimum of 30 approved upper division units in literature, including (1) CL 190 in the senior year, a section of 10 graduate courses is required for the Ph.D. degree. This degree prepares students for teaching and research in this major and each of two minor literatures. Further information concerning the program can be obtained from the vice chair in charge 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 advanced undergraduate preparation in at least two foreign languages will speed up their work at the graduate level. A reading knowledge of one classical language is required for the Ph.D. degree.

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. degrees from other institutions will be able to count some M.A. course work toward the 10-course requirement.) Courses include Approaches to Comparative Literature, as well as graduate-level courses in other relevant literatures. These are intended to help prepare students
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for the Ph.D. written and oral qualifying examina-
tions, which examine the three literatures in a com-
parative framework. The examinations are based on reading lists and a state-
ment of interests drawn up by the student in consultation with an advisor. Students are ex-
pected to have completed three seminars in their major area no later than the fourth year of study and to devote the fol-
lowing two years to the development of a prospec-
tus and the completion of a doctoral dissertation. Dissertation courses are ordinarily com-
posed of members of the Department of Comparative Lit-
erature and other related departments. A final ex-
amination on the dissertation and its immediate area may be required.

Lower Division Courses

H1A-H1B. English Composition in Connection with the Reading of World Literature. (4) Three hours of discussion per week, and individual conferences. Prerequisites: (a) Subject A examination, or (b) a 3.5 grade point average in high school English, or (c) a read-
ning knowledge of an ancient or modern foreign lan-
guage, and (d) permission of the instructor. Expository writing based on analysis of selected masterpieces of ancient and modern literature. Limited to 10 qualified freshmen or sophomores who meet for round-
table discussions and attend weekly tutorial sessions. Individual assignments provide each student with the opportunity to exploit his or her linguistic and literary training. H1A satisfies the first half of the Reading and Composition requirement, and H1B satisfies the sec-
ond half. (F,SP)

R1A-R1B. English Composition in Connection with the Reading of World Literature. (4) Three hours of lecture per week plus individual conferences. Prerequisites: Subject A examination or course. 1A or equivalent is prerequisite to 1B. Formerly 1A. Expos-
itory writing based on analysis of selected master-
pieces of ancient and modern literature. R1A satisfies the first half of the Reading and Composition require-
ment, and R1B satisfies the second half. (F,SP)

R2A-R2B. English Composition in Connection with Reading of World and French Lit. (5,5) Five hours of lecture per week. Prerequisites: Three years of high school French or two years with a B plus average. For-
merly 2A. 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)

R3A-R3B. English Composition in Connection with Reading of World and Hispanic Literature. (5,5) 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 mod-
ern literature and the study of selected Spanish texts read in the original. Course will help prepare students for more advanced work in Spanish. R3A satisfies the first half of the Reading and Composition requirement, and R3B 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. Sections 1-2 to be graded on a letter-grade basis. Freshman and sophomore seminars offer interested 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)

40. Women and Literature. (4) Course may be re-
peated once for credit with different topics. Three hours of lecture per week. A study of women as portrayed in lit-
erature, and of women writers. Selected readings on a topic which varies from semester to semester, with detailed consideration of both literary techniques and the problems of women. (F,SP)

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. (4)

41D. Forms of the Drama. (4)

41E. Forms of the Cinema. (4)

41F. Forms of Literary Theory. (4)

42. Sexuality and Culture. (4) Course may be re-
pealed once for credit with different topics. Three hours of lecture per week. Formerly 39. A study of sexuality as articulated in literature and culture from a compa-
native perspective. Selected readings on a topic which varies from semester to semester. (F,SP)

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. (F,SP) Staff

60A. Topics in the Literature of American Cul-
tures. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. Study of the eth-
nic diversity of American literature. Topics will vary from semester to semester, but may include such themes as Cultures of the City, Gender, Race, Eth-
nicity 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) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring de-
partment. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they graduate. (F,SP)

98. Directed Group Study for Freshmen and Sophomores. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Three hours of lecture per week. Prerequisites: Upper divi-
sion standing or permission of the instructor. Students wishing to enroll must know at least one foreign language relevant to the materials studied. Literature of the Middle Ages.

112A-112B. Modern Greek Language and Modern Greek Composition. (4) Three hours of lecture and one hour of discussion per week, Modern Greek pro-
nunciation, 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)

120. The Biblical Tradition in Western Literature. (4) Three hours of lecture per week. Examination of selected aspects of the Biblical tradition and their rel-
ence to the study of later literature.

C125. The Mystical Tradition in Literature. (4) Three hours of lecture per week. Formerly 125. A survey of the major concepts in the philosophy of mysticism and their expression in literary form. Examples drawn from at least one Eastern and one Western tradition; em-
phasis on problems such as love and sex, social jus-
tice and individual fulfillment. Also listed as Religious Studies C116.

151. The Ancient Mediterranean World. (4) Three hours of lecture per week. Prerequisites: Upper divi-
sion standing or consent of instructor. Graduate stu-
dents who wish to take this course are required to go back to the original Hebrew, Greek, or Latin texts. The literature of Greece, Rome, the Biblical lands, and other ancient civilizations of the Mediterranean basin.

152. The Middle Ages. (4) Three hours of lecture per week. Prerequisites: Upper division standing or con-
sent of instructor. Graduate students wishing to enroll must know at least one foreign language relevant to the materials studied. The literature of the Middle Age.

153. The Renaissance. (4) Three hours of lecture per week. Prerequisites: Upper division standing or per-
mission 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.

154. 18th- and 19th-Century Literature. (4) Three hours of lecture per week. Prerequisites: Upper divi-
sion 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. (4) Course may be re-
pealed 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.

156. Fiction and Culture of the Americas. (4) Three hours of lecture per week. Comparative study of Amer-
ican, Native-American, Spanish-American, Caribbean, and Brazilian literature and culture. Readings chosen to illustrate diverse attitudes of Americans toward their culture, politics, and environment.

158. African Literature and Culture. (4) Three hours of lecture per week. Comparative investigation of a topic in African literature and culture or in relation to African literature and culture of a “dispora.”

156. Myth and Literature. (4) Three hours of lec-
ture/discussion per week. Study of the earliest myth texts and of the progressive intrinsic to the understanding of myth to the present day. Myth and oral composition. Emphasis on the meanings of myth as reflected in varying idoms. (F,SP)

170. Special Topics in Comparative Literature. (1-
4) 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 de-
signed 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 methodological framework or bias of selection. (F,SP)
185. Gender, Sexuality, and Culture. (4) 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. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion per week. Comparative seminar-style treatment of a major topic in Comparative Literature. Substantial paper required. (F,SP) Staff

195. Honors Course. (1-4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Honors standing, consent of the instructor. Seminar-style treatment of a major topic in Comparative Literature. Writing of an honors thesis under the supervision of a member of the faculty. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Upper division standing. Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Staff

200. Approaches to Comparative Literature. (4) Three hours of lecture/discussion per week. Prerequisites: Admission to graduate standing in Comparative Literature. Lectures on literary theory, on the study of criticism, and on the methods of comparative literature. (F) Staff

201. Proseminar. (1) One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Required for all first year graduate students. 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, students must attend the seminars of some practical aspects of the graduate career, issues that pertain to graduate standing, and audience. The readings for the course will consist of copies of materials by the department’s faculty. (F) Staff

202. Approaches to Genre. Three hours of lecture/discussion per week. Prerequisites: Admission to graduate standing. Staff

210. Studies in Ancient 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 C221. 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 Derida. Also listed as Rhetoric C221.

222. Studies in the 19th Century. (4) Three hours of lecture/discussion per week. Prerequisites: Major themes in nineteenth-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.

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. Prerequisites may be admitted with consent of the instructor. Comparative investigation of a literary topic requiring the study of both Near East and Western documents.

235. Studies in the Relations Between Classical and Later Literatures. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages, at least one of which must be Greek or Latin. Comparative investigation of a topic involving the study of ancient and later 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.


253. Studies in Literary Criticism. (4) Three hours of lecture/discussion per week. Prerequisites: Preparation in two foreign languages. Comparative investigation of a topic in evaluative criticism and literary analysis.

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. (F,SP)

256. The Craft of Critical Writing. (4) Three hours of lecture/discussion per week. The course will proceed with the analysis of writing reviews and critical essays, with class discussion of the work that will be done by members of the seminar. Some analytic attention will also be devoted to experimental models of critical prose. The class will deal with the minute details that make for lucidity and felicity of style and will also 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 investigation 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. Prerequisites: Preparation in two foreign languages. Comparative 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/unsatisfactory basis. Prerequisites: Restricted to students who have completed the Master’s examination. Individual study in consultation with the Graduate Adviser. May be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. (F,SP) Staff

279. Directed Research. (4-8) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Hours to be arranged. May not be substituted for available seminars. (F,SP) Staff

601. Individual Study for Master’s Students. (1-6) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Individual 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) 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: Satisfactory completion of the Master’s examination. Individual study in consultation with the Graduate Adviser intended to provide opportunity for qualified students to prepare themselves for the various examinations required for candidates for the Ph.D. May not be used for unit or residence requirements for the doctoral degree. (F,SP) Staff

Professional Courses

360A-360B. Methods of Teaching Literature and English Composition. (4-8) Course may be repeated for credit. One hour of discussion and three hours of laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as a teaching assistant or consent of the instructor. Discussion of approaches to teaching composition at the college level in relation to the reading of masterpieces of literature. Designed primarily for instructors in the freshman composition course. (F) Staff

361A-361B. Pedagogical Practice. (4-8) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as a teaching assistant or consent of the instructor. Discussion of approaches to teaching composition at the college level in relation to the reading of masterpieces of literature. Designed primarily for instructors in the freshman composition course. (F,SP)
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, M4);
2. Discrete mathematics (Math 55) or 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.

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. Core courses (CS 150, and either CS 162 or 164, and CS 170).
2. Breadth courses from two of the following areas:
   a. Hardware (CS 152);
   b. Software (CS 162 or CS 164, i.e., a course different from that taken to satisfy the core requirement);
   c. Theory (CS 172 or CS 174);
3. An upper division mathematics or statistics course (Math 160 and Stat. 131A, 131B, or 131F are acceptable; Engineering 118 may be used to satisfy this requirement);
4. Technical electives, subject to the approval of a faculty adviser. A list of technical electives for which approval will be routinely granted is available at the Advising Office.

*Note that requests for substitutions of upper division technical requirements are currently being considered.*

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: Students enter the honors program by application. Applications are available in the CS Advising Office, 377 Soda Hall. If admitted, students must satisfy the requirements listed below. An official notation of the honors degree is made on their final Berkeley transcript.

Before applying to the program, students must:

1. Accumulate a 3.5 GPA in all courses in the major.
2. Accumulate a 3.5 GPA overall.
3. Complete at least 60 units of course work, including 45 at Berkeley. Junior transfer students must have completed at least 24 units at Berkeley.
4. Complete a minimum of two upper division CS courses for a total of 27 units.

To graduate with honors, students must:

1. Complete any graded or technical upper division or graduate course for a total of 27 units. (With approval from a faculty adviser, 8 units outside CS may be included in the total.)
2. Complete 3-4 units of 199 work in CS/EE or another department where CS is applied.

Minor in Computer Science

A minor in computer science is available to all undergraduate students at Berkeley with a declared major, except CS and EECS majors, through the College of Engineering. Lower division technical requirements are Math 55, or CS70, CS 61A-61B-61C with a GPA of 2.0 less than the technical GPA cutoff for admission to the major. Students approved for the minor are given the opportunity to take three upper division CS courses subject to available space, but with higher priority than other non-CS majors. Applications and more information on the CS minor are available at the Computer Science Advising Office, 377 Soda Hall, (510) 642-7214.

Graduate Program

Graduate degree programs are available as preparation for research and teaching (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)


For information about dance courses and curricula, see information listed under Theater, Dance, and Performance Studies.

Demography

(College of Letters and Science)

Department Office: 2232 Piedmont Avenue, (510) 642-9800
http://www.demog.berkeley.edu
Chair: Kenneth W. Wachter, Ph.D.
Professors
Ronald Lee, Ph.D. Economic, mathematical, and historical demography, development, and population (Demography and Economics) (Emeritus)
*Kenneth Wachter, Ph.D. Mathematical demography, kinship, aging, and family (Demography and Statistics) (Emeritus)
Jan DeVries, Ph.D. Historical and anthropological demography, simulation modeling (Demography)

Associate Professor
†Kenneth Wachter, Ph.D. Mathematical demography, simulation modeling (Demography)

Assistant Professor
Jennifer Johnson-Hanks, Ph.D. Fertility, nuptiality, education, social organization, qualitative methods, Africa (Demography)

**Graduate Adviser:** Ms. Johnson-Hanks.

Department Overview

The Department of Demography offers an interdisciplinary training program leading to the M.A.
and Ph.D. in demography. Demography is the sys-
tematic study of human population, a topic central
to many pressing policy issues. Such is the eco-
nomic development of Third World countries, pop-
ulation aging, the environment, health and mor-
tality, the family and household change, immigra-
tion, and ethnic diversity. Demography also has strong intel-
lectual and institutional ties to other fields such as soci-
eology, economics, social history, anthropology, biology, public health, and statistics. The program is one of the few in the United States granting graduate degrees in demography, rather than offer-
ing courses as a field of specialization within some other department. This training strat-
egy permits greater concentration and depth in demography, as well as program flexibility and breadth in related subjects. The program stresses quantitative aspects of demography and demog-
raphy 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 in-
structor. The department offers an undergraduate
minor in demography, however (see below), that is open to all interested undergraduates at Berkeley.

Graduate Programs

The master’s degree 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 de-
gree for students earning a doctorate in demog-
raphy or a related discipline. Doctoral students in demography are required to have or to take a mas-
ter’s degree in an allied discipline; the basic course work 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 ad-
missible to demography courses if they have com-
pleted the prerequisites. Students already enrolled
in another graduate program at Berkeley who wish to earn a degree in demography may apply by ex-
cuting a change or addition of major. Students not
already enrolled at Berkeley who wish to enter the degree programs or pursue course work only for professional upgrading should complete the re-
quired application and submit it to the student af-
fairs officer in the department’s main office. Gen-
eral deadlines for application specified by the Graduate Division apply in general as do program requirements of the Academic Senate and the Graduate Division. For specific degree re-
quirements, please ask the graduate adviser.

Graduate Group in Sociology and Demography (Ph.D. Program)

See the listing under Sociology and Demography in this catalog, or go to www.demog.berkeley.
.edu/gradprograms/socdemog.html.

Minor in Demography

UC students may complete one or more minor pro-
grams, normally in a field both academically and administratively distinct from their major.

Requirements: The undergraduate minor in de-
ography provides an opportunity to combine a
traditional major, typically in one of the social sci-
ences, with specialized training in population stud-
ies. 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

1. Three required courses: Demography 110, 126, and 175. Substitutions are not allowed.
2. One elective course from Public Health 140 or 142, Geography 140 or 141, Sociology 105; Statistics 102, 131A, or 135. These courses are in

statistical methods or vital statistics. Similar courses
of at least 3 units may be substituted with consent
of the department.

3. One elective course from Demography 140, 145, 164, 185, 189, Economics 155, 157, or 171; His-
tory 137; Sociology 111, 125. These are courses in
social science dealing with demographic factors.
Similar courses of at least 3 units may be substi-
tuted with consent of the department.

At least three of the five required courses must be
completed at Berkeley.

For up-to-date information about course require-
ments, go to www.demog.berkeley.edu/under-
graduate/

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 ba-
sis. Sections 3-4 to be graded on a pass/not passed basis. The Berkeley Seminar Program has been de-
signed 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 de-
partment to department and semester to semester. Staff

Upper Division Courses

110. Introduction to Population Analysis. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: A prefix=language course for business majors

*Professor of the Graduate School

C175. Economic Demography. (3) Three hours of lecture per week. Prerequisites: Economics 1 or 2. For-

mely 175. A general introduction to economic de-
mography, addressing the following kinds of questions:

198. Directed Group Study. (1-4) Course may be re-
peated for credit. One to three hours of tutorial per
week. Must be taken on a passed/not passed basis.
Prerequisites: 60 units; good academic standing. Un-
dergraduate research by small groups. Enrollment is
restricted by regulations governing 198 courses. (F,SP)

199. Supervised Independent Study. (1-4) Course may be repeated for credit. One to three hours of tu-
orial per week. Must be taken on a passed/not passed basis.
Prerequisites: Consent of Instructor. Supervised independent study and research. (F,SP)

Graduate Courses

C200. Population and Society. (3) Three hours of seminar per week. Prerequisites: Graduate standing. This course addresses a variety of issues at the intersection of sociology and demography. Topics cov-
ered will vary depending on the interests of instructors

and students and may often be connected to recent
events or new directions in research. Examples of pos-
sible topics include reproductive behaviors and tech-

nologies, inequality within or across populations, ef-

dots of globalization, social policies affecting
demographic events (e.g., marriage, fertility, health, mi-

gration), cohort analysis. Also listed as Sociology C200. (F,SP)

210. Demographic Methods: Rates and Structures. (4) Three hours of lecture per week. Population mod-
els, multiple decrement life tables, hazard functions, sta-
bility, population theory, projection programs, popula-
tion waves, dual system esti-
mation, computer-based exercises and simulations.
Required for Demography M.A. and Ph.D. stu-
dents. (F,SP)

211. Advanced Demographic Analysis. (4) Three hours of lecture per week. Prerequisites: 210. Popu-
lation Studies 110, or consent of instructor. Stable pop-
ulation theory, demographic methods, and exam-
ination procedures for flawed and incomplete data.
Sensitivity testing of demographic measurement using

213. Practical Computer Applications for Demo-

graphic Analysis. (2) Three hours of lecture/labora-

R prefix=course satisfies R&G requirement

AC suffix=course satisfies American cultures re-

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Development Studies (College of Letters and Science)

Group Major Office: International and Area Studies, 101 Stephens Hall, (510) 642-4466

Major Advisers
Miquel A. Alten (Environmental Science, Policy and Management)
Pranab K. Bardhan (Economics)
Ruth Collier (Political Science)
Alain de Janvry (Agricultural and Resource Economics)
Lowell Dittmar (Political Science)
Peter Evans (Sociology)
Louise Ferramont (Environmental Science, Policy, and Management)
Thomas B. Gold (Sociology)
Silliat Hart (Geography)
David Leonardi (Political Science)
Thomas R. Motsch (History)
Nancy Pekus (Environmental Science, Policy, and Management)
Robert R. Reed (Geography)
Jeff Roman (Environmental Science, Policy, and Management)
Elizabeth Saldal (Agricultural and Resource Economics)
Michael J. Watts (Geography)

Program in Development Studies

Development Studies is the study of social transformation or change. DS students will gain a thorough understanding of the problems, processes, and prospects for the development of human and material resources in what are generally thought to be the less developed areas of the world. The problems of development are urgent, massive, and enormously complex, and they transcend the boundaries of conventional academic disciplines. To study comparative development effectively, one must draw upon many disciplines and construct a balanced understanding of historical and contemporary processes. Thus, studying development as a social transformation requires a blending of knowledge and perspectives from political science, economics, demography, geography, history, and resource and environmental science.

Development studies majors are required to take core courses in development theory and build upon this core with course work focusing on (1) a discipline, (2) a geographic or thematic area, and (3) methodological skills appropriate to the student’s primary disciplinary interest. In organizing an undergraduate plan of study, students are aided by staff advisers in the International and Area Studies Teaching Program Office, the DS chair, participating faculty members from several departments and programs, and teaching associates working in the program.

The Program in Development Studies was established under the auspices of the Institute of International Studies and is a group major in the College of Letters and Science. Students participating in the program follow a plan of study organized as an interdisciplinary group major leading to a Bachelor of Arts degree in development studies.

The Group Major

Declaring a major in development studies follows established by the College of Letters and Science. Students wishing to declare a group major in development studies (1) must have completed at least 30 semester units of university work before applying to the program, (2) must have completed at least two of the five lower division requirements, (3) must have completed at least two semesters of college-level foreign language or the equivalent, and (4) should declare the major no later than the semester in which they complete the 61st unit. Junior transfer students should contact the Teaching Program Office concerning their eligibility.

Students are reminded that (1) no course work 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. There is no minor program in development studies.

Double Majors. Double majors must be approved by the chair of the College of Letters and Science and cannot use more than two upper division courses 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 fulfill group major requirements.

Honors Program. To graduate with honors in Development Studies, students must enroll in the two-semester honors seminar, IAS 102 and DS H106, and must obtain grade-point averages of 3.3 in both the major and overall University course work by the time they complete their undergraduate degrees. The honors seminar is taken in addition to students’ regular course work for fulfilling requirements for the major and culminates in the writing of a senior thesis. The thesis is read by the thesis 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 may be checked in the Teaching Program Office.

Senior Program. This is an optional program within the major which encourages students to pursue systematically an advanced research project through seminars specifically focused on development topics. DS 194 and 150 are seminar and specialization courses taught by Development Studies faculty. Other course work in this category may be approved by a faculty advisor.

Course Plan

There is considerable flexibility within DS for students to construct an individual program unique to their specific intellectual and geographic interests.

The program begins with lower division courses centered around DS 10, Introduction to Development Studies, which provides a basic factual, theoretical and methodological grounding in development studies. There is also a language proficiency 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 additional courses arranged to meet disciplinary, developmental, and methodological requirements; and three area courses. The area courses should focus on a geographical region (Latin America, South Asia, Northeast Asia, Africa, etc.) and provide a working knowledge of the culture, history, and political economy of a region in the developing world. Area courses can alternatively focus on a theme such as health and development or the environment and development. Students may also enroll in the Honors Program or in the Senior Program (both described above).

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 courses.

There are three ways students can fulfill the four-semester language requirement, depending on their backgrounds and abilities:

(1) Through course work. Any combination of high school 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 of language may be taken on a Pass/No Pass 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, however, transcripts must be provided and evaluated by an advisor. For more information, see a DS advisor concerning language study abroad.

(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 DS advisor about specific departmental policies. Another option for those with advanced language ability is to place into a language course beyond the fourth semester and obtain an instructor’s note to that effect.

(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 of high school.

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. Lower division requirements may be satisfied with appropriate upper-division classes with prior consent from a faculty advisor. Several options are listed below. Consult the Teaching Program Office for information on current acceptable substitutions.


Note: With prior written consent from a faculty advisor, students may make the following substitutions: Anthropology 3; Anthropology 17 or 144; Economics 1: Environmental Economics and Policy 1; Political Science 2: Political Science 139B or 139C.

Upper Division Requirements

No less than 30 units in upper division courses, including five core courses, a minimum of one course in research methods, and a minimum of three upper division area courses. In fulfilling the major requirements outlined above, students should choose core course work from at least two different disciplines in addition to the required course work in development studies. Specifically, the requirements are as follows:

I. Core Courses

Minimum of five courses. Development Studies 100 is required plus a minimum of two courses from section B and a minimum of two courses from section C. The core courses are meant to provide a systematic background for students in two critical domains: (1) a discipline of their choosing and (2) development theory. Each DS major should endeavor to build up a strong command of one social science discipline (for example, economics, political science, geography) through two courses which provide critical concepts and methods for the study of developing countries. Course selections listed in section B provide numerous options. In addition, each student should choose a minimum of two development-focused courses from section C. These courses address a variety of historical, cultural, and political-economic concerns in the developing world, and supplement the core disciplinary courses.

A. Development Studies 100, History of Development and Underdevelopment.

B. Disciplinary Courses: Minimum of two courses selected from the following list. Both courses should be from the same discipline.

Anthropology: 114, 141, 144, 147A, 148, 169B.

Economics: 100A and 100B; or 101A and 101B; 109.


Geography: 110, 130.

History: 101, 103.

Political Economy: Economics 109; Geography 110; PEIS 100, 101; Political Science 115C, 126A, 128B.


C. Development Courses: Minimum of two courses selected from the following list.

African American Studies: 112A, 112B.

Anthropology: 115, 144, 145, 153, 156B, 157, 158, 169.

Business Administration: 188.

City and Regional Planning: 110, 111, 115, 116.

Demography: 100.

Development Studies: 130, 140, 150, 194

Economics: 115, 161, C171, 173, C175, 181, 182, 183.

Energy and Resources: 100, 151.


Environmental Science, Policy, and Management: 133, 165, 166, 167.

Ethnic Studies: 190.


Interdepartmental Studies (IDS): 290.

Political Science: 121A, 139B, 139C, 182, 208.

Public Health: 106, 114, C207B, 212C, 212D, 222.

Rhetoric: 150, 155.

Social Welfare: 100.

Sociology: 110, C112, 113, 114, C126, 131B, 132, 144, 170, 177.

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2. Requires prior approval.

II. Methodology

Minimum of 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 methods course can be drawn from any of two broad categories and the selection of the most appropriate class for each student should be undertaken in close consultation with an advisor. 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. One course should be selected from either of the following lists. A second course is strongly recommended.

Statistical Methods: Demography 110; Economics 141; Environmental Economics and Policy 118; Industrial Engineering and Operations Research 126, 171, 180; Political Science 132A-132B; Statistics 131A.

B prefix=language course for business majors

C prefix=cross-listed course

R prefix=course satisfies R & C requirement

AC suffix=course satisfies American cultures requirement

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†Recipient of Distinguished Teaching Award
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Note: (1) Students wishing to complete the research methods in the Department of Economics must also complete Economics 100A-100B (Economics Analysis) and Statistics 2 before enrolling in Economics 141. (2) Political Science 132A-132B are sequential courses. Grade and credit are awarded upon completion of both courses.

Research Design: Anthropology 169B; City and Regional Planning 204B; Ethnic Studies 195; IAS 102; Political Science 136B; Public Health 143; Sociology 105, 106.

*Requires prior written approval from a faculty advisor.

III. Area Courses

Minimum of three courses, selected in consultation with an adviser, 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 encouraged to take courses from more than one discipline.

Area Course List: The following list of area courses is not exhaustive, but merely represents courses that have been officially approved by the College of Letters and Science for use in the development studies major. It is possible that you will discover new or other courses in departments which, depending on the instructor, may have a strong regional focus and hence may be used as regional or area requirements. For these reasons, please discuss your choice of area courses with your adviser.

African American Studies: 131, 135.
Anthropology: 170, 171, 176, 177, 178, 180, 181, 183, 184, 186, 187, 188.*
Asian American Studies: 125, 130.
Chicano Studies: C161.
City and Regional Planning: 270.
*Development Studies: 130, 140, 150.
Economics: 113, 131, 155, 161, 162.
Environmental Science, Policy, and Management: 155.
Geography: 154, 156, 158, 162, 163, 165, 167.
*International and Area Studies: 120, 130, 140, 142, 150.
*Latin American Studies: 130, 140, 150.
*Middle Eastern Studies: 130, 140, 150.
Sociology: 183.
*Requires prior approval.

Recommended Courses (Lower and Upper Division)

Listed below are courses which development studies majors have found particularly relevant, helpful in providing an interdisciplinary approach to the study of international development, questions of comparative development, and in providing a basic introduction for methodology courses:

Environmental Science, Policy, and Management 10, Environmental Issues; Environmental Design 4, People and Environment; Geography 4, World Peoples and Cultures Environments; Mathematics 16A, Analytical Geometry and Calculus.

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 focus on specific geographical concepts: land, labor, and work. Also listed as Geography C32. (F)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded as a pass/not passed basis. Sections 3-4 to be graded on a letter grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they graduate. (F,SP)

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. (F)

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 Development Studies 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. Prerequisites: Consent of instructor. A short course designed to provide a vehicle for undergraduate students coming to campus who have considerable expertise in a topic. The paper should be approximately 30 pages in length. (F)

150. Advanced Studies in Development Studies. (4) Course may be repeated for credit with 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) 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)

194. Seminar in Development Studies. (4) Four hours of seminar per week. This course will provide students of development with an opportunity to synthesize dispersed material in a variety of disciplines as well as enable them to cover certain aspects of development not available in other departments. A major paper on a topic of special interest to individuals will be required of all participants. (SP)

H195. Senior Honors Thesis Seminar. (2) Two hours of seminar plus one hour of consultation 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 pass/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 pass/not passed basis. Prerequisites: Written proposal must be approved by a faculty advisor. Enrollment is restricted by regulations of the College. (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 pass/not passed basis. Prerequisites: Written proposal must be approved by a faculty advisor. Enrollment is restricted by regulations of the College. (F,SP)

Dramatic Art

(See Theater, Dance, and Performance Studies)

Dutch Studies

(See Letters and Science)

Group Major Office: 5311 Dwinelle Hall, (510) 642-7445
http://german.berkeley.edu/dutch/index.html

Professors

Jan de Vries, Ph.D. (History)
Thomas F. Shannon, Ph.D. (German)
Johan P. Snapper, Ph.D. (German, Queen Beatrix - Professor)
J. Frits Staal, Ph.D. (South and Southeast Asian Studies)

Lecturers

Antoniette Worrall, M.A. Utrecht University

Peter Paul Rubens Professors

Hugo Baetsens Beardsmore, Ph.D. (Brussels, 1988)
Heinna Brand, Ph.D. (Ghent, 2000)
Els De Bogaert, Ph.D. (Antwerp, 1990)
Ferdinand J. De Heen, Ph.D. (Ghent, 1977)
Marc de Mey, Ph.D. (Ghent, 1987)
Regnalde de Schryver, Ph.D. (Leuven, 1982)
Dirk Heillemans, Ph.D. (Brussels, 1982)
Marcel Janssens, Ph.D. (Leuven, 1986)
Clem. Louis Neuijens, Ph.D. (Antwerp, 1991)
Herman Parrel, Ph.D. (Antwerp, 1991)
Walter Provenier, Ph.D. (Ghent, 1983)
Eugene Roosen, Ph.D. (Leuven, 1990)
Hilde Snyman-de Rodder, Ph.D. (Ghent, 1991)
Jos. Suykens, Ph.D. (Antwerp, 1975)
Antoine Van der Steenhoven, Ph.D. (Leuven, 2002)
Herman van der Waes, Ph.D. (Ghent, 1994)
Adriaan E. Verham, Ph.D. (Ghent, 1990)
Roland Willems, Ph.D. (Brussels, 1991)

Adviser: Mr. Snapper, Ph.D. (DFP)

Group Major in Dutch Studies

The group 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 strong related discipline so that the group major in Dutch studies may constitute the focal point to a larger...
Earth and Planetary Science
(Formerly Geology and Geophysics)

The Department of Earth and Planetary Science offers a broad range of courses designed to provide students with a solid background in the earth sciences, with an emphasis on the physics of the Earth and other planets. It is designed for students with good physics and mathematics ability. It provides a solid foundation in physical science and mathematics with an emphasis on the physics of the Earth.

Department Overview

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Chair: Kristie Boering, Ph.D.

Environmental Earth Science Adviser: Kristie Boering, Ph.D.

The Environmental Earth Science track is designed to provide students with a solid background in the earth sciences, with an emphasis on environmental sciences. It offers 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 Forest Service, Bureau of Reclamation, and other related agencies such as the National Park Service, the U.S. Geological Survey, and the U.S. Energy Department.

Major in Earth and Planetary Science

The Department of Earth and Planetary Science offers one undergraduate major leading to a B.A. degree in Earth and Planetary Science. There are five tracks within the EPS major: geology, geophysics, environmental earth science, atmospheric sciences, and marine science. Students in the geology, geophysics, and earth science majors should consult with the department about their program.

Lower division prerequisites 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.

Lower Division:

Math 1A-1B, Physics 7A-7B, Chem 1A-1B, EPS 50 and 60

Upper Division:

EPS 100A, 100B, 101, 102, 118, 120 plus 6 additional upper division units (see department or go to http://eps.berkeley.edu/www/index.html for a list of electives)

Geophysics Track

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 foundation in physical science and mathematics with an emphasis on the physics of the Earth.

Lower Division:

Math 1A-1B, Math 53, 54, Physics 7A-7B-7C, Chem 1A-1B, EPS 50

Upper Division:

EPS 102, 104, 121, 150 plus 6 additional upper division units (see department or go to http://eps.berkeley.edu/www/index.html for a list of electives)

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Lower Division:

Math 1A-1B, Physics 7A-7B, Chem 1A-1B, EPS 50 and 60

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Lower Division:

Math 1A-1B, Math 53, 54, Physics 7A-7B-7C, Chem 1A-1B, EPS 50

Upper Division:

EPS 102, 104, 121, 150 plus 6 additional upper division units (see department or go to http://eps.berkeley.edu/www/index.html for a list of electives)

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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-1B (or 3A), Biology 1B, EPS 50

Upper Division: EPS 102, 117, 120, 120L, 150, ERG 102 plus 10-12 additional upper division units (see department or go to http://eps.berkeley.edu/www/index.html for a list of electives)

Atmospheric Science Track

Atmospheric Science Adviser: Kristie Boering, Ph.D.

This course of study is a new undergraduate program (http://www.atmos.berkeley.edu). Exploring the fundamental natural processes controlling atmospheric composition, circulation dynamics, and climate, and 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, coupling of atmospheric chemistry and climate, changes in the oxidation capacity of the troposphere, smog, and the impacts of atmospheric-biosphere exchange on atmospheric composition.

Lower Division: Math 1A-1B, Math 53, 54, Physics 7A-7B-7C, Chem 1A-1B, EPS 50

Upper Division: EPS 102, 150, C180, 181, 182 plus 5 additional upper division units (see department or go to http://eps.berkeley.edu/www/index.html for a list of electives)

Marine Science Track

Marine Science Adviser: Douglas Dregger, Ph.D.

This course of study is a new undergraduate program. The ocean plays a central role in physical, 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 the ocean 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 marine ecosystems; the history of El Niño and other climatic/oceanographic events recorded in marine sediments and corals; coastal pollution and its effect on 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-1B (or 3A), Biology 1B, EPS 50, C82

Upper Division: EPS 102, 150 and four courses from the following: EPS 100A, 100B, 103/203, 115, C146, IB 106, IB 106A plus 4-6 additional upper division units (see department or go to http://eps.berkeley.edu/www/index.html for a list of electives)

Honors Program

Students in the honors program must fulfill the following additional requirements: 1) maintain a grade-point average of at least 3.3 in all courses in the major, and an overall grade-point average 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 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 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's major tracks 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 taken for letter 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 Officer in 305 McCone.

Graduate Programs

Graduate Advisers: Michael Manga, Ph.D., and Roland Burgmann, 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 sciences other than geology is especially helpful, and a significant number of our graduate students have their training in physics, chemistry, biology, 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 of Arts 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 of Science degree is granted upon completion of 20 semester units of upper division and graduate courses (at least 8 units must be graduate, non-research units), and submission of a Master's Thesis.

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, complete a thesis to the satisfaction of the appointed thesis committee. Students must have two research propositions to present at the qualifying examination, each developed under the supervision of a different professor on substantially different topics.

Research Facilities

Center for Isotope Geochemistry, under the directorship of Professor Donald DePaolo, consists of solid-source mass spectrometry and clean chemistry laboratories on campus, and facilities for stable isotope measurements, rare gas isotope measurements, and noble gas isotope measurements at Lawrence Berkeley Laboratory. Research using the Nd, Sr, Pb, Ca, O, C, He, Ne, Be, and Al isotopes is directed toward studies of geological and biological processes and the structure and evolution of the oceans, the mantle, and the continental crust.

The Earth Resources Center (http://eps.berkeley.edu) is a group under the directorship of Professor George Brinell with faculty from eight campus departments, conducts interdisciplinary research and education on the genesis, geochronology, discovery, production, and environmental consequences of development of non-renewable earth resources of minerals and fuels. The focus on the center is in developing an understanding of the underlying geological, physical, and chemical processes that affect the origin, age, emplacement, and economic recovery of minerals and hydrocarbons in the context of determining the environmental impact of the use of these resources. Digital mapping using portable computers, GPS, laser range finders and remote sensing is a central focus of the field work in the ERC directed at exploration, development, and cleanup of abandoned mines.

The Center for Atmospheric Sciences (http://www.atmos.berkeley.edu/) is a new multidisciplinary academic group at Berkeley. It focuses on the processes that maintain and alter the earth's chemical composition and circulation. It also examines the climatic effects of changes in these processes. A special emphasis is on the interaction between the geosphere-biosphere and climate, with the atmosphere as the synthesizer of changes at all its boundaries, and the global migrator of these changes to the other spheres. Center members and associates are from the Department of Earth and Planetary Science, Department of Chemistry, Department of Environmental Sciences, Policy & Management, Department of Mechanical Engineering, 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 simulation of atmosphere-biosphere exchange of trace gases. This diversity permits the Center to pose and attack new questions about past and future climate change.

Berkeley Geomorphology Group (http://socrates.berkeley.edu/~geomorph) prospers because of the diversity of strong research programs across the campus and because of a commitment to graduate teaching and graduate training. The core faculty consist of Kurt Cuffey (Geography), William Dietrich, Jim Kirchner and Michael Manga (Earth and Planetary Science). Their research programs tackle a wide range of topics including glacier mechanics, paleoclimate analysis, hydrology, environmental geochemistry, landscape evolution, hillslope erosion mechanics, fluvial 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 (http://www.seismo.berkeley.edu/~burgmann) uses an interdisciplinary approach to investigate active tectonic processes. This approach integrates geodetic, geomorphic, geologic, and seismological observations with theoretical models to improve our understanding of fault zone processes and crustal deformation, and to identify associated hazards.

The Berkeley Geochronology Center (http://www.bjgc.org) is a non-profit scientific research institution dedicated to establishing the history of the Earth, its various inhabitants, and its interactions with the rest of our Solar System, through use of the 4.6 billion years of radiometric dating techniques available. Using the most advanced technology available, BGC scientists determine the ages of rocks and other materials to date important events in geological and biological history. Through under-
Lower Division Courses

3. The Water Planet. (2) Two hours of lecture per week. Formerly Geography 3. An overview of the processes that control water supply to natural ecosystems and human civilization. Hydrologic cycle, floods, droughts, groundwater. Patterns of water use, threats to water quality, effects of global climate change on future water supplies. Water issues facing California. (F,SP)

4. Geologic Record of Climate Change. (3) Three hours of lecture per week. Formerly Geography 8. This course will review the geologic record of climate change, synthesizing how such changes have manifested over time, and present day thinking about (and predictive models of) future climate change. We will cover the entire spectrum of geologic processes that form the planet and advect or circulate the carbon in the Earth’s atmosphere and hydrosphere. Three hour weekly lecture, with some additional field trips.

12. The Planets. (3) Three hours of lecture per week. Formerly Geography 10. Geologic processes that shape the Moon, Earth, Mars, and Venus. The current understanding of the evolution of these worlds and their potential for life, with emphasis on the Earth. Laboratory work will involve the practical study of minerals, rocks, and geologic maps and exercises on geological processes. (F,SP)

20. Earthquakes. (3) Two hours of lecture per week. Formerly Geophysics 20. Introduction to earthquakes, their causes and effects. General discussion of the use of geophysics in earthquake hazard and risk, with particular emphasis on the situation in California.

24. Freshman Seminar in Earth and Planetary Sciences. (1) Course may be repeated for credit as topic varies. One hour of lecture per week. Sections 1-4 to be graded on a letter-grade basis. Sections 5-8 to be graded on a pass/stop basis. Formerly Geology 24. The freshman seminar in earth and planetary science is designed to provide new students with an opportunity to explore a topic in geology or 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 great voyages of geological discovery and the role of atmospheric sciences in geologic studies.

C30. The Ocean World. (4) Three hours of lecture and one hour of mandatory discussion per week. The ocean covers 71 percent of the earth’s surface, yet the ocean floor is less studied than the moon. This oceanography course will provide a working knowledge of the ocean’s physical processes, its major biota, and its role in the earth system. The course will cover ocean currents, waves, marine habitats, coral reefs, hurricanes, tsunamis, El Ninos, volcanic islands, coasts, and beaches. The course will also introduce students to the ocean’s history, including the technologies used to monitor and probe the ocean depths: including scuba, submarines, and satellites. Also listed as Geology C30.

39. Freshman/Sophomore Seminar. Course may be repeated for credit. Sections 1-2 to be graded on a letter-grade basis. Sections 3-5 to be graded on a pass/stop basis. Formerly Geology 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. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

50. The Planet Earth. (4) Three hours of lecture and three hours of laboratory per week. Formerly Geology 50. An introduction to the physical and chemical processes that have shaped the earth through time, with emphasis on the study of the geological processes. Laboratory work will involve the practical study of minerals, rocks, and geologic maps and exercises on geological processes. (F,SP)

50A. History and Evolution of Planet Earth. (4) Three hours of lecture and four hours of laboratory per week. Formerly Geology 50A. History and evolution of the earth. Nucleosynthesis; formation of the solar system; planetary accretion; dating the earth and solar system; formation of the core, mantles, oceans, and atmosphere; plate tectonics; heat transfer and internal dynamics; stratigraphic record of environment, and evolution; climate history and climate change.

50B. Introduction to Marine Geochemistry. (3) Three hours of lecture per week. Formerly Geology 50B. Introduction to the chemical and physical processes governing the distribution of chemical species within the hydrosphere; mass balances, fluxes, and reactions in the marine environment from global to submersion scales; relationships to physical, biological, and geological processes; geochemical tracers and tools.

84. Sophomore Seminar. One hour of seminar per week. Formerly Geology 84. Geology of the ocean floor, with emphasis on the major processes governing the distribution of chemical species within the hydrosphere; mass balances, fluxes, and reactions in the marine environment from global to submersion scales; relationships to physical, biological, and geological processes; geochemical tracers and tools.

98. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a pass/stop basis. Formerly Geology and Geophysics 98. Group studies of selected topics which vary from semester to semester.

Upper Division Courses

100A. Minerals: Their Constitution and Origin. (4) Two hours of lecture and four hours of laboratory per week. Formerly Geology 100A. Introduction to the formation of minerals and mineral aggregates. The study of the crystal chemistry, crystallography, and physical properties of minerals and their analogs. The geologic cycle, the distribution of minerals in various geologic systems, and laboratory techniques to identify and investigate minerals. One field trip to selected mine deposits and visits to laboratories.

100B. Genesis and Interpretation of Rocks. (4) Two hours of lecture and four hours of laboratory per week. Formerly Geology 100B. The origins of rocks and minerals. Igneous, sedimentary, and metamorphic processes discussed in the context of the Earth's crust.

101. Field Geology and Digital Mapping. (7) Seven hours of field work and two hours of lecture per week. Formerly Geology 101. An introduction to the techniques and methods of field mapping and geologic interpretation. Students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)


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

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105. Hydrogeology. (3) Three hours of lecture per week. Prerequisites: Math 1A-1B, Physics 7A, Chemistry 1A-1B, or consent of instructor. Formerly Geology 105. Behavior of metals in the earth; survey of ore-forming crustal environments and processes; temporal and geographic distribution of mineral resources; re- golith response to climate change; introduction to mineral exploration; metals in the environment and fac- tor controlling resource management and policy.

106. Mineral Resources. (4) Three hours of lecture and three hours of laboratory per week and two field trips. Prerequisites: 10 or 50 or equivalent and Chemistry 1A-1B or consent of instructor. Formerly Geology 106. Behavior of metals in the earth; survey of ore-forming crustal environments and processes; temporal and geographic distribution of mineral resources; re- golith response to climate change; introduction to mineral exploration; metals in the environment and fac- tor controlling resource management and policy.


108. Geodynamics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 60, Physics 7A, or Mathematics 53, 54. Formerly Geology 108. Basic principles in studying the physical properties of the earth materials and the dynamic processes of the earth. Examples are drawn from tectonics, mechanics of earthquakes, etc., to augment course.


115. Stratigraphy and Earth History. (4) Three hours of lecture and three hours of laboratory per week. Prerequi- sites: 10 or 50, 100A, 100B, or consent of in- structor. Formerly Geology 115. Collecting, analyzing, and producing data; dating and correlating sedimentary rocks; reconstructing ancient environments and reconstructing Earth history; seismic and sequence stratigraphy; event stratigraphy and neo- catastrophicism; applications of stratigraphy to climate change, petroleum geology, and archaeology.

116. Structural Geology and Tectonics. (3) Two hours of lecture, two hours of laboratory, several one- to two-day field trips. Prerequisites: 100A-100B or con- sent of instructor. 101 should be taken concurrently. Formerly Geology 116. Introduction to classification and geometry of geologic structures; their origins and genetic relation to stress fields and the use as kine- matic indicators; case histories of selected regions to elucidate tectonic evolution of mountain systems in dif- ferent geologic settings. Laboratory exercises will focus on analysis of hand specimens and structural re- gionalism and the theory of plate tectonics. Formerly Geology 115. Collecting, analyzing, and producing data; dating and correlating sedimentary rocks; reconstructing ancient environments and reconstructing Earth history; seismic and sequence stratigraphy; event stratigraphy and neo- catastrophicism; applications of stratigraphy to climate change, petroleum geology, and archaeology.

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116. Structural Geology and Tectonics. (3) Two hours of lecture, two hours of laboratory, several one- to two-day field trips. Prerequisites: 100A-100B or con- sent of instructor. 101 should be taken concurrently. Formerly Geology 116. Introduction to classification and geometry of geologic structures; their origins and genetic relation to stress fields and the use as kine- matic indicators; case histories of selected regions to elucidate tectonic evolution of mountain systems in dif- ferent geologic settings. Laboratory exercises will focus on analysis of hand specimens and structural re- gionalism and the theory of plate tectonics. Formerly Geology 115. Collecting, analyzing, and producing data; dating and correlating sedimentary rocks; reconstructing ancient environments and reconstructing Earth history; seismic and sequence stratigraphy; event stratigraphy and neo- catastrophicism; applications of stratigraphy to climate change, petroleum geology, and archaeology.

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185. Marine Geobiology. (2) Two hours of lecture per week. Formerly Geology 185. Interrelationships between marine organisms and physical, chemical and geological processes in oceans. (F, S) Berry

H195. Senior Honors Course. (3) Individual conferences. Prerequisites: Limited to honors candidates. Formerly Geology H195. Original research and preparation of an acceptable thesis. May be taken during two consecutive semesters of senior year and may be substituted for six units of the upper division requirement with consent of major advisor.

198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Formerly Geology 198 Group studies of selected topics which vary from semester to semester.

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. Formerly Geology 199. Enrollment is restricted by regulations.

Graduate Courses


201. Seminar in Geochemistry. (3) Course may be repeated for credit. Three hours of discussion per week. Prerequisites: Consent of instructor. Formerly Geology 201. Principles and problems in geochemistry. Helgeson

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 and interpretation of the con- sequences of both reversible and irreversible reactions in inorganic and organic processes.

203. Introduction to Marine Geochemistry. (3) Three hours of lecture per week. Prerequisites: Geology 50, Chemistry 1A-1B, Mathematics 1A-1B, Physics 7A or consent of instructor. The global water cycle; major processes affecting the distribution of chemical species within the hydrosphere; mass balances, fluxes, and reactions in the marine environment from global to submicron scales; relationships to physical, biological, and geological processes; geochemical tracers and tools.

204. Elastic Wave Propagation. (3) Three hours of lecture per week. Prerequisites: 104 or equivalent; 121; Physics 50; formerly Geophysics 204. Wave propagation in elastic solids; effects of anelasticity and anisotropy; representation theorems; reflection and re- traction; propagation in layered media; finite-difference and finite-element methods.

205. Theoretical Seismology. (3) Three hours of lecture and one hour of discussion per week. Prerequi- sites: 204 or consent of instructor. Formerly Geophysics 205. Advanced treatment of the generation and propagation of elastic waves in realistic earth models. Lamb’s problem; waves in inhomogeneous media; eigenvalues; seismic source models; synthetic seis- mograms.


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 seis- mological topics. Analysis, inversion, and numerical modeling of seismic data to investigate questions regarding the physics of the earthquake source and seismic wave propagation. Application of current developments and techniques in seismological research.

208. Mechanical Properties of Earth Materials. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: EPS 108 (Formerly Geophysics 108) or course in continuum mechanics. Formerly Geophysics 208. Mechanical properties of rocks and minerals. Finite deformation and thermodynamics of solids under strain. Elasticity, anisotropy, high-tem- perature creep, and fracture of rocks. Properties of polycrystals and aggregates; the nature of grain boundaries; dislocations and other crystal defects and microstructures.

209. Mineral Thermodynamics. (3) Three hours of lecture and one hour of discussion per week. Formerly Geophysics 209. Physical basis of the thermodynamic properties of minerals, including the use of elastic con- stants, spectroscopic, and related data. The emphasis is on high-temperature phenomena, including the na- ture of melting. Thermal defects and non-equilibrium processes, parameters of deformation, and the theory of phase transformations, are also discussed.

210. Advanced Ore Petrology. (3) Course may be re- peated for credit. Three hours of lecture and three hours of laboratory discussion per week. Formerly Geology 210. Petrologists. Formerly Geophysics 210. Overview of isotopic evaluation of theore- ries of ore transport and deposition, including field, the- oretical, and experimental studies.

211. Advanced Digital Mapping and Surveying for Scientists, Engineers and Planners. (2) One and one-half hours of lecture and one and one-half hours of laboratory discussion per week for eight weeks. Prerequi- sites: Consent of instructor. Formerly Geology 211. Advanced geologic mapping, field observation, and problem solving in the earth sciences to the geology of terrains, including tectonic geomorphology, palaeo- and present processes; chemical evolution and structure of the earth; fundamental introduction to planet Earth for science majors. Prerequisite: Some background in physical geology and geophysics 207. Course may be repeated for credit. Formerly Geophysics 218. Critical study of problems in current seismological research. Topics will vary from semester to semester.

216. Seminar in Seismology. (3) Course may be re- peated for credit. Three hours of discussion per week. Formerly Geophysics 219. Critical study of problems in current seismological research. Topics will vary from semester to semester.

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 covering advanced topics related to mineral physics. The interface between geophysics with the other physical sciences is emphasized. Top- ics vary each semester.

224. Isotopic and Trace Element Geochemistry. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Some background in physical chemistry and math, through Math 53 and 54 or equiv- alent. Formerly Geophysics 224. Overview of isotopic methods for tracer studies and geochronology in the earth and planetary science, and of tracers in the earth and its environment. Topics include the application of isotopes in the earth and planetary science, and of tracers in the earth and its environment. Topics include the application of isotopes in the earth and planetary science, and of tracers in the earth and its environment.
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 225. Analysis of current developments and techniques in experimental and theoretical high-pressure research, with applications in the physical sciences. Topics vary each semester.

231. Equilibrium, Mass Transfer, and Kinetics in Geochemical Processes. (4) Four hours of lecture per week. Prerequisites: Consent of instructor. Formerly Geology 231. Discussion of selected topics in structural features of single and polycrystals with emphasis on minerals and rocks. Study of phase transformations and deformation processes. Topics vary from year to year.

235. Characterization of Minerals and Rocks. (4) Two hours of lecture, three hours of laboratory, and one hour of discussion per week. Prerequisites: Geology 235. Introduction to the main methods of characterization such as optical microscopy, x-ray diffraction, x-ray fluorescence, and electron microscopy. Interpretation of data in a geologic context. Advanced undergraduates are encouraged to attend.

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 238. 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; boundary layers; convective instabilities; 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.

240. Watershed Hydrology and Biogeochemistry. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Geology 240. Advanced topics in watershed hydrology, geochemistry, and biogeochemistry, with emphasis on methods for predicting streamflow, sediment yield, and runoff chemistry at various scales. Top-down and bottom-up approaches in watershed modeling; validating and testing watershed models. Effects of land use and atmospheric pollution on water quality in lakes and streams, illustrated with data from experimental watersheds in North America, Scandinavia, and Europe.

241. Geochemical Approaches to Modern and Past Environments and Climates. (4) Course may be repeated for credit. Three hours of seminar per week. Formerly Geology 241. Research seminar graduate course on the use of geochemical methods and approaches in paleo-environmental/paleo-climatic reconstruction, and in modern environmental studies. Discussion of modern processes that are a key element to understanding past environmental changes. Methods to be covered include stable and radiogenic isotopes, trace element distributions, and organic geochemistry. Also listed as Environ Sci, Policy, and Management C225.

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, climatic flow mechanisms, subglacial and supraglacial environments, and the processes of ice motion, glacial systems, and as participants in climate change. Also listed as Geography C241.

C249. Solar System Astrophysics. (3) Three hours of lecture per week. Prerequisites: Astronomy 149, 169, C160A or consent of instructor. The physical foundations of solar system astronomy. Topics include the solar nebula and modern observations of disks, the formation of the planets, planetary interiors and surfaces, planetary atmospheres and magnetospheres, and smaller bodies in the solar system. The physical processes at work are described in some detail, and an evolutionary picture of our solar system is presented. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for Ph.D. Formerly Geology 402. The use of an electron microscope, X-ray diffraction apparatus, and ancillary equipment for the analysis of inorganic solids.

250. Advanced Topics in Earth and Environmental Sciences. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Geology 250. Review of relevant literature and discussion of ongoing research at the interface between earth science and environmental science.

251. Carbon Cycle Dynamics. (3) Six hours of lecture per week. Formerly Geology 219. In this course, we will focus on the (unsolved) puzzle of the contemporary carbon cycle. Why is the concentration of atmospheric CO2 changing at the rate we observe it? What are the terrestrial and oceanic processes that are responsible for long-term storage of carbon on land and in the sea? Emphasis will be placed on the observations and modeling needed to evaluate hypotheses about carbon sources and sinks. Past records will be examined for clues about sensitivity of carbon processes to climate variations.

254. Advanced Topics in Seismology and Geophysics. (1) Course may be repeated for credit. One hour of lecture and one hour of discussion per week. Formerly Geophysics 250. Lectures on various topics representing current advances in seismology and geophysics, including local crustal and earthquake studies, regional tectonics, the structure of the earth’s mantle, and core and global dynamics.

256. Earthquake of the Week. (2) Course may be repeated for credit. Two hours of discussion per week. Formerly Geophysics 255. Each week, the seismicity of the previous week, in California and worldwide, is reviewed. Tectonics of the region as well as source parameters and waveforms of interest are discussed and placed in the context of ongoing research in seismology.

260. Research in Earth Science. (2) Course may be repeated for credit. Two hours of lecture per week. 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.

264. Sedimentary Rocks and Processes. (3) Course may be repeated for credit. Three hours of seminar per week. Formerly Geology 264. Discussion of paleo-environmental-paleoecologic and paleogeographic implications of the geologic record of sedimentary rocks and processes of sedimentation. Focus varies from year to year.

280. Research. (2-12) Course may be repeated for credit. Two hours of lecture per week. Formerly Geology 280. Individual conferences to be arranged. Provides supervision in the preparation of an original research paper or dissertation. (F,S,P)

289. Seminar. (2-6) Course may be repeated for credit. Two to six hours of lecture/discussion per week. 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 of discussion per week. Formerly Geology 298. Group study for graduate students under the joint direction and consent of instructor. Formerly Geology 401. The application of an electron microscope and ancillary equipment for the analysis of inorganic solids.

401. The Use of the Electron Microprobe. (2) Course may be repeated for credit. Eight hours of laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. Formerly Geology 401. The evolution of an electron microprobe and ancillary equipment for the analysis of inorganic solids.

402. Electron Microscopy and X-Ray Diffraction. (2) Course may be repeated for credit. Eight hours of laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. Formerly Geology 402. The evolution of an electron microscope, X-ray diffraction apparatus, and ancillary equipment.

404. Modern Seismological Observatory Techniques. (2) Course may be repeated for credit. Two to three hours of laboratory and one hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. Formerly Geology 404. Advanced instruction in interpretation and reduction making use of the instrumental and computer facilities of the Seismographic Station. The purpose is to enable graduate students to use analog and digital observations of seismic waves in their research. Staff

East Asian Languages and Cultures

(College of Letters and Science)

Department Office: 104 Durant Hall, (510) 642-3480 http://east.berkeley.edu

Chair: Susan Matsisof, Ph.D.

Professors

Susan Matsisof, Ph.D. Columbia University. Classical Japanese literature
Jeffery K. Riegel, Ph.D. Stanford University. Early Chinese texts
Stephen West, Ph.D. University of Michigan. Medieval Chinese literature
Hauo Ask (Emeritus), Ph.D. University of California, Berkeley
Cyrl Bircn (Agassiz Professor Emeritus), Ph.D. University of London
Kun Chang (Emeritus), Ph.D. Yale University
Samuel Hung (Emeritus), Ph.D. University of California, Berkeley
Jameson (Emeritus), Ph.D. University of California, Berkeley
David N. Keightley (Emeritus), Ph.D. Columbia University
Lewis R. Lancaster (Emeritus), Ph.D. University of Wisconsin
Michael C. Rogers (Emeritus), Ph.D. University of California, Berkeley
Nam Sin Choy (Emeritus), Ph.D. Harvard University
Pang-Hen Ting (Emeritus), Ph.D. University of Washington

Associate Professors

Yoko Hasegawa, Ph.D. University of California, Berkeley
H. Mark Horton, Ph.D. University of California, Berkeley

Classical Japanese language and literature

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. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for Ph.D. Formerly Geology 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,S,P) Staff

Professional Courses

300. Professional Preparation: Supervised Teaching of Geology and Geophysics. (1-6) Course may be repeated for credit. One hour of discussion 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.

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. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for master’s degree. Formerly Geology 601. Individual study for the comprehensive or language requirements in consultation with the field advisor. (F,S,P) Staff
Hons Program
A senior undergraduate student who has completed 12 units of upper division language courses in the department, and who has a grade-point average 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 last day 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 adviser. Upon completion of the program, a faculty committee will determine the degree of honors to be awarded (Hons, 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 grade-point average of 3.3 in all undergraduate work in the University.

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 of history, or a topic, 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 elementary modern-language teaching will not find the program suited to their needs.

Information about the graduate program can be obtained from the department office.

East Asian Languages
Graduate Courses
200. Proseminar. Approaches to East Asian Studies. (4) Three hours of seminar per week. This course introduces theoretical approaches to East Asian studies with an emphasis on China and Japan. We will consider the historical role of philological research, area studies, and interdisciplinary scholarship, and will ask how knowledge is produced in our fields. The readings are designed to help interrogate the common sense of “civilization,” “culture,” “tradition,” “identity,” and so on, and to explore new ways of asking questions about text and context, historical narrative, gender, subjectivity, and regimes of knowledge. The course is also intended as a preliminary introduction to the state of the field in East Asia studies. (F)

Chinese
Instructor approval is recommended for enrollment in language courses.

Courses numbered 180-189 are lecture courses given in English.

Lower Division Courses
1A-B. Elementary Chinese, (5) Five hours of lecture per week. Prerequisites: None is prerequisite to B.

1AX-BX. Elementary Chinese for Mandarin Speakers. (3;3) Students will receive no credit for 1AX-BX after passing 1, 1A-B, or 5. Three hours of lecture per week. Prerequisites: None is prerequisite to 1BX; consent of instructor. Elementary Chinese for stu-
dents who speak Mandarin but who have minimal exposure to reading or writing.

2A-2B. Introduction to Classical Chinese. (4;4) Three hours of lecture per week. Prerequisites: None is prerequisite to 2B. Characters, radicals, grammar; easy readings in pre-Han, Han, Six dynasties, and T’ang literature.

10A-10B. Intermediate Chinese. (5) Five hours of lecture per week. Prerequisites: 1B, 10A is prerequisite to 10B.

10AX-10BX. Intermediate Chinese for Mandarin Speakers. (3;3) Students will receive no credit for 10AX-10BX after passing 10A or 10A-10B. Three hours of lecture per week. Prerequisites: Chinese 1B; 10AX is prerequisite to 10BX; consent of instructor. Intermediate Chinese for students who speak Mandarin 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 fifteen weeks or two hours of seminar per week for 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 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.

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.

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.

Upper Division Courses
100A-100B. Advanced Chinese. (5) Five hours of lecture per week. Prerequisites: 10B; 10A is prerequisite to 100B. Reading and discussion in Chinese, of modern Chinese texts, literary, political and general, in

East Asian Languages and Cultures / 201

Andrew Jones, Ph.D. University of California, Berkeley
Modern Chinese literature and popular culture
Alan Tansman, Ph.D. Yale University, Modern Japanese literature
James E. Bossom (Emeritus), Ph.D. University of Washington
Frank Matsui (Emeritus), Ph.D. Stanford University

Assistant Professors
Robert Asmudeh, Ph.D. Harvard University, Classical Chinese literature
Miyam Sas, Ph.D. Yale University, Modern Japanese literature

Assistant Professors
Daniel O’Neill, Ph.D. Yale University, Modern Japanese literature
Miryam Sas, Ph.D. Yale University, Modern Japanese literature

Acting Assistant Professors
Kwang-Ki Shun, Ph.D. Stanford University, Chinese thought (Philosophy)

Lecturers
Yaszko Kanon Baker, B.A.
Wakako Kambara, M.A.
I-Hao Lu, M.A.
N. Lip, Ph.D.
Kay Richards, M.A.
Chika Shibahara, M.A.
Miwako Tomizuka, M.A.
Young Kim, M.A.
Claire You, M.A.

Undergraduate and Graduate Advisers: Consult department office.

The Undergraduate Majors
The Department of East Asian Languages and Cultures at Berkeley offers thorough training in the classical and modern languages and literatures of Eastern Asia. Students select one language in the undergraduate major program: Chinese, Japanese, or Arabic (currently suspended). Although the major in Arabic is unavailable, students may still take courses in Korean language and literature. Students proceed from the acquisition of facility in the spoken language to a reading knowledge of both modern and classical forms of the language. Upper division courses stress the linguistic, literary, and/or cultural studies of East Asia.

Chinese
Prerequisites: Completion of lower division courses and one semester of C181A, C181B, C182 (cross-listed course in translation).

Lower Division. Chinese 1A-1B (5-5); Chinese 10A-10B (5-5); Chinese 2A-2B (4-4); Linguistics 5 (4). Linguistics 5 may be taken on a passed/not passed basis.

Upper Division. Chinese 100A-100B (5-5); 4 units of Chinese linguistics C161, C165, or C167; 4 units of modern Chinese C155, C156, or C157; 8 units of classical Chinese (chosen from among C120, C122, C134, C136, C138, C140, or C142).

Total units required: 62.

Japanese
Prerequisites: Completion of lower division courses and one semester of J120A or J120B (literature in translation).

Lower Division. Japanese 1A-1B (5-5); Japanese 10A-10B (5-5); Linguistics 5 (4). Linguistics 5 may be taken on a passed/not passed basis.

Upper Division. Japanese 100A-100B (5-5); Japanese 120 (4); 4 additional units of classical Japanese (J130, J131, J132, J134, J140, J142, J144, or J146); Japanese 162 (4); Japanese 162A-162B (4-4); 4 additional upper division units classical Japanese literature (J155, J159).

Total units required: 58.
100AX-100BX. Advanced Chinese for Mandarin Speakers. (3;3) Students will receive no credit in 100AX if they have passed 100A or 100B. Three hours of lecture per week. Prerequisites: Chinese 100AX; 100BX is prerequisite to 100BX; consent of instructor. Advanced Chinese to students who speak Mandarin and have intermediate-level 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) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100B or consent of instructor. This course is designed to elevate abilities in speaking, reading, listening, and writing. Students will read the works of famous Chinese writers. Movie adaptations of these writings are also used. Students’ writings will be circulated and students will act in plays they write.

102. Fourth-Year Readings: Social Sciences and History. (4) Three hours of lecture per week. Prerequisites: 100B. This course is designed to elevate abilities in speaking, reading, listening, and writing. Students will read the People's Daily and other sources on social, political, and historical writings. Film documentaries will supplement the written materials. Students will circulate their works as part of the class requirements.

120. Ancient Chinese Prose. (4) Three hours of lecture per week. Prerequisites: 2A. Readings from the Shijing, the poetical parts of the I Ching, the Chu Ci, and selections from Han dynasty ju. Three readings in Early Medieval Literature. (4) Three hours of lecture per week. Prerequisites: 2B and one upper division course in classical Chinese. A different theme or literary flow will be studied each semester.

134. Readings in Later Medieval Poetry. (4) Three hours of lecture per week. Prerequisites: 2B. Readings from the Tang, the Five Dynasties, and Sung periods, to reveal how their interplay makes “poetry.” Three readings in Late Medieval Prose. (4) Three hours of lecture per week. Prerequisites: 2B. This course will consist of lectures that provide a general overview of traditional Chinese culture from the early Zhou through the Tang (the 1st millennium BCE through the 9th century of the era). Special emphasis is given to the origins and development of philosophy, art, religion, prose, and poetry. The subjects to be covered include: the Zhou and Warring States system, the Chinese classical cannon, the schools of Wang States philosophy, historiography, the philosophic and religious traditions of Taoism, heroic culture and ancestor worship, burial practice, the introduction of Buddhism and its role in Chinese society, and the birth of Chinese fiction and the beginnings of Chinese medicine.

138. Traditional Chinese Culture. (4) Three hours of lecture per week. Formerly N183; Oriental Languages 116. This course will cover the following topics: religion and writing system, the Chinese classical cannon, the schools of Wang States philosophy, historiography, the philosophic and religious traditions of Taoism, heroic culture and ancestor worship, burial practice, the introduction of Buddhism and its role in Chinese society, and the birth of Chinese fiction and the beginnings of Chinese medicine.

156. Modern Chinese Literature. (4) Three hours of lecture per week. Prerequisites: 100B and upper division literature course in Chinese language. This course surveys modern Chinese literature from the May Fourth period through the 1940’s. Course will examine the changing practice of literature in 20th-century China in the larger context of Chinese revolution, nationalism, language reform, and the rise of Chinese Marxism.

157. Contemporary Chinese Literature. (4) Three hours of lecture per week. Prerequisites: 100B and upper division literature course in any language. This course surveys contemporary Chinese literature from the 1950’s to the present. Topics include language and hour’s of literature, literature and politics, the rise of the transnational market economy, media and gender politics, and special attention to the post-Mao and post-cold-war era.

161. Structure of the Chinese Language. (4) Three hours of lecture per week. Prerequisites: 100A, Linguistics 5 or 100. Chinese dialects, Mandarin phonology, and Mandarin grammar.

165. History of the Chinese Language. (4) Three hours of lecture per week. Lectures on principal genres, authors, and individual works of Chinese literature from the beginnings to the 14th century. (F)

181A. Chinese Literature in Translation. (4) Three hours of lecture per week. Lectures on principal genres, authors, and individual works of Chinese literature from the 14th century to the present. (SP)

181B. Chinese Literature in Translation. (4) Three hours of lecture per week. Lectures on principal genres, authors, and individual works of Chinese literature from the 14th century to the present. (SP)

183. Traditional Chinese Culture. (4) Three hours of lecture per week. Formerly N183; Oriental Languages 116. This course will cover the following topics: religion and writing system, the Chinese classical cannon, the schools of Wang States philosophy, historiography, the philosophic and religious traditions of Taoism, heroic culture and ancestor worship, burial practice, the introduction of Buddhism and its role in Chinese society, and the birth of Chinese fiction and the beginnings of Chinese medicine.

188. Popular Culture in 20th-Century China. (4) Three hours of lecture per week. This course explores the meaning of “popular culture” in the context of China’s recent encounter with the West. Beginning with the turn of the century, we will focus on aspects of technology, mass media, the reinvention of folk song and folk theater, urban consumer culture, state policy, and the rise of a modern Chinese pop culture.

219. Independent Study. (1-4) 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: Junior standing. Independent study topics not covered by regularly scheduled courses. (F,SP)

222. Seminar in Philological Analysis of Ancient Chinese Texts. (4) Three hours of seminar per week. Prerequisites: 150 or 151. Formerly Oriental Languages 213. Analysis of classical texts and inscriptions.

232. Texts on the Civilization of Medieval China. (4) Three hours of seminar per week. Course content varies with interests of students.

236. Seminar in Chinese Literary History. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Classical Chinese. Textual and aesthetic criticism.

239. Historical Documents. (4) Three hours of seminar per week. Prerequisites: Consent of instructor. Course concentrates on the late Nanbe-chao through Five Dynasties period. Topics vary from semester to semester and include poetry, biography, historiography, and external relations.

234. Texts in the Civilization of Medieval China. (4) Three hours of seminar per week. Course content varies with interests of students.

238. Seminar in Texts on Chinese Drama and Dramatic Criticism. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: 138 or consent of instructor; two other classical Chinese courses. Readings in drama and/or dramatic criticism from the Yuan and Ming eras and detailed examination of primary and secondary sources on the history, development, and analysis of dramatic texts. Topical coverage may vary from semester to semester.

254. Studies in East-West Literary Relations. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Preparation in two foreign languages, one of which must be Chinese. Formerly C254. Comparative investigation of a literary topic requiring the study of both Chinese and Western documents.

255. Seminar in Early Chinese Fiction. (4) Three hours of seminar per week. Studies in the historical development of Chinese fiction and critical analysis of selected texts from the Ming/ch’ing period.

266. Seminar in Chinese Linguistics. (4) Three hours of seminar per week. Prerequisites: Preparation in two foreign languages, one of which must be Chinese. Formerly C266. The topic varies according to the interests of the participants: dialectology, phonology, or grammar.

280. Modern Chinese Cultural Studies. (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 both historical coverage and a grounding in various theoretical problems and methodological approaches. Topics include print culture, cinema, popular music, and material culture; emphasis varies from year to year.

289. 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.

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.

601. Individual Study for Master’s Students. (1-8) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of graduate adviser. Individual 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 a master’s degree.

602. Individual Study for Doctoral Students. (1-8) Hours of credit must be taken on a satisfac-
tory/unsatisfactory basis. Individual study in consul-
tation with the major field adviser, intended to provide an opportunity for qualified students to prepare for vari-
ous examinations required of candidates for the Ph.D.

Japanese
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 Japanese. (5) Five hours of lec-
ture per week. Prerequisites: 1A is prerequisite to 1B.
1A5-1B5. Supplementary Work in Kanji. (1) One
hour of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: 1A is pre-
 requisite to 1BS. A course designed to be taken con-
 currently with 1A or 1B to help students improve over-
 all kanji performance. The course will make the kanji
 learning process easier by providing exercises and
 background information about the relationships be-
 tween kanji and how they function.
10A-10B. Intermediate Japanese. (5) Five hours
of lecture per week. Prerequisites: 1B; 10A is prerequisite
to 10B.
10A5-10B5. Supplementary Work in Kanji-Inter-
mediate. (1) One hour of lecture per week. Must
be taken on a passed/not passed basis. Prerequisites:
10A is prerequisite to 10BS. These supplemental
courses are designed for students who are concur-
rently enrolled in 10A and 10B to acquire a better un-
derstanding of kanji writing system and to improve
overall kanji performance.

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per
week for fifteen weeks or two hours of seminar per week for 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 setting.
Freshman seminars are offered in all campus de-
partments, and topics vary from department to de-
partment 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 course is designed to allow 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
offered in all campus departments; topics vary from de-
partment to department and from semester to semester.

50. Comparative Approaches to Japanese Litera-
ture and Culture. (4) Course may be repeated for
credit as topic varies. Three hours of lecture per week.
Comparative analysis of topics in premodern and mod-
ern Japanese literature and culture, varying with in-
structor. Course requires significant reading assign-
ments in addition to class time.

80. Japanese Culture. (4) Three hours of lecture
per week. Research and development of topics in
Japan, presented as timely, given the nature of the discipline and by students who are con-

111. Fifth-Year Japanese A. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100A or equivalent.

112. Fifth-Year Japanese B. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100B or equivalent.

113. Fifth-Year Japanese C. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100C or equivalent.

114. Fifth-Year Japanese D. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100D or equivalent.

115. Fifth-Year Japanese E. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100E or equivalent.

116. Fifth-Year Japanese F. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100F or equivalent.

117. Fifth-Year Japanese G. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100G or equivalent.

118. Fifth-Year Japanese H. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100H or equivalent.

119. Fifth-Year Japanese I. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisite:
100I or equivalent.

120. Introduction to Classical Japanese. (4) Three
hours of lecture per week. Prerequisite: 101.

121. Classical Japanese Poetry. (4) Three hours
of lecture per week. Prerequisites: 102.

122. Nikki Literature, Tenth to Fourteenth Cen-
turies. (4) Three hours of lecture per week. Prereq-
quisites: 120.

123. Heian Prose. (4) Three hours of lecture per
week. Prerequisites: 120.

124. Japanese Medieval Prose. (4) Three hours
of lecture per week. Prerequisites: 120.

125. Edo Literature. (4) Three hours of lecture per
week. Prerequisites: 120. Critical reading of important literary texts from the Edo period, including poetic di-
eries, merchant fiction, and journal literature.

126. Japanese Historical Documents. (4) Three
hours of lecture per week. Prerequisites: 100A or 120.
Formerly 175. Review of the language of historical
texts and kambun, and the reading of Tokugawa and Meiji documents.

127. Modern Japanese Literature. (4) Course may be
repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 100B or consent of in-
structor. Critical reading of selected literary works from the Meiji through Showa periods.

128. Contemporary Japanese Literature. (4) Three
hours of lecture per week. Prerequisite: 100B.

129. History of the Japanese Language. (4) Three
hours of lecture per week. Prerequisite: 100A (may be taken concurrently). Linguistics 5. Studies in the struc-
ture and history of the Japanese language.

130. Translation: Theory and Practice. (4) Three
hours of lecture per week. Prerequisites: 100B or equiva-
elent. An overview of the concepts of theoretical, con-
tрастивное, and practical linguistics which form the ba-
sis for work in translation between Japanese and En-
lish through experience. Analysis of the text, process of translating, faithfulness to the text.

131. Ghosts and the Modern Literary Imagination. (4) Three hours of lecture per week. The course ex-
amines the complex meanings of the ghost in modern Japanese literature and culture, including the repre-
sentations of the supernatural in drama, fiction, ethnog-
raphy, and the visual arts, we explore how ghosts pro-
vide the basis for remarkable flights of imaginative specula-
tion and literary experimentation. Topics in-
clude: storytelling and the loss of cultural identity, hor-
ror and its conversion into aesthetic pleasure, fantasy, and the transformation of the commonplace. We will
consider historical, visual, anthropological, and literary approaches to the supernatural and cultural and philo-
osophical questions crucial to an understanding of the figure and its role in the greater transformation of modern Japan (18th century to the present).

185. Introduction to Japanese Cinema. (4) Course
may be repeated for credit as topic varies. Three hours

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
of lecture per week. This course will offer a survey of Japanese cinema from its earliest days to contemporary animation (anime). Providing the basic tools for analyzing film language, the course begins by analyzing the interactions between early Japanese film and early modern literature. We then consider the development of Japanese film, discussing style and structures of connotation, figurative meaning and political critique, the uses of the historical past and ideology, and the roles of cinema and television in Japanese society. We consider the (sometimes anomalous) place of important individual directors, with a special emphasis on 1960s New Wave and experimental film. We also discuss current critical debates about broader trends in Japanese film and culture, as they illuminate the construction and rupture of notions of Japanese identity.

186. Japanese Drama in Translation, (4) Three hours of lecture per week. Lectures will cover the three major forms of Japanese drama: No, Bunraku, and Kabuki. Readings will consist of translations of plays and selections of writings on drama in general. A theme of the course will be to contrast Japanese with European theater.

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. Small group instruction in topics not covered by regularly scheduled courses.

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 taken on a passed/not passed basis. Prerequisites: Junior standing. Small group instruction in topics not covered by regularly scheduled courses.

Graduate Courses

200. Seminar in Classical Japanese Poetry, (4) Three hours of seminar per week. Prerequisites: 130. A graduate seminar intended to provide an opportunity for advanced study in the area of the title. Content may be changed from year to year.


234. Seminar in Classical Japanese Drama, (4) Three hours of seminar per week. Prerequisites: 120, 130, or 140. Analysis and discussion of major plays from the no and joruri theaters. Selections from the works of Zeami and Chikamatsu will be made in alternating years.

240. Seminar in Classical Japanese Texts, (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Two semesters of classical Japanese.

242. Seminar in Medieval Japanese Texts, (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Two semesters of classical Japanese. This seminar examine several types of pre-modern Japanese drama along with narrative texts in order to explore the limits of significance of genre distinctions.

255. Seminar in Postwar Japanese Literature, (4) Three hours of seminar per week. Prerequisites: Graduate standing and permission of instructor. Reading and critical examination of selected texts in prewar (1925-1945) Japanese fiction, drama, or poetry.

259. Seminar in Postwar Japanese Literature, (4) Three hours of seminar per week. Prerequisites: Graduate standing and permission of instructor. Reading and critical examination of selected texts in postwar (1940-present) Japanese fiction, drama, or poetry.

260. Seminar in Postwar Japanese Literature, (4) Hours to be arranged. Special tutorial or seminar on selected topics not covered by available courses or seminars.

265. Seminar in Japanese Film, (4) Three hours of seminar per week. Prerequisites: Junior standing and permission of instructor. Three hours of seminar per week.

269. Seminar in Japanese Linguistics, (4) Three hours of seminar per week. Prerequisites: 162 or consent of instructor. Four major topics including the interest of the participants: dialectology, phonology, or syntax and semantics.

276. 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.

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.

299. Thesis Preparation and Related Research, (1-8) 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.

Buddhism

Instructor approval is recommended for enrollment in language courses.

Courses numbered 180-189 are lecture courses given in English.

Lower Division Courses

24. Freshman Seminar, (1) Course may be repeated for credit as topic varies. Two hours of seminar per week for eight weeks. Must be taken on a passed/not passed basis. Prerequisites: Senior honors standing. Independent study in topics not covered by regularly scheduled courses.


39. Freshman/Sophomore Seminar, (4) Three hours of lecture 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 in a small-seminar setting. Freshman seminars are offered in all campus departments, and topics vary from department to department and from semester to semester.

39. Freshman/Sophomore Seminar, (4) 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.

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: Junior standing. Independent study in topics not covered by regularly scheduled courses.

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.

Upper Division Courses

161. Development of Buddhism in East and Inner Asia, (4) Three hours of lecture per week. Prerequisites: Consent of instructor. A study of Buddhism from India into Central Asia and China, and its subsequent spread to Korea and Japan. The separate traditions of Indian Buddhism and Chinese Buddhism is included.

182. Buddhist and Contemporary Society, (4) Three hours of lecture per week. A study of the Buddhist tradition as it is found in contemporary life in East Asia. The course will focus on China, Korea, Japan, Singapore, Thailand, and China (Tibet). Students will be asked to explore the relationships that exist between Buddhism and other religious traditions, as well as political and social factors which are influencing its development.

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 taken on a passed/not passed basis. Prerequisites: Junior standing. Small group instruction in topics not covered by regularly scheduled courses.

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) Five hours of lecture per week. Prerequisites: 1A is prerequisite to 1B.

10A-10B. Intermediate Korean. (5) Five hours of lecture per week. Prerequisites: 1B; 10A is prerequisite to 10B.

39. Freshman/Sophomore Seminar, (4) 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.

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. Independent study in topics not covered by regularly scheduled courses.

Upper Division Courses

161. Development of Buddhism in East and Inner Asia, (4) Three hours of lecture per week. Introduction to the development of Buddhism from India into Central Asia and China, and its subsequent spread to Korea and Japan. The separate traditions of Indian Buddhism and Chinese Buddhism included.

182. Buddhist and Contemporary Society, (4) Three hours of lecture per week. A study of the Buddhist tradition as it is found in contemporary life in East Asia. The course will focus on China, Korea, Japan, Singapore, Thailand, and China (Tibet). Students will be asked to explore the relationships that exist between Buddhism and other religious traditions, as well as political and social factors which are influencing its development.

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 taken on a passed/not passed basis. Prerequisites: Junior standing. Small group instruction in topics not covered by regularly scheduled courses.
**Economics**

(College of Letters and Science)

Department Office: 549 Evans Hall, (510) 642-0822
Chair: Richard J. Gilbert, Ph.D.

**University Professor Emeritus**

Gerard Debreu (Class of 1938 Professor; Emeritus; Nobel Laureate, 1983), Sc.D. University of Paris. Mathematical economics

**Professors**

George A. Akerlof (Daniel E. Kihlman, Sr. Distinguished Professor of Economics; Nobel Laureate, 2001), Ph.D. Harvard University. Macroeconomics, monetary theory

Robert M. Anderson, Ph.D. Yale University. Macroeconomics

An Auerbach (Robert D. Burch Professor of Economics and Law), Ph.D. Harvard University. Public finance

Pranati K. Bardhan, Ph.D. Cambridge University. Development, international economics

R. Clar Brown (Chair, Center for Work, Technology, and Public Policy), Ph.D. University of Maryland. Labor, economics of technology

Jan de Vries (Vice Provost for Academic Affairs and Faculty), Sidney Hellman Sherman Professor of History, Ph.D. Yale University. Labor markets, economic history, environmental and urban economics

J. Bradford DeLong, Ph.D. Harvard University. Economic history, macroeconomics, economic growth, finance

Aaron Edlin (Ph.D. Stanford University). Public policy, industrial organization, law and economics, public economics

Barry Eichenbaum, Ph.D. Princeton and Helen N. Pardee Professor of Economics and Political Science), Ph.D. Yale University. Economics history, monetary economics

Joseph V. Farrell, Ph.D. Oxford University. Microeconomics, theory, industrial organization

Richard J. Gilbert, Ph.D. Stanford University. Industrial organization, law and economics

Stever M. Goldman, Ph.D. Stanford University. Economics

Bromley H. Hall, Ph.D. Stanford University. Applied econometrics, economics of technical change

Benjamin E. Hermalin (Wills H. Booth Professor of Banking and Finance and Law), Ph.D. Stanford University. Economics

Michael Katz, Ph.D. Massachusetts Institute of Technology. Industrial organization and applied theory

Theodore E. Klevorick, Ph.D. Massachusetts Institute of Technology. Industrial organization, health economics, transportation economics

Ronald D. Lee (Director, Center on Economics and Demography of Aging), Ph.D. Harvard University. Demography, economic history

Daniel L. McKean (E. Morris Cox Professor of Economics; DirectorofEconomicsLaboratory;Nobel Laureate,2000),Ph.D.UniversityofMinnesota. Econometrics

Maurice Obstfeld, Ph.D. 1985 Chair, Ph.D. Massachusetts Institute of Technology. International economics, macroeconomics, monetary economics

James L. Powell, Ph.D. Stanford University. Econometrics, statistical models, transferable and non-transferable knowledge

Yingyi Qian, Ph.D. Harvard University. Economics of organization and industrial economics

John M. Quigley (J. Donald Terner Distinguished Professor of Public Policy, department of Economics, public finance, public policy, urban economics

Matthew Rabin, Massachusetts Institute of Technology. Psychology and economics, game theory

Michael Ruihua (Research Professor for Labor and Employment), Ph.D. Harvard University. Political economics, labor

gerard Roland, Ph.D. Universite Libre de Bruxelles (ULB), Transition, political, and institutional economics

Christina D. Romer (Class of 1957 Garb B. Wilson Professor of Economics and D. D. Roux Professor of Technology, Industrial organization, health economics, transportation economics

Stephen Z. Rosenthal, Ph.D. Stanford University. Economics

Daniel S. Rubinfeld (Edgar F. Kaiser Professor of Business Administration), Ph.D. Carnegie-Mellon University. Econometrics

Oliver E. Williamson (Empa E. Kaiser Professor of Business Administration), Ph.D. Carnegie-Mellon University. Economics

**Adjunct Professors**

Janet Yellen (Eugene E. and Catharine M. Trefethen Professor of Business Administration), Ph.D. Yale University. Macroeconomics and international economics

Anna J. Asabram (Ph.D. Emeritus)

George Braak, Ph.D. Emeritus

David Farlow, Ph.D. Emeritus

David Gale, Ph.D. Emeritus

Gregory Gussmann, Ph.D. Emeritus

Charles J. Hsieh, M.A. LL.D. (hon.), D.Sc. (hon.) Emeritus

Clark Kerr, Ph.D. LL.D. Emeritus

James L. Potter, Ph.D. Emeritus

Thomas J. Rothenberg, Ph.D. Emeritus

Stephen Sinage, Ph.D. Emeritus

Lloyd Ulman, Ph.D. Emeritus

Benjamin N. Ward, Ph.D. Emeritus

**Associate Professors**

Kenneth V. Chay, Ph.D. Princeton University. Labor, economics, econometrics, empirical microeconomics

Charles Jones, Ph.D. Massachusetts Institute of Technology. Macroeconomics, economic growth

James A. Robinson, Ph.D. Yale University. Comparative politics, political economy, development

**Assistant Professors**

Stefano Della Vigna, Ph.D. Harvard University. Behavioral economics

Nada Elisa, Ph.D. Harvard University. Public finance, labor

Michael Jannson, Ph.D. Aarhus University. Econometrics

Bassam Kozosy, Ph.D. Massachusetts Institute of Technology. Econometrics, theory, public finance

David Lee, Ph.D. Princeton University. Labor economics, applied econometrics

Edward Miguel, Ph.D. Harvard University. Economic development

Aviv Neve, Ph.D. Harvard University. Industrial organization, econometrics, applied microeconomics

Emmanuel Saez, Ph.D. Massachusetts Institute of Technology. Public finance

**Visiting Professors**

David Card, Ph.D. University of California, Berkeley. Development, international economics

Jan de Vries, Ph.D. Stanford University. Industrial organization, regulation, telecommunications economics

**Undergraduate Major Program**

**Prerequisites:** One year of calculus (Mathematics 1A-1B or Mathematics 16A-16B) and one semester of statistics: either Statistics 20, 21, 25, 101, 102, 131A or 134 (the statistics course must have a calculus prerequisite); Economics 1 or 2, and Economics 100A or 100B. Berkeley students are asked to file an application for admission, available in 543 Evans Hall during the first four weeks of spring, summer, and fall. Transfer students should speak with the undergraduate adviser regarding when to apply. Although many factors are considered in determining admission to the economics major, the main criterion is academic performance as measured by GPA in prerequisite courses (see prerequisites listed below). Unfortunately, because of large enrollment limits, it has proved necessary to restrict the number of economics majors. Prospective majors are encouraged to read the economics Handbook, which gives up-to-date information about economics courses and requirements. Handbooks are available online at http://economics.berkeley.edu/undergraduate-handbook/2002.html.
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 graduation based on (a) evidence of superior 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 prepared under the continued guidance of a faculty member through enrollment in E195A/B.

Graduate Program

The graduate program trains doctoral students interested in pursuing advanced study and conducting original research in economics. Detailed information concerning admission, financial aid, and degree requirements is contained in the brochure Ph.D. Program in Economics, which is available from the graduate assistant of the Department of Economics, or from the economics web site at http://eisa.berkeley.edu/econ/gradbrochure2002.pdf.

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. Open admissions to our program enrolled at Boalt School of Law or in other doctoral programs at Berkeley may enroll for an M.A. degree in economics if approval is given by the department.

A strong mathematics background is a must. Other requirements for the internal M.A. degree are as follows: (1) course work in economic theory equivalent to Economics 101A-101B, 200A-200B, or 201A, 201A; (2) completion of 24 units of approved course work, 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 Economics sponsor a concurrent program which permits students to study for the degree of Juris Doctor while preparing for the Ph.D. in Economics. In four years, a well-prepared student can receive the degree basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate.

1. Introduction to Economics. (4)
   Staff

   Three hours of lecture and one hour of discussion per week. Selected topics illustrating economic performance. Implications for antitrust policy.

   Staff

2. Introduction to Economics—Micro. (4)
   Staff

   Three hours of lecture and one hour of discussion per week. Introduction to microeconomics with emphasis on resource, agricultural, and environmental issues.

   Staff

94. Sophomore Seminar. (1-4)
   Course may be repeated for credit.

   Staff

95. Directed Group Study. (1-4)
   Hours to be arranged. Must be taken on a pass/no pass basis.

   Staff

100A. Economic Analysis—Micro. (4)
   Staff

   Students will receive no credit for 100A after taking 101A. Three hours of lecture and two hours of discussion per week.

   Staff

100B. Economic Analysis—Macro. (4)
   Staff

   Students will receive no credit for 100B after taking 101B. Three hours of lecture and two hours of discussion per week.

   Staff

101A. Economic Theory—Micro. (4)
   Staff

   Students will not receive credit for 101A after taking 100A. Three hours of lecture and two hours of discussion per week.

   Staff

101B. Economic Theory—Macro. (4)
   Staff

   Students will not receive credit for 101B after taking 100B. Three hours of lecture and two hours of discussion per week.

   Staff

101C. Introduction to Mathematical Economics. (3)
   Staff

   Three hours of lecture per week.

   Staff

104. Advanced Microeconomic Theory. (4)
   Staff

   Three hours of lecture and one hour of discussion per week.

   Staff

105. History of Economic Thought. (3)
   Staff

   Three hours of lecture per week.

   Staff

101A-101B. A survey of the theories of major economists from Adam Smith to Keyneses.

C110. Game Theory in the Social Sciences. (4)
   Staff

   Students will receive no credit for 110 after taking 104. Three hours of lecture and one hour of discussion per week. Formerly 110. 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 and Political Economy of Industrial Society C136.

113. American Economic History. (3)
   Staff

   Three hours of lecture and one hour of discussion per week. Prerequisites: 1 or 2. A survey of trends in the American economy spanning 300 years, with an emphasis on the economic growth and on the changing distribution of the gains and losses associated with growth. This course is equivalent to History 135; students will not receive credit for both courses.

114. American Economic History Seminar. (3)
   Staff

   Three hours of seminar per week. Prerequisites: 113 and consent of instructor. Seminar paper is required.

115. The World Economy in the 20th Century. (4)
   Staff

   Three hours of lecture and one hour of discussion per week. Prerequisites: 1 or 2. Development of the world economic system with particular reference to world-wide trading relationships. This course is equivalent to History 160; students will not receive credit for both courses.

121. Industrial Organization and Public Policy. (4)
   Staff

   Three hours of lecture and one hour of discussion per week. Prerequisites: 100A or 101A. The organization and structure of production in the U.S. economy. Determinants of market structure, business behavior, and economic performance. Implications for antitrust policy.

122. Industrial Organization Seminar. (3)
   Staff

   Three hours of seminar per week. Prerequisites: 121 and/or consent of instructor. Seminar paper is required.

123. Government Regulation of Industry. (3)
   Staff

   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.

124. Special Topics in Industrial Organization. (3)
   Staff

   Three hours of lecture per week. Analysis of market structure, conduct and performance in selected industries. See course announcement for current topics.

125. Economics of the Environment. (4)
   Staff

   Students will receive no credit for 125 after taking Environmental Economics & Policy 101. Three hours of lecture and one hour of discussion per week. Prerequisites: 100A or 101A. Analysis of public policy measures designed to preserve and improve human environments.

126. Industrial Organization: Theory and Evidence. (3)
   Staff

   Three hours of lecture per week. Prerequisites: 101A or consent of instructor. Structure, conduct, and performance of industrial markets in the U.S.; monopoly, duopoly, and competition. Emphasis on use of microeconomic theory and game theory to explain workings of markets, with use of mathematics as appropriate. Covers material similar to 121, but with more use of economic theory.

131. Public Sector Microeconomics. (4)
   Staff

   Three hours of lecture and one hour of discussion per week. Prerequisites: 100A or 101A. Analysis of public policy measures designed to preserve and improve human environments.

132. Seminar in Public Sector Economics. (4)
   Staff

   Three hours of lecture per week. Prerequisites: 131 and consent of instructor. Enrollment will be limited. A seminar paper is required.

136. Financial Economics. (4)
   Staff

   Three hours of lecture and one hour of discussion per week. Prerequisites: 100A or 101A, and one semester of statistics. Analy-
economic theory and application of linear regression model, critical evaluation of selected examples of empirical economics, and exercises in applied econometrics. (F,SP) Staff

C142. Applied Econometrics and Public Policy. (4) Three hours of lecture and one hour of discussion/ laboratory per week. Prerequisites: 140 or 141 or consent of instructor. 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. 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 data scale data sets. Also listed as Policy C142 and Political Science C131A.

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 economic 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 one hour of discussion per week. Prerequisites: 100A-100B or 101A-101B or consent of instructor. This course will analyze the economic 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

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

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 care, conceptual and policy issues pertaining to the provision of health insurance, and economic analysis of efficient regulatory policies toward the health care sector. Staff

162. Economics of Transition and Development: China. (4) Three hours of lecture per week. Prerequisites: 100A-100B or 101A-101B. The Chinese economy, its institutions, reform and transition to the market, and economic development. (F,SP) QLac

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: 100G, Economics 100A or 101A. Problems of underdevelopment and poverty, policy issues, and development strategy. Also listed as Environmental Economics and Political Science 197. Staff

172. Case Studies in Economic Development. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 1. A detailed study of the problems of development in a geographical area in Asia or Africa or Latin America. (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. Staff

C175. Economic Demography. (3) Three hours of lecture per week. Prerequisites: 1 or 2. Formerly 175. An 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 the aging populations? How has the size of the baby boom affected the economic well-being? Why has fertility remained high in Third World countries? Is industrial growth incompatible with marriage postponement, divorce, fertility in the elderly, and extramarital fertility? What are the economic and environmental consequences of rapid population growth? Also listed as Demography C175. Staff

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

182. International Monetary Economics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100A-100B or 101A-101B. The balance of payments, the determination of the trade balance and income under fixed and floating exchange rates, money and prices in open economies, the international financial markets and its implications, international macroeconomic interdependence, capital flows, and the determination of the exchange rate. 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 lecture per week. Prerequisites: consent of instructor. A seminar focusing on current research in the field of the instructor. Topics to be announced before registration. Enrollmen is limited. A seminar paper is required.

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 major GPA of 3.50 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 Seminar. (1-3) Hours to be arranged. Prerequisites: Senior honors candidates only (students with major GPA of 3.50 or better or permission of undergraduate advisor). Writing a thesis under the supervision of a faculty member. Applications and details through the departmental undergraduate office. H195A is not prerequisite to H195B. (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 permission of the 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. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper-division standing. Written permission of the department chair. Supervised group studies and seminars. Prerequisites: consent of instructor. Staff

199. Supervised Independent Study and Research. (1-4) Enrollment is restricted. See 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 permission of the department chair. Supervised independent study and research. Prerequisites: consent of instructor. Staff

Graduate Courses

201A-201B. Economic Theory. (4,4) Three hours of lecture and two hours of discussion per week. Prerequisites: 100A-100B or 101A-101B or equivalent. Mathematics 53 and 54 or equivalent. Basic preparation for the Ph.D. program including: theory of the firm and the consumer, general equilibrium, capital theory, and welfare economics. Staff

202A-202B. Macroeconomic Theory. (4,4) Three hours of lecture and two hours of discussion per week. Prerequisites: 100A-100B or 101A-101B or equivalent. Mathematics 53 and 54 or equivalent. Preparation for the Ph.D. program including aggregation theory, national accounting and index problems, survey of major short-term models, inflation, business expectations, hypothesis, wage price determination, the role of money and financial assets, theories of consumption, saving and investment, disequilibrium theory, dynamic systems, and international considerations. Staff

202C. Capital and Economic Growth. (3) Two hours of lecture per week. Prerequisites: 201A-201B and 202A-202B. 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 consider the role of capital accumulation in modern theories of economic growth and planning. Staff

203. Advanced Topics in Economic Theory. (3) Two hours of lecture per week. Prerequisites: Consent of instructor. See department course description each semester.

204. Mathematical Tools for Economics. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: To be taken concurrently with 201A or consent of instructor. A review and discussion of the basic math tools needed for graduate work in economics. (F,SP) Staff

206. Mechanism Design and Agency Theory. (3) Two hours of lecture per week. Prerequisites: 201B and consent of instructor. This course will study the optimal design of mechanisms in the presence of incomplete information and imperfect observability. The course will begin 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 second half of the course will treat the design of auctions, regulation with costly or imperfect monitoring, mechanism design with limited contracts. Staff

207A-207B. Mathematical Economics. (3,3) Two hours of lecture per week. Twelve hours per week including class time and preparation. Prerequisites: Math 104 and 110 and Statistics 101-102, or equivalent. Basic knowledge of mathematical analysis, calculus, and welfare economics. The problems treated involve as wide a range of mathematical techniques and of economic topics as possible, including theories of preference, utility, demand, personal probability, games and general equilibrium. Also listed as IDS 213A-213B and Math 213A-213B.

208. Microeconomic Theory Seminar. (3) Course may be repeated for credit. Two hours per week. Prerequisites: Consent of instructor. 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 optimal decision making, strategic interactions, and bargaining. Staff
as oligopoly pricing, non-cooperative bargaining, predatory 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. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 209A. Consent of instructor. The course will cover basic 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 in economics. 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.

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

215A-215B. Political Economics. (3.3) Two hours of lecture per week. Prerequisites: 215A is a prerequisite to 215B. Tools of political economics: preferences and institutions; market processes and competition, agency, partisan politics. Redistributive politics: general interest politics, special interest politics. Comparative politics: electoral rules, separation of powers, political regimes. Dynamic politics: fiscal policy, growth. (F,SP) Roland

215C. Selected Topics in Political Economy. (3) Two hours of lecture per week. Special topics, varying from year to year.

220A. Industrial Organization. (3) Two hours of lecture per week. Prerequisites: 201A. Market structure, conduct and performance in the unregulated sector of the American economy. Public relations 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. Prerequisites: See course announcement. See course announcement for current topics and prerequisites.

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. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Doctoral standing or consent of instructor. This seminar features current research of faculty, from UC Berkeley and elsewhere, and advanced doctoral students who are investigating the efficacy of economic and noneconomic forms of organization. An interdisciplinary perspective—combining aspects of law, economics, and organization—is maintained. Markets, hierarchies, hybrids, bureaus, and the supporting institutions of law and politics all come under scrutiny. The aspiration is to move knowledge toward a new science of organization. Also listed as Interdepartmental Studies 270.

230A. Public Sector Microeconomics. (3) Two hours of lecture per week. Government intervention changes opportunities and incentives for firms, families, individuals, service providers, and state and local government. Staff

230B. Public Sector Microeconomics. (3) Two hours of lecture per week. Government intervention changes opportunities and incentives for firms, families, individuals, service providers, and state and local government. 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. 230A is not a prerequisite for 230B. 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

232A-236B. Aggregate Economics. (3.3) Two hours of lecture per week. Prerequisites: For 236A: 201A-201B and 202A-202B. For 236A-236B: Aggregate Economics models; theory and practice of aggregate econometrics; rational expectations models; finance theory integrated with macro. 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. Introductory Statistics and Econometrics. (4) Three hours of lecture and one and one-half hours of laboratory per week. Prerequisites: 204 or equivalent. Formerly 240. This is the first course in a two semester sequence introducing graduate students to basic techniques in econometrics. Basic statistics and the classical linear regression model are covered. Emphasis is given to computing estimators using simulated and actual data sets. There is a focus on analyzing data from non-controlled experiments. Staff

240B. Introduction to Statistics and Econometrics. (4) Three hours of lecture and one and one-half hours of laboratory per week. Prerequisites: 240A or equivalent. (F) Staff

241A. Econometrics. (4) Three hours of lecture per week. Prerequisites: Statistics 200A-200B or equivalent and a course in linear algebra. Recommended: Math 112. Intended for students specializing in econometrics and other fields where mathematical background. Linear and nonlinear statistical models and their applications in economics. 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: Consent of instructor: Staff

243. Special Topics in Econometric Theory. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: 240A. Methods of applied econometrics, with emphasis on alternative modelling strategies and problems met in practice. Intended for doctoral students conducting empirical research.

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 the doctoral dissertation level.

260A-260B. Economics of Transition. (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 choices: speed of sectoral reallocation, price liberalization, output fall and macroeconomic dynamics, law enforcement, dynamics of institutional change. (F,SP) Roland

261. Seminar in Economic Systems. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor: Staff

270A-270B. Analytics of Economic Development and Planning. (3.3) Two hours of lecture per week. Problems of underdevelopment and poverty, policy issues and development strategies. Staff

270D. Special Topics in Development. (3) Two hours of lecture per week. 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

2725A. Economic Demography. (3) Two hours of lecture per week. Economic consequences of demographic change in developing and developed countries including capital formation, labor markets, transfers and urbanization. Economic determinants of fertility, mortality and migration. Also listed as Demography C275A. (F,SP) Lee

2725B. 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)

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. 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 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

287. Special Topics in Health Economics. (2) Two hours of seminar per week. Formerly 287. This seminar features current research of faculty, from UC Berkeley and elsewhere, and advanced doctoral students who are investigating recent theories and empirical work in health economics. Participating departments include economics and the graduate group in health policy and policy analysis. Topics of different sections will be announced annually. 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. Current interest seminar for students and faculty. Topics and broad interest whose work will be important for all areas of economics. (F,SP)

295. Survey of Research in Economics. (1) Two hours of seminar per week. Formerly 295. Seminar per week is optional. Staff

296. Special Topics in Economics. (2) 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) Topics of different sections to be announced annually. Staff

IDS 270. Workshop in Institutional Analysis. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Doctoral standing or consent of instructor. This seminar features current research of faculty, from UC Berkeley and elsewhere, and advanced doctoral students who are investigating the efficacy of government programs and institutional forms of organization. An interdisciplinary perspective—combining aspects of law, economics, and organization—is maintained. Markets, hierarchies, networks, and the supporting institutions of law and politics all come under scrutiny. The aspiration is to progressively build toward a science of organization. Also listed as Economies 225.

Education (Graduate School of Education)

Office: 1501 Toilman Hall, gse_info@ucsc.edu. (510) 642-3723. http://www.gse.berkeley.edu
Dean: P. David Pearson, Ph.D.

Professors
Paul R. Ammon, Ph.D. Cornell University. Education and developmental psychology
Joseph C. Campione, Ph.D. University of Connecticut. Developmental psychology, special education
Andrea A. diSessa, Ph.D. Massachusetts Institute of Technology. Physics and computation cognition
Jing Hong, Ph.D. Stanford University. Bilingualism, education of linguistic minorities
Sarah Warshaw Frankman, Ph.D. Stanford University. Teaching and learning written language
Bruce Fuller, Ph.D. Stanford University. Impact of public policy on schools, families, and classrooms
Eugene E. Garcia, Ph.D. University of Kansas. Linguistic and cultural diversity in schools
Bernard S. Gifford, Ph.D. University of Rochester. Policy analysis, technological change
W. N. Noram Graham, Ph.D. Stanford University. Education policy, labor markets
Gaydina Hui, Ph.D. University of Pittsburgh. Written language, technology and education, adult literacy
John S. Hurd, Ph.D. University of California, Los Angeles. Democratic and environmental education; phenomenological methods
Glaire Kramch, Agregation d’allemand, University of Paris-Sorbonne. Sociocultural aspects of foreign language acquisition
Naphe M. Lambert, Ph.D. University of Southern California. Measurement of adaptive functioning, adolescent and adult outcome for At-Risk children
Marcia C. Linn, Ph.D. Stanford University. Cognitive processes; science, computer instruction
Judith Warren Little, Ph.D. University of Colorado. Teachers’ work lives and careers; social policy and school reform; qualitative methods
John U. Obi, Ph.D. University of California, Berkeley. Educational anthropology
Paul Pearson, Ph.D. University of Minnesota. Early reading and literacy assessment
Geoffrey B. Siwek, Ph.D. University of California, Berkeley. Mathematical cognition in children; culture and cognitive development
Alan H. Schoenfeld, Ph.D. Stanford University. Problem solving, mathematics, mathematical cognition
Harley Shalikam, B.A. Wayne State University. Skill formation, learning environment and global production
Dorothy B. Stuck, Ph.D. University of Illinois, Urbana. Anthropology, poverty, gender, race; methods
James S. Stuhlman, M.S. The Menlo Institute. Technology, education and work, resource allocation in schools
Ellet Turiel, Ph.D. Yale University. Social and cognitive development
Barbara W. White, Ph.D. Massachusetts Institute of Technology. Science education: cognition, computers, learning
Mark Wilson, Ph.D. University of Chicago. Psychometrics, educational assessment, Cognition
Geralda Jonqing Cunningham, Ph.D. Ed. (Emerita)
K. Patricia Cross, Ph.D. (Emerita)
T. Bentley Edwards, Ph.D. (Emeritus)
Guy Benveniste, Ph.D. (Emeritus)
Geraldine Jonqing Cunningham, Ph.D. Ed. (Emerita)

Assistant Professors
P. David Pearson, Ph.D. University of Minnesota. Early school adjustment, student perceptions of schooling, instructional technology
Kathryn E. Perry, Ph.D. University of California, Berkeley. Early school adjustment, student perceptions of schooling, teacher beliefs and practices
Kim H. Redish, Ph.D. University of Chicago. Minority achievement and counseling, instructional technology
Mary T. Takaki, Ph.D. University of California, Berkeley. Minority achievement and counseling, instructional technology
David P. Gardner, Ph.D. University of California, Berkeley. Problem solving, mathematics, mathematical cognition
Arthur R. Jansen, Ph.D. University of California, Berkeley. Problem solving, mathematics, mathematical cognition
Jean Lave, Ph.D. (Emerita)
Lawrence F. Lovett, Ph.D. (Emeritus)
Donald A. Hansen, Ph.D. (Emeritus)
Jeffrey L. Rotem, Ph.D. (Emeritus)
William D. Reither, Jr., Ph.D. (Dean Emeritus)
Howard R. Rude, Ph.D. (Emeritus)
Gail N. Smith, M.S. (Emeritus)
The Graduate School of Education is an exciting place to work and study—a genuine community of scholars dedicated to understanding the processes of development, learning, and teaching and the contexts in which they take place. The faculty and students in the school are grounded equally in theory and practice, and start from the premise that these two enterprises resonate together.

The school is currently expanding its commitments to teacher and administrator preparation and school-based research. As this much-needed expansion takes place, the school is redoubling its efforts to ensure that our programs of preparation and research are grounded in academic disciplines and based on solid theories of teaching, learning, and development.

If you want to engage in conversations about the big ideas in education and if you are prepared to ask how those ideas can make life better for students and families and teachers, then Berkeley’s Graduate School of Education is the right place for you to pursue your studies.

The school offers programs that lead to advanced degrees in education; the M.A., the Ph.D., and the Ed.D. In addition, the school grants credentials to professionals who plan to work in the schools as teachers, principals, district and county administrators, and school psychologists.

The Graduate School of Education includes three academic groups: 1) Cognition and Development; 2) Language and Literacy, Society and Culture; and 3) Policy, Organization, Measurement, and Evaluation. There is also a Joint Doctoral Program in Urban Educational Leadership offered in collaboration with the California State Universities.

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 technology, as well as broader cognitive, social, and moral development. Faculty research typically occurs in field settings (classrooms, museums, and informal social groups), providing opportunities for theoretical advances as well as the improvement of educational practices. The Cognition and Development area of study supports both professional and academic programs, each enriching the other in courses and research opportunities.

Faculty and students in Language, Literacy, Society and Culture (LLSC) are interested in studies leading to and taking part in transformative approaches to individual and social development, approaches within schools and classrooms but also across diverse sites and contexts in communities, workplaces, and social movements. LLSC combines sharp-focus examinations of talk and activity, language and literacy, with a wide lens to assess the social, cultural, political, and economic contexts of education and schooling. Of special concern are students, groups, families, and communities that have historically been poorly served by educational institutions and society, including many non-native speakers of English. Of particular interest are both professional and academic programs.

Programs in Policy, Organization, Measurement, and Evaluation (POME) emphasize the study of schools as institutions, the history and process of educational change and reform, the formulation and effects of educational policy, and the methodology of research, measurement, and evaluation in educational contexts. The POME faculty group has strengths and interests that combine:

- a focus on the institutions of schooling, analyzed from various disciplinary perspectives including sociology, economics, history, and philosophy;
- experience in linking research, policy, and practice at the national and local levels.

The School of Education offers a minor in education for undergraduates currently enrolled at Berkeley. The minor in education provides an 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 critical 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 and broadening and complementing 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. (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 in such fields as 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 Cognitive Science C1.

24. Berkeley Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Prerequisites: Priority given to freshmen. 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. Enrollment limited to 15 freshmen. Staff

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. Staff. This course offers lower division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. Staff

40AC. Experiencing Education: Race and Ethnicity Inside Schools. (4) Three hours of lecture and one hour of discussion per week. Racial and ethnic minorities in American schools and colleges through case studies of Native Americans, Italian 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. Seyer-Ochi

50. Learning to Comprehend Written Texts. (4) Four hours of lecture/discussion per week. This course provides students with an understanding of the processes involved in reading and studying written texts, an ability that plays a central role in school success at all levels. The topics include models of skilled reading, metacognition, comprehension of main idea, annotating, summarizing, graphic organizers, speed reading, vocabulary learning, text structure and text difficulty, negotiating academic discourse, the role of interest and motivation in reading, and reading problems and dyslexia. The focus of the course will be on college-level reading. Students will have the opportunity to apply some of the processes to their own reading. Simons, Staff

75. Introduction to Sport in Higher Education. (3) Three hours of lecture/discussion per week. This course addresses both the socio-cultural context of sport in higher education as well as the individual's experience within this particular context. The course will examine the evolution of the amateur to the professional in the 19th century and subsequent commercialization of college sports within the 20th century. Particular areas of focus will be the NCAA, the media portrayal of the American "student-athlete," as well as identities of race, class, gender, and sexual orientation as they relate to sport in higher education. Simons, 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

90B. Learning from Text in Asian American Studies. (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 Asian American Studies. (F,SP) Staff

90C. Learning from Text in Chicano Studies. (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 African American Studies. (F,SP) Staff

90E. Learning from Text in Education. (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 education. (F,SP) 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 90. This course assists undergraduates with reading and study skills. Students learn successful approaches to learning from their texts in Ethnic Studies. (F,SP) Staff

90G. Learning from Text in History. (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 History. (F,SP) Staff

97. Field Studies. (1-4) Course may be repeated for credit. Field study. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores. Consent of instructor. University organized and supervised field programs involving experiences in schools and school-related activities. (F,SP) Staff

98. 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. 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. Enrollment is restricted; see the Introduction to Courses and Curriculum section of this catalog. Must be taken on a passed/not passed basis. Prerequisite: Consent of instructor, lower division standing. Supervised inde-
pended study or research on topics relevant to Edu-
cation that are not covered in depth by other courses. Topics in-
cluded are indicated by courses. 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, the teaching-learning process, 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 Sociocultural Foundations. (3) One hour of lecture, one hour of structured discussion, and one hour of fieldwork per week. Prerequisites: Consent of instructor. Background in psychology. The course introduces students to relationships between research on cognitive development and reforms in elementary teaching. The syllabus is organized in modules that link research and classroom practice. For example, in a module on children’s mathematics, we analyze research on children’s strategies for solving math problems and consider how this research has reformulated teaching practices. Students complete a project for each module that links research and observations in elementary classrooms through concurrent enrollment in one unit of 197. Gearhart

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 relationships between psychological theory and educational practice. Directed field observation of developmental phenomena and educational practices. Starkey

114B. Seminar in Early Development and Education. (3) Course may be repeated once for credit. Three hours of seminar per week. Prerequisites: 114A or consent of instructor. Theory, practices, and social policy issues in early education and child care. Discussion of infant-toddler, preschool, and early elementary education programs. Early intervention programs (e.g., Project Head Start) and early childhood education programs (e.g., Montessori and play-based programs) receive special attention. Staff

114C. Practicum in Early Development and Education. (4) Two hours of seminar and six hours of fieldwork per week. Theory, research, and field experience in early development and education. Students conduct educational activities with children in classrooms in preschool, elementary school, or after-school programs. Activities include assisting teachers in the development and use of instructional materials, teaching children computer software, academic tutoring, and supporting parental involvement in schooling. Starkey

121A. Teaching Science in the Non-School Setting. (3) Three hours of lecture per week. A series of workshops conducted in demonstration classrooms at the Lawrence Hall of Science focusing on special techniques for teaching in a non-school setting. The course is designed to develop skills for persons working in museums and youth organizations as well as to introduce teaching to persons considering it as a professional career. Topics include science, the media, and Computing provide the central but not exclusive context for instruction. Staff

122. Women in the University: Gender and Higher Education. (4) Three hours of lecture per week. The situations and experiences of women in higher education in the United States, employing both historical and contemporary perspectives and data covering the contemporary scene. A prior knowledge of the history of American education is not presumed. Also listed as Women’s Studies 122. Staff

130. Education and American Society. (4) Course may be repeated once for credit. Topics vary. Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division standing or consent of instructor. Formerly 130 and Intercultural Studies 130. Examination of educational institutions in America.

140A. Literacy: Individual and Societal Development. (3) Three hours of lecture/discussion and work in pairs per week. This course combines theory and research on psychological development and literacy. It introduces sociocultural educational theory and research focused especially on literacy teaching and learning. The syllabus is organized in practice through participation in computer-based after-school programs. In addition, the course will contribute to understanding of race, culture, and ethnicity in the United States. We will develop a view of literacy, not as a neutral skill, but as embedded within culture and 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. Prerequisite: Upper division standing or consent of instructor. Exploration of issues confronting English and English language arts teachers today: curriculum trends and teaching practices; influence of reform efforts since the 1950s on English and language arts curriculum and practice; course assignments include field work, interviews, reading and reports. Mahri Freddman

144. Language and Power. (3) Three hours of lecture/discussion per week. Formerly 144. Multidisciplinary explorations into the origins, nature, and exercise of language as social symbolic power, drawing on readings taken from anthropology, social and cultural theory, and critical discourse analysis. Topics include: language and myth, the meaning of meaning, the economy of verbal exchanges, periphrastic and ideological language, institutional discourses, gender and discourse, and linguistic imperialism. Also listed as German C109. Kramsch

145. Literacy through Literature. (3) Three hours of lecture per week. Formerly 145. Exploration of the role that literature 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 literature. Literary issues: stylistics and critical reading, reader response, structure of narrative, and the literary text in the social context of its production and reception by intended and non-intended readers. Also listed as German C106. Kramsch

147. Writing from the Field: The Social Issues of Literacy. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Completion of reading and composition requirement (1A and 1B) or consent of instructor. This course will survey theories of literacy from a variety of disciplinary perspectives, paying particular attention to theories that emphasize social and political issues related to reading and writing. Part of the course work will entail two hours of volunteer preparation in an after-school program. Over the semester, students will use their experiences as volunteers to test the usefulness of literacy theories and inform their writing. Also listed as College Writing Program C115. Staff

149. Foundations for Teaching Language Arts (CLAD). (3) Three hours of lecture per week. This series on literacy teaching and learning focuses on the social and political dimensions of language arts in elementary schools. Incorporates competencies for professional career. Formerly 145. Lectures and workshops on curriculum, instructional theory, and teaching strategies. Staff

158. Foundations for Teaching Reading in Grades K-8. (3-2) Three 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 elementary school settings, basic literacy skills, instructional methods and approaches, assessment procedures, and reading and writing theories. Currin

160. Foundations for Teaching Social Studies. (1) Three hours of lecture for five weeks. Prerequisites: Admission to a teaching credential program. Formerly part of 149. Lectures and workshops on curriculum, instructional theory, and methods for teaching social studies methods in elementary schools. Staff

169. Multiculturalism and Its Discontents. (3) Three hours of lecture per week. What is the role of culture and cultural difference make? Does attention to social and cultural diversity foster democratic schooling? This course focuses on literacy teaching and learning. How do these concepts to the school setting and consultation on actual classroom problems. Written assignments and final examination required. Hull

170. The Transformation of Work: Implications for Education. (3) Three hours of lecture per week. This course examines three central forces reshaping the workplace-information technology, the global economy, and new forms of work organization—and explores the role of these changes to education. Shaiken

180. Logic of Inquiry. (3) Three hours of lecture per week. An analysis of the logical and epistemological foundation of empirical research with the aim of developing a critical and vigorous approach to empirical inquiry, deductive and inductive logic, the structure of scientific theories, justification, the role of values, prediction and the nature of causality. Staff

183. History of Education in the United States. (3) Three hours of lecture per week. Social and intellectual history of educational institutions since Independence. Adaptations of European theory and practice in education. Effects of political, social and economic change on schools, churches, school boards, and other educational agencies. Reform movements and their effects. Staff

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. Jarrett

186AC. The Southern Border. (4) Four hours of lecture/discussion per week. The separation of California from Florida—perhaps the longest physical divide between the first and third world. 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. (F,SP) Marz, Shaiken

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 opportunities, and open new vistas for providing and developing a fundamental role of education in creating member-owned, democratically controlled organizations. Students will design and assess the feasibility of their own cooperative venture. Hurst

188. Experiencing Education: Gay and Lesbian Issues and American Schools. (3) Three hours of lecture per week. This class focuses on the experience of lesbians and gays in primary and secondary schools. We will pose critical questions about the relationship

Reading Instruction Competency Assessment (RICA) and for teaching children whose primary language is not English (CLAD). Staff

*Professor of the Graduate School
*Recipient of Distinguished Teaching Award
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between education and sexuality and explore issues such as curriculum, school safety, and HIV prevention. 

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—study of principles, theories, and practices designed to develop understanding, commitment, and skills to empower a citizenry dedicated to achieving equality, justice, and peace in the world. Hurst

190. Current Issues in Education. (4) Three hours of lecture and one and one-half hours of discussion per week. Through lecture and discussion, students will examine current issues in education. Coursework will begin with a critical history of education. Students will also examine different educational philosophies, purposes, and methods. Students will use this information as an aid in evaluating several educational issues. Areas addressed are not limited to, but will include: democracy and education, testing and assessment, politics and education, and education and social inequality. (F,SP) Hurst

190B. Unraveling Education: A Participatory Inquiry. (4) Four hours of lecture per week. Prerequisites: Three hours of seminar per week per unit. Course may be repeated for credit. Course builds upon 190. Through dialogue, students will further explore critical issues and their connections. Students will form small working groups to identify, investigate, and teach a topic of their choice. We will develop and emphasize multiple perspectives. Hurst

191A. Workplace Experience in the Analysis of Work. (4) Three hours of lecture per week. This course is designed for undergraduates who are working while enrolled at Berkeley. It will provide an opportunity to analyze issues in the workplace such as employment opportunities for learning, involvement in problem-solving, compensation and incentives, and how changing technology affects demand for skills. Students will also have the opportunity to pursue their own academic studies in the workplace. Stein

191B. 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 Environ Sci, Policy, and Management C193A. Hurst

191C. Physical Education of Exceptional Children. (3) Three hours of lecture per week. General factors, verbal factors, visual and perceptual factors, perceptual tests and remediation. Optional fieldwork involves diagnosing and treating children with reading problems and preparing written case studies. Cunningham

202D. Seminars in Social and Personality Development. (2) Four 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. Turiel

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 doctoral program in Educational Psychology requires that students complete extensive projects of documentary and empirical research. As they engage in these projects, students will enroll (ordinarily during alternate years) in appropriate sections of this seminar. At each meeting, participants will present their own projects, and analyze those presented by others. Lambert

205. Instruction and Development. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. An examination of cognitive developmental approaches to instruction. Review of different theoretical orientations to learning and memory, metacognition, emergent literacy, reading, writing, mathematics, science, computer literacy, self-regulated learning, and classroom organization. Camptong

207A. The Development of Exceptional Children. (3) Three hours of lecture and six hours of fieldwork per week. Prerequisites: Consent of instructor. Theories of intelligence as applied to intelligence, measurement concepts applied to intelligence tests, development, administration and interpretation of the WISC-R, Stanford-Binet, and other issues pertaining to intelligence testing. Current controversial issues in testing, including issues pertaining to test bias and legal aspects of testing. Staff

207B. Individual Appraisal of Intelligence. (3) Three hours of lecture and six hours of fieldwork per week. Prerequisites: Consent of instructor. Theories of intelligence as applied to the assessment of intelligence. Staff

207C. Diagnosis of Human Handicaps. (3) Three hours of lecture and six hours of fieldwork per week. Prerequisites: Consent of instructor. Reviews current criteria for eligibility for programs for the handicapped and evaluates available procedures for making diagnostic decisions. Special topics may include diagnosis of learning disabilities, mental retardation, neurologicai handicaps, emotional and behavioral disorders. Hurst

207D. Assessment and Education of Exceptional Pupils in Regular Classes. (2) One hour of lecture and one hour of discussion per week. Methods for assessment of handicapped children and preparation for their education in regular classes. Such topics as nondiscriminating testing, least restrictive environments, alternative programs, parent communication, interpersonal relationships, characteristics, behavior of exceptional pupils are covered in studies of individual exceptional children in regular classes. Staff

211A-211B. Human Development and Education. (4,8) Three hours of lecture and four hours of fieldwork per week. Prerequisites: Admission to Developmental Teacher Education Program or consent of instructor. Introduction to the field of human development and their application to elementary and preschool
212. Adolescent Development and the Teaching of Secondary English. (3) Three hours of lecture/discussion and three hours of fieldwork per week. Prerequisites: Admission to the Multicultural Urban Secondary English Teaching Credential Program. This graduate seminar examines the goals of secondary English teaching to three major themes in the study of adolescent development: rationality, morality, and identity. These themes are then explored with reference to urban youth, along with other themes emerging from research in urban settings. The theme of identity is pursued further through a consideration of adolescents’ “self-theories” and their motivational consequences. Students write papers on related topics for a class anthology. Ammon

213A. Conceptual Bases for School Psychology. (3) Three hours of lecture and six hours of fieldwork per week. Prerequisite: Enroll in the Multicultural Urban Secondary English Teaching Credential Program. This graduate seminar examines the empirical and theoretical bases of the professional specialty of school psychology. Staff

213B. Theoretical and Scientific Bases for School Psychology Practice. (3) Three hours of lecture per week. This course examines the empirical and theoretical bases of school and child-rearing practices and study how families affect child-care quality is conceptualized by different psycho-social perspectives on social-emotional development. We will also analyze how child-care quality is conceptualized by different stakeholders and across different societies. The course concludes with an examination of legal issues related to the regulation of child care. Course requires: class participation, three short papers, reaction notebook. Holloway

220. Artificial Intelligence for Cognitive Scientists. (3) Two hours of lecture and six hours of laboratory per week. The goal of this course is to provide students in cognitive science with programming skills in artificial intelligence (AI) relevant to modeling human cognition. The course is specifically aimed at students with no prior programming experience. In the labs, students will make use of a intelligent tutoring system to teach essential LISP programming and later provide instruction in basic AI programming techniques. Staff

221B. Curriculum Development and Instruction in Science. (3) Three hours of lecture and one hour of discussion per week. This course provides an historical review of science curriculum development and accompanying instructional programs in the United States, including analysis of effect upon them by social trends, cultural influences, national and international events, and legislative decisions. Examination of the more successful programs will be drawn from varying learning theories, perspectives and research studies. Staff

222A. Programming and Problem Solving. (3) Three hours of lecture per week. This course will analyze how experts program and solve problems, examine recent investigations of programming and relate these investigations to recent research on learning and instruction. Using these insights, current programming instruction will be examined. Other topics include: programming environments such as MacPascal, interactive programming text books, and student behavior when solving programming problems. Linn

223B. 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. Study of special problems and issues in education related to mathematics, science and technology. Sections may vary from semester to semester. Staff

224A. Mathematical Thinking and Problem Solving. (3) Three hours of lecture per week. This course explores contemporary research in mathematical cognition, with a particular focus on “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 project. Students engage in research incorporating the main ideas studied in the course. Schoenfeld

224C. Gender, Mathematics and Science. (3) Three hours of seminar per week. The course explores commonly asked questions concerning gender, mathematics, and science. We will discuss whether these are appropriate questions and examine evidence related to the questions. This course will also consider whether policies and practices concerning gender, mathematicians, and science should be changed and, if so, identify some of the steps that could be taken to improve the current situation. Linn

225A. Introduction to Intelligent Computer Assisted Instruction. (2) Two hours of lecture per week. This course introduces students to the field of intelligent computer assisted instruction (ICAI) systems. A programming-intensive course that will require significant LISP programming experience. Staff

225B. Programming Intelligent Computer-Assisted Instruction. (4) Two hours of lecture and six hours of laboratory per week. The aim of this course is to confer upon students the facility to create intelligent computer assisted instruction (ICAI) systems. A programming-intensive course that will require significant LISP programming experience. Staff

225C. Cognitive Approaches to Computer System Design. (2) Two hours of lecture per week. This course, based largely on reading and lecture, will survey and analyze some of the mental processes involved in understanding and operating computer systems—such as text editors, word processors and user interface to computer systems, activity structures involving multiple operation tools and programming, as well as cognitive constructs being developed to understand performance. Prerequisites include three analytical papers. dSessa

226. Child Care Research and Policy. (3) Three hours of laboratory per week. Prerequisite: Consent of instructor. The system design project laboratory is an ancillary offering intended to put the ideas from 225C—Cognitive Approaches to Computer Systems Design—into practice. The principle requirement will be a substantial software implementation and write-up. With instructor’s consent, the project laboratory may be taken simultaneously or sequentially with 225C. In cases of extraordinary preparation, the laboratory course may be taken independently. dSessa

227. Metacognition. (3) Three hours of lecture per week. Major approaches to metacognition (metamemory, effective control and self-regulation in problem solving; belief systems and naïve epistemologies) will be surveyed from the following points of view: metacognition’s meaning and importance; evidence that humans have such knowledge, where such knowledge is, the extent to which it is learnable and suggestions about how it might be developed. dSessa

228A. Qualitative Methodology. (3) Three hours of lecture/discussion per week. The course will be organized by principal activities: group readings, book reports, expert and novice methodology presentations, in-class research and analysis, and student research. For each activity, we will look at the full breadth of methodology, from “how-to” methods and specific areas of concern to general questions including: what constitutes objective data, what are strengths and weaknesses of methods in regard to various issues, and how do these relate to the relations between theory and data? Ranney

229A. Proseminar: Problem Solving and Understanding. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Students will examine the problem solving in children and youth. This course will analyze the literature concerning cognitive issues that transcend problem types, including representation, “understanding,” access and availability of knowledge, access to one’s own cognitive processing, categorization, the architecture of knowledge, and the control of cognition. Also listed as Psychology C220D. Ranney

229B. Cognitive Science Approaches to Learning. (3) Two hours of lecture/discussion per week. This course introduces students to theories and models of learning in cognitive psychology and artificial intelligence. Through extensive reading, students will become familiar with simulation-based learning environments augmented with intelligent agents that act as a tutor, coach, or consultant. Staff

229F. Conceptual Change. (3) Three hours of lecture per week. Conceptual change is an in-depth change in a person’s knowledge about a-do
main. This opposes it, for example, to the learning of facts and skill acquisition. The course emphasizes recent content-oriented approaches to different literacies, focusing on "broad and deep" learning; understanding its properties. It draws on diverse other approaches including developmental psychology, analogies to the history of science, and educational communities of diverse learners, including non-native speakers of English. (F) Freedman, Czikó

244B. Methods for Teaching English in the Secondary Schools. (4) Four hours of lecture per week. Prerequisites: Enrollment in CLAD/Single Subject English Credential Program and 244B. This course introduces the teaching of secondary English. It focuses on theories for grounding classroom decisions and connects theory and practice. The course models effective approaches to teaching English and introduces issues in constructing a secondary English curriculum. Students gain a foundation for developing plans for lessons and units of instruction as well as a sense of how to build academic communities of diverse learners, including non-native speakers of English. (F) Freedman, Czikó

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 and 244B. The second semester of the methods course is designed to continue introducing the teaching of English, with a focus on strategies grounded in an understanding of theories of teaching and learning. Besides considering the English curriculum in general, the course focuses special attention on several topics, such as second language learners and the uses of technology in the English classroom. 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. Fillmore

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 since the Progressive Period. Emphasizing a survey of classic texts and key figures, the course develops the development of three schools of thought: social efficiency approaches, child-centered approaches, and social reconstructionist approaches. Students will have a study of curriculum theory since the Reconceptualists. Eidman-Aadahl

241A. Issues in Language Arts Instruction. (3) Three hours of seminar per week. Formerly 244B. Working within a sociolinguistic framework, students will examine issues related to the assessment and fostering of oral and written language with an emphasis on the elementary and middle school years. Among the topics to be explored in this course are the role of talk in learning, the use of the oral language arts, emergent literacy, and writing development. Staff

241B. Approaches in Teaching English as a Second Language. (3) Three hours of lecture per week plus field work assignment. Prerequisites: Applied linguistics course or a course in second language acquisition. Formerly 243B. This course is primarily concerned with methods of language teaching as a second language (ESL) to K-12 students and adults. Traditional methods emphasizing the development of structural knowledge, and new methods focused on the development of communicative competence will be examined. Topics include teaching English through content instruction, “structured English immersion,” syllabus and curriculum design, language awareness, and language testing for placement and evaluation. Fillmore

241A. Issues in Language Arts Instruction. (3) Formerly 244B. Working within a sociolinguistic framework, students will examine issues related to the assessment and fostering of oral and written language with an emphasis on the elementary and middle school years. Among the topics to be explored in this course are the role of talk in learning, the use of the oral language arts, emergent literacy, and writing development. Staff

241B. Approaches in Teaching English as a Second Language. (3) Three hours of lecture per week plus field work assignment. Prerequisites: Applied linguistics course or a course in second language acquisition. Formerly 243B. This course is primarily concerned with methods of language teaching as a second language (ESL) to K-12 students and adults. Traditional methods emphasizing the development of structural knowledge, and new methods focused on the development of communicative competence will be examined. Topics include teaching English through content instruction, “structured English immersion,” syllabus and curriculum design, language awareness, and language testing for placement and evaluation. Fillmore

246A. Teaching Linguistic and Cultural Minority Students. (1-3) One to three hours of lecture/discussion per week. Prerequisites: Admission to a teaching credential program. The objective of this course is to prepare teachers to work with linguistic minority students. We will consider classroom settings in which different groups socialize children for learning and ways in which learning patterns acquired in the home can conflict with the culture of school. Student teachers will consider instructional strategies for working with linguistically and culturally diverse students in their classrooms. Fillmore

246B. Literacy Problems and Language Differences. (3) Three hours of lecture/discussion per week. Formerly 255. An examination of the role of language differences on the problems of learning to read and write. Emphasis will be on the effects of cultural and dialect differences on participation in classroom learning. These issues will be examined within a sociolinguistic and ethnographic framework. Staff

246C. Principles in Language Learning and Teaching. (2-4) Two hours of seminar/discussion per week. Formerly 246C. The purpose of this seminar is to guide language teachers a theoretical understanding of the linguistic, psychological, and socio-cultural processes involved in learning a foreign language and to make them aware of the options that teachers have to influence these processes. 1) Theory and teaching methods. 2) Socialization and literacy in a second language. 3) Review of currently suggested practices for teaching the four skills and culture. Open to all language teachers regardless of foreign language taught. In English with examples taken from the languages of the participants. Also listed as German C254. Kramsch

247A. Reconceptualizing Remediation: Literacy Theory to Practice. (3) Three hours of seminar per week. Formerly 248. The goal of this course is to critically examine the history and current practices of remedial programs and to work toward a socio/cognitive conception of problematic reading and writing that could reorient educational theory, policy, and practice. Hull

247B. Literacy Practices in Out-of School Settings. (3) Three hours of seminar per week. This seminar locates and examines literacy sources and practices in sociocultural contexts beyond schooling in homes, churches, community groups, neighborhood-based organizations, clubs, gangs, special interest groups, and in the changing settings of the workplace. It also assesses how these practices may facilitate or impede literacy learning in schools. Mahiri

248A. Teacher Leadership and Professional Development: Supporting Reading, Writing, and Literacy. (3) Three hours of lecture per week. Formerly 244A. Emphasis is placed on design, articulation, and implementation of reading/language curricula in primary grades through community college. Dynamics of personal leadership basic to successful curricula implementation is stressed. Sconzo

249C. Foundations in Reading (Learning from Text) for Secondary Schools. (3) Three hours of lecture and one hour of fieldwork per week. Introduction to reading and writing in secondary school settings, basic literacy skills, instructional materials and approaches, and assessment procedures appropriate for use in secondary content area courses. Learning from text theory to practice.

250A. Qualitative Research in Language/Literacy Education. (3) Three hours of lecture per week. Prerequisites: 241A (formerly 244B) or 242A (formerly 245B); consent of instructor. Focuses on students’ and teachers’ use of language from a variety of interrelated perspectives, particularly developmental, sociolinguistic, and ethnographic. Designed to provide students with a view of the classroom as a unique setting whose aims are fostered or reoriented by the culture of school. Student teachers will consider instructional strategies for working with linguistically and culturally diverse students in their classrooms. Baquedano-López

250B. Second Language Acquisition: Concepts and Theories. (3) Three hours of seminar per week. Formerly 246B. Psycholinguistic theories and research on the acquisition of second languages by learners at
secondary and post-secondary institutions. How do adults learn languages other than their own in institutional 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? Explores various hypotheses and the evidence that consider language learning from a linguistic, cognitive and discourse perspective. Topics include: interlanguage hypothesis, input, transfer and variation in second language acquisition, interlanguage structure, affective and cultural variables, schema theory, speech act and discourse theory, and cross-cultural pragmatics.

250C. Discourse Analysis. (3) Three hours of seminar per week. Examination of the major linguistic, psycho-social 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, systemic analysis of interactive and social contexts, and 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 an index of cultural identity and subjectivity, pedagogical and social construction, learning as mediated action and as the social symbolic construction of identity, writing and textual identity, authorship and voice in multilingual settings, and the role of ideology and identity in the politics of recognition, linguistic human rights. Kramsch

251A. Research on Early Literacy Development. (3) Three hours of seminar per week. Prerequisites: 240B (formerly 242) or 241A (formerly 244B), or consent of instructor. Formerly 251A. This course is designed for advanced graduate students interested in the social and cognitive roots and the developmental history of literacy in which particular attention is given to early writing. Emphasis will be given both to children’s early experiences in the home and to their initial school experiences. Staff

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, the relationship between decoding and comprehension, attitudes toward reading, and models of the reading process. Cunningham

253A. Research in Writing. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisite: 251A (formerly 242) or consent of instructor. Formerly 253A. Critical examination of major theories and approaches to research in writing. Preparation of planning and conducting research projects on the written language. Friedman

254A. Research in Second Language Acquisition. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: 240B or consent of instructor. Formerly 254A. Research in second language acquisition, or ESL background; or consent of instructor. Formerly 255A.

255A. 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 administration and management of schools. Application is made to governmental policy for school systems. Fuller

256A. Organization Theory in Education and Other Social Services. (3) Three hours of lecture per week. Concepts of power, authority, legitimacy, policy, controls incentives, etc., as they apply to education or other social services. Fuller

256B. Urban School Leadership and Management. (4) Four hours of seminar per week. Prerequisites: Admission to the Principal Leadership Institute Program. An analysis of theories of leadership, motivation, small group dynamics, organizational climate, communications, etc. Associated with urban school site leadership, management and reform. Staff

256B. School Supervision: Theory and Practice. (3) Three hours of lecture per week. Concepts and practices related to the administration of personnel services in urban school 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. Three hours of seminar per week. Staff

262D. Research Group on the Working Lives of Teachers. (3) Course may be repeated for credit. Three hours of lecture per week. Must be taken on a satisfactory-unsatisfactory basis. Prerequisites: Consent of instructor. Research group for graduate students specializing in research on teachers’ work and organizational and policy contexts of teaching. Focuses on the role of schools in developing and sustaining a culture of teaching and learning. Filmore

262E. Teachers’ Work and Contexts of Teaching. (3) Three hours of lecture/discussion per week. Formerly 255A. Introduction to sociological and socio-cultural research on teachers’ work and the occupational structure of teaching. This course will explore the role of frameworks for understanding the diversity of teaching contexts and the contexts of teaching. It will do this by focusing on the following issues: the social and cultural dimensions of teaching contexts; the role of schools as organizations and institutions of education; the role of formal and informal identities and roles of teachers; the role of teachers’ beliefs and values in the teaching context; the role of teachers’ identities in shaping the social work context; and the role of teachers’ identities in shaping the social work context. (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 policies and practices affect the learning and teaching of students. Among the policy areas considered are those governing membership in the teaching profession, teaching assignments, the teacher 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 interested students. Little

263A. Legal Issues in Educational Practice. (1-3) Two hours of lecture per week. Five weeks per unit. Legal structures and practices in Education 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: Admission to the Principal Leadership Institute Program. This course will explore the statutory and judicial constraints upon local decision making as well as the areas in which such decision making is permitted and required. (SP) Staff

263C. Concepts in Education Law. (3) Three hours of lecture per week. In-depth study of significant cases and court decisions of historical importance which have had a major impact on school policy and structure. Exploration of the relevance of law and judicial decisions at the state and the local levels. Required for all students completing the Professional Administration Services Credential. Staff

264A. Intergovernment Relations in Social Sector Organizations. (3) Three hours of lecture per week. Emphasis on the evolution and constitutional basis of local, state and federal governmental arrangements for social agencies. Attention given to intergovernmental development, planning, budgeting procedures, policy implementation and evaluation. Reviews appropriate theoretical and empirical research findings regarding political processes of local, state and federal agencies and officials. Staff

264B. Special Topics in the Politics of Social Sector Services. (3) Course may be repeated for credit. Three hours of lecture per week. Directed research on special topics related to politics and governance of education. Topics: local political consequences of federal categorical aid programs, effects of intergovernmental relations, formation of political reform networks in education. Staff

265A. Economics of Education and Other Social Services. (3) Three hours of lecture per week. Proprietary and public institutions; the role of external and internal economic controls; the processes of the economy in the education sector; the principles of economic development; human capital theory and its influence on economic development in developing countries. The effects of economic development on the distribution of income; the role of education in economic development. Proposals to improve economic systems in developing countries. The role of basic education in third world development. Staff

265B. Economic Development and Education in the Third World. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Economics 10AA-10BB or Economics 101A-101B or equivalent. Human capital theory and its influence on economic planning in developing countries. The effects of educational development on the distribution of income. The role of economic development in improving the efficiency of educational systems in developing countries. The role of basic education in third world development. Staff

265C. Educational Resources and Finance. (3) Three hours of lecture per week. This course covers the resources necessary for education; financing from local, state, federal, and private sources; the effects of federal funding provisions on school-and class-level decisions; tax bases and their consequences; equity issues and school funding challenges; and the relation between resources and outcomes. It concentrates on the fund-
267A. Curriculum and Instructional Foundations. (3) One hour of lecture and two hours of discussion per week. Essentials of curriculum and instruction, planning, philosophical thought and human learning, use of taxonomies and models, variables affecting instruction, and approaches to evaluation in curriculum and instructional activity. Staff

267B. Curriculum Planning: Theories, Principles and Practices of Instruction. (3) One hour of lecture and two hours of discussion per week. Theories of instruction, models of teaching, research paradigms, studies and findings related to teaching effectiveness. Students are required to observe and analyze the teaching act and to conduct micro-teaching exercises. Staff

268A. The Role of Community Colleges in Higher Education. (3) Three hours of lecture per week. This course is designed for all students of higher education, including those interested in planning and social policy. The emphasis will be on the role of open-admission colleges in society. Missions of community colleges will be related to the type of students served, curriculum, instruction, governance, and mechanisms of control and support. Staff

268B. Leadership in American Higher Education. (3) Three hours of lecture per week. Prerequisite: Consent of instructor. An exploration, through reading, analysis, self-examination, reflection and writing, of issues related to leadership in American higher education, with special reference to community colleges. Staff

268C. Seminar in Contemporary Higher Education: Developments, Issues, Changes. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. A seminar approach and review of current higher education, via a critical appraisal of recent developments, innovations, functional inter-relationships, and changing issues and problems. Staff

268D. Higher Education Organization. (3) Three hours of seminar per week. Organizational analysis of higher education. The system structure, research universities, and other post secondary institutions. Bureaucratic and collegial controls. Higher education planning. Inter and intra politics of higher education. Topics vary to fit student interests. Staff

268E. Seminar in the History of the American College and University. (3) Three hours of lecture per week. A reading and seminar approach to the social and intellectual history of American higher education. Addressing European antecedents, institutional changes and development, growth of disciplines, the roles of faculty and student cultures, and the shifting function of American higher education through U.S. history. Staff

269. The Progressive Tradition in American Education. (3) Three hours of lecture per week. Progressive educators have long sought to center curricula and pedagogy on the interest and activity of the child; to intervene in community life; and to make schools engines for the democratization of American society. In order to understand today’s efforts to make schools responsive to students’ diverse interests, experiences, and needs, this course examines the sometimes conflicting goals of progressive education, its roots and evolution, and the difficulties in institutionalizing progressive practices in schools. Perstein

269A. Urban School Reform. (3) Three hours of lecture per week. American debates about effectiveness and social and public interest in school reform issue on city schools, and the commitment to reform is a recurrent theme in public discussions of education. At the same time, reformers often charge that urban schools are highly dysfunctional. In order to understand the potential of individual reform proposals and strategies, this course examines the place of school reforming, structural framework of school and the relationship of school reform to wider political relations and activity. Rather than examining sequentially individual components of this course will examine the range of reform agents and practices and different ways of understanding school reform. Particular attention is given to race and class as frames for understanding urban schooling. (F) Perstein

270B. BEAR Center Seminar. (23) 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 Center fulfills its role of supporting student research. The topic of the seminar will change from semester to semester, following themes chosen by the instructor and the participants. 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. Wilson

271B. Introduction to Qualitative Research Methods. (3) Three hours of lecture/discussion per week. Formerly 268B. Introduces principles and methods commonly associated with qualitative field research in the social sciences. Includes assigned readings on basic methodology and specific activities related to research design, research ethics and human subject protection, data collection, data organization and reduction, data analysis, and field research experience through individual or team projects. Course satisfies the qualitative methods requirement for students in the Policy, Organization, Measurement, and Evaluation (POME) program. Little

271C. Advanced Topics in Qualitative Research. (3) Three hours of lecture per week. Prerequisites: 271B or equivalent. Formerly 288C. An advanced topic in the theory or practice of interpretive research will be introduced and explored. Assignments include the application of interpretive research to a particular area such as moral education, poverty, or everyday learning, or the detailed consideration of an advanced aspect of the logic of interpretive inquiry. Little

271D. Methods of Analysis for Educational Research and Decision-Making. (3) Three hours of lecture/discussion per week. Covers qualitative research methods and analytical models for decision-making in education. Staff

271E. Teaching and Learning in Secondary, Higher, and Adult Education. (3) Three hours of lecture/discussion per week. This course is designed for graduate students and professionals and administrative careers in secondary, higher, and adult education. It is a basic introduction to the research and literature about teaching and learning, focusing on the implications of research and evidence for practice in the classroom. The course is divided into three broad topics: 1) learning—cognition, metacognition, and motivation, 2) assessment—classroom assessment and classroom research, 3) instruction—teaching effectiveness and faculty development. Staff

272A. Qualitative Evaluation and Research. (3) Course may be repeated for credit. Three hours of seminar per week. Theory and applications of the role of the evaluator as the research instrument and the nature of valuing. Detailed treatment of ethnographic, naturalistic, illuminative, historical, and connisurship modes of inquiry. Staff

274A. Measurement in Education and the Social Sciences I. (4) Four hours of lecture per week. Formerly Educational Psychology 293A. Students will learn good measurement practice by constructing an instrument and investigating its measurement properties (specifically, validity, and reliability). The act of measuring will be positioned between qualitative observations and quantitative measures, and this will be discussed in a variety of contexts, such as interview, standardized testing, and performance assessment. We will discuss both classical and modern testing approaches from conceptual and practical points of view. Wilson

274B. Measurement in Education and the Social Sciences II. (4) Four hours of lecture per week. Prerequisites: 274A or equivalent. Formerly Educational Psychology 293B. Application of these techniques to a practical measurement situation will be studied. Topics include test bias, computerized and polytomous response models will be discussed. Wilson

274C. Research Seminar in Measurement. (4) Course may be repeated for credit. Four hours of seminar per week. Prerequisites: 274A or equivalent. Formerly Educational Psychology 294B. The seminar will address a current research issue in the area of educational and psychological measurement. Topics will vary from year to year. Some examples are polytomous item response theory, measurement of cognitive processes and learning, and assessment issues in education. Wilson

274D. Multidimensional Measurement. (4) Four hours of lecture per week. Prerequisite: Educational Psychology 280D. Exploratory factor analysis, confirmatory factor analysis, and multidimensional item response theory. Wilson

274F. New Forms of Student Assessment: Characteristics and Roles in School Reform. (2-4) Two hours of lecture/discussion and one hour presentations per week. This course provides background on reforms in assessment from an educational point of view. The course satisfies the requirement on “performance assessment”—assessment designed to reveal student thinking and capture students’ capacities to contribute to ‘good work’ valued by communities outside the classroom. Students will gain understandings of the purposes and characteristics of performance assessment, conceptual frameworks, assessment practices at multiple levels, role in school reform, and policy issues. Offered alternate years. Gearhart

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 298B. A second course in educational statistics and data analysis. Emphasis is on using and interpreting multiple regression, loglinear models, and the analysis of variance for a variety of data sets and with a variety of analytic objectives. Must be taken concurrently with the computer laboratory Education 275L. Staff

275C. Multivariate Procedures. (4) Four hours of lecture per week. Prerequisites: 275B and 293A. Formerly Educational Psychology 298A. A second course in educational statistics and data analysis. Emphasis is on variability and the analysis of multiple levels, role in school reform, and policy issues. Offered alternate years. Wilson

275D. Structural Equation Modeling. (4) Four hours of lecture/discussion per week. Prerequisites: Basic statistics including regression and correlation. Formerly Educational Psychology 210C. Modeling of systems in which one or more variables are hypothesized, but not directly observed and the data available involve multiple tabular models. LISREL techniques will be used to analyze data and published and unpublished studies. Each student is expected to analyze data of their own. Staff

275E. Sample Surveys in Education and the Social Sciences. (4) Three hours of lecture per week. Prerequisites: 293A or equivalent. Formerly 293B. Sample survey methods and their application to research in education and other social science settings. Topics include sample designs (simple random, stratified, systematic, and clustered), and variance estimation for complex sample designs. Applications to educational problems and other social science problems will be emphasized throughout. Students will be required to design a survey and conduct a pilot study for and write a research paper reporting the results. Wilson
275F. Research Seminar in Data Analysis. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 276A. The seminar will address a current research issue in the area of educational statistics. Topics will vary from year to year. Some examples are: multivariate experimental research design and meta-analysis. (F,S) Staff

275L. Educational Data Analysis Laboratory II. (1) Two hours of laboratory per week. Prerequisites: 290A and 290L recommended or equivalent. Formerly 290L. Students pursuing SYSTAT to do data intermediate and advanced data analysis projects using a variety of educational data sets in conjunction with 275L. Assumes basic familiarity with the statistical program SYSTAT. Must be taken concurrently with 275B. Staff

276A. Models and Methods of Evaluation. (3) Three hours of lecture per week. Formerly 293C. This course serves as an introduction to the field of educational evaluation. Using different evaluation contexts as an organizational structure, this course addresses various and evolving models of evaluation, emphasizes philosophies underlying evaluation, and acquaints students with the application of theory and methods in examples of actual evaluations conducted (or in progress) within each defined context. The course will provide hands-on experience in the planning and design of evaluations in different contexts and will serve as a foundation for the study and application of advanced evaluation methodology in subsequent seminars and apprenticeship experience. Hotstetter

276B. Causal Inference in Non-experimental Designs. (3) Three hours of lecture per week. Prerequisites: 293A, 293L (may be taken concurrently) or consent of instructor. Formerly 293D. A formal analysis of various ideas related to causation with special emphasis on the problems of causal inference arising in program evaluation and the behavioral sciences more generally. Randomization, controlled experiments, and observational studies. Prospective designs as well as retrospective case-control designs. Direct causation, indirect causation. An analysis and critique of the relation of path models and latent variable models to the causal effects. Staff

276C. Practicum in Evaluation. (2-4) Course may be repeated for credit. Two hours of seminar biweekly, alternating with four-hour laboratories. Prerequisites: 293A, 293L. Formerly 293F. For students involved in an evaluation or assessment project as graduate student-researchers or part of a practicum or apprenticeship experience. The purpose of this course is to integrate practical experiences with evaluation theory and research literatures relevant to specific evaluation questions or methods. Also provides additional instructional support to students using project data in courses, position papers, dissertations. Readings relate to evaluation topics (e.g., evaluation of professional development programs, using student data to evaluate teaching and discussions focus on evaluation 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 prevalent evaluation theories, with systems for categorizing these theories, and with an understanding of the processes for theory development in evaluation. Hotstetter

276E. Evaluation Procedures. (3) Three hours of lecture per week. Prerequisites: 276A. This course covers the basic stages of an and strategies for conducting program evaluations within selected evaluative frame-works, such as cost-benefit analysis, utilization-focused evaluation, theory-based evaluation. Students will focus on their own evaluation studies, identify questions, develop instruments, collect data, and write/present an evaluation report. Hotstetter

280. Education, Training, and Employment. (3) Three hours of seminar per week. This course will explore the relationship between macroeconomic and political influences and issues in education in inner city schools. The impact of these larger societal phenomena upon drop-out rates, school climate, teacher morale, and teacher retention will be investigated 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,S) Seyer-Oct. Staff

283G. Education and the State in Caribbean Societies. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. This course will examine the role of education in developing societies and its relationship to popular culture. In particular, we will examine the ways in which educational practices are responding to the emerging youth culture of the Anglophone Caribbean during a period characterized by economic and social uncertainty. We will consider how education has been incorporated into development strategies devised by the governments of English-speaking Caribbean nations, and look at the role education plays in the development of a dynamic popular culture. We will also analyze how political elites have utilized education as a strategy for regime legitimation and political socialization. Staff

284A. Philosophy of Education. (3) Three hours of lecture per week. Philosophical analysis applied to current educational problems and key concepts. Tredway

289. Comprehensive Health Education for Teachers. (3) Three hours of lecture per week. Prerequisites: 274A. Formerly 290A. For students admitted to teacher education programs only. This course addresses comprehensive health education within the context of health instruction in the California Health Framework for teachers K-12, e.g., nutrition, communicable diseases, drug use and abuse, physical fitness, and community health services. For elementary teachers, the focus is on their responsibilities as primary health instructors. For secondary teachers, the focus is on their role as a member of a comprehensive health team with responsibility for providing adolescents with guidance on decision making regarding consumerism, environmental issues, drugs, and sex. Staff

290A. Policy, Organization, Measurement, and Evaluation Seminar. (3) Three hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Recommended for doctoral students preparing dissertation proposals and dissertations. 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. Historical development and contemporary status of principal features of American schooling and major issues of policy and practice. The course will focus primarily upon public elementary and secondary schools. The course will stress relationships between education and other sectors of society. Grubb

291B. Education as an Institution. (3) Course may be repeated for credit. Three hours of lecture/discussion per week. This course explores the various aspects of knowing, of learning, and the implications of those the-
Research methods and findings associated with these orientations, social constructionism, and artificial intelligence. Other approaches considered include behaviorism, constructivism, and artificial intelligence. Research methods and findings associated with these approaches are discussed as well. Ammon.

292A. Perspectives on the Education of Linguistic Minorities. (3) Three hours of lecture/discussion per week. The social, political, linguistic and pedagogical issues associated with educating students who do not speak the societal language. Issues considered as they relate to the American experience, in relation to the experiences of other societies. Bilingual education, as an instructional approach to solving such problems in the United States will be examined. Staff.

292B. The Logic and Politics of Curriculum. (3) Three hours of lecture/discussion per week. Analysis of selected curriculum trends in America. Examination of the "logic" (and epistemology) underlying decisions about what to teach and why, and of the "politics" (social, cultural, political) that shapes such decisions. Case studies will examine critically the rationales for prescribed and elective curricula and treat various other curriculum "reforms," the interest groups supporting them, and the responses of school professionals from the perspective of the school as a social system. Staff.

292C. The Transformation of Work. (3) Three hours of seminar per week. Information technology and new forms of work organization are reshaping the workplace. This course analyzes the nature of these changes, their availability, and the implications of technological organizational change for education. Shaken.

293A. Data Analysis in Education Research. (4) Four hours of lecture per week. Prerequisites: Consent of Instructor. An introduction to statistical methods for educational research. Emphasizes parameter estimation and hypothesis testing, in particular the uses of probability distributions based on means, medians, proportions and correlation coefficients. Section 1 takes a conceptual and heuristic approach and includes a hands-on, computer-based introduction to computer software for statistical analysis. Section 2 takes an algebraic approach and includes a module on multiple regression. High school algebra is strongly recommended for section 2. Staff.

293L. Educational Data Analysis Laboratory. (1) Two hours of laboratory per week. Prerequisite: Consent of instructor. Staff.

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, 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 per week per unit. Prerequisites: Consent of instructor. Formerly Education in Languages, Cultures, and Communication 294. Recommended for students working on seminar papers, qualifying papers, theses, and dissertation proposals in language and literacy studies. Section 1: Recommended for Ed.D. students and M.A. students working on curriculum projects.

294C. Seminar on Formulation of Educational Research. (1-4) Course may be repeated once for credit. One to four hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly Education in Mathematics, Science, and Technology 294. Discussion of criteria for useful educational research. Emphasis is on applying these criteria while developing plans for research on topics of interest to the participants. Staff.

294D. Thesis Seminar—SCS. (1-4) Course may be repeated for credit. One to four hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly Educational Psychology 294E. Recommended for degree students working on seminar papers, theses, or dissertation proposals. Topics include the adoption of a thesis topic, research design, statistical analysis. Staff.

294E. Thesis Seminar. (1-4) Course may be repeated for credit. Three hours of discussion per unit per week. Must be taken on a satisfactory/unsatisfactory basis. Formerly Educational Psychology 294E. Recommended for M.A. students working on seminar papers or theses, and doctoral students preparing dissertation proposals. Staff.

295A. Exploring Mathematics and Science with Computers. (3) Three hours of laboratory and three hours of lecture per week per term. Formerly Education in Mathematics, Science, and Technology 291A. Provides in-depth mathematical subject matter through an exploratory approach made possible by computers. Students learn mathematics, engage in mathematical invention and discovery and reflect on the role of computation in making it all happen effectively. Mathematical topics include elementary number theory, topology of planar shapes, geometry on curved surfaces, and Einstein’s General Theory of Relativity. Some elementary programming recommended. 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 software will be explored. A model of knowledge acquisition and knowledge change incorporating technological delivery of information will be developed. Lincs.

296. Internship in Math, Science and Technology Education. (1-4) Course may be repeated once for credit. Two hours of seminar every other week and three to ten hours of laboratory per week. Internship on an educational research or development project on the UC campus or at a nearby cooperating institution such as the Exploratorium, Oakland Museum, etc. Two hour meeting bi-weekly to discuss the students' experiences. 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/unsatisfactory basis. Research on special problems and topics not covered by regular courses or seminars. Topics will vary from section to section. Staff.

298B. Group Study for Graduate Students—LLSC. (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/unsatisfactory basis. Prerequisites: Consent of Instructor. Formerly Education in Language and Literacy 298. Research topics covered by seminar courses. (F, 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. Topics vary from semester to semester. May consist of organized lectures or seminar discussions, related chiefly to the research area in which the group is working. Staff.

298D. Group Study for Graduate Students—SCS. (1-3) One to three hours of lecture/seminar per week. Formerly Social and 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 satisfactory/unsatisfactory basis. Formerly Psychology 298G. Staff.

299. Special Study and Research. (1-12) Course may be repeated for credit. Individual conferences and independent study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Staff.

601. Individual Study for Master’s Students. (1-8) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for master's degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. 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 requirements for doctoral degree. Individual study for independent study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Staff.

340A-340B. Foundations for Secondary School English. (2;2) Two hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. Staff.

340M. Technology and the Teaching of English. (2) Three hours of lecture per week. Prerequisites: Consent of instructor. Staff.

343. Technology and the Teaching of English. (2) Three hours of lecture and three hours of laboratory per week. Prerequisites: Admission to the Single Subject Credential Program in English. This course will introduce students to the best practices involving existing technologies for the teaching of English, as well as cutting-edge technologies that are not widely available in schools today but that hold promise for the teaching of writing, language, and literature. Throughout the course, issues of equity and access will be addressed, and special attention will be given to using new technologies to their best advantage in multilingual, multimedia classrooms. Staff.

380. Teaching Assistants Practicum. (1-6) Course may be repeated for credit. One-half-hour lecture, one 3/4-hour discussion and one hour field work per unit per week. Must be taken on a satisfactory/unsatisfactory basis. Staff.

390A-390B. Supervised Teaching for Credential Program. (7;8) Two hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. Staff.
390C. Supervised Teaching in Elementary Education, (1-8) Course may be repeated for credit. One to three hours of lecture and two to twenty hours of fieldwork per week. Prerequisites: Admission to a teaching credential program. Formerly Educational Psychology 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. 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 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. Zimmerlin

391A. Technology, Curriculum, and Instruction I, (1) One hour of seminar and two hours of laboratory per week. Prerequisites: 391A. Part 2 of a 2-course sequence. Prerequisites: By permission of the California Multiple Subject Credential. Introduction to basic computer skills and applications. Levenson, Peretti

391B. Technology, Curriculum, and Instruction II, (1) One hour of seminar and one hour of laboratory per week. Prerequisites: 391A. Part 2 of a 2-part sequence meeting technology requirements for California Multiple Subject Credential. This second part will focus on application and extensions of classroom technology. (SP) Levenson, Peretti

413A-413D. Community-Based Internship in School Psychology, (3.5) Course may be repeated for credit. One to three hours of fieldwork and one day of fieldwork per week. Supervised assignment to a community mental health agency in the capacity of school psychologist. Singh

413C-413D. School-Based Internship in School Psychology, (6.6) Course may be repeated for credit. Two hours of lecture and three days of fieldwork per week. Supervised assignment to a school district in the capacity of school psychologist. Staff

413L. Consultation for School Psychology Students, (1) Course may be repeated for credit. One hour consultation on campus and six hours of fieldwork per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Admission to Advanced Reading-Language Leadership Program. In individual meetings with the instructor include the consultation and development of the master's project (Plan II) in coordination with a Senate faculty member. Field application of theoretical knowledge includes the supervised implementation and evaluation of reading language intervention programs in five schools and in four districts. Two all-day field visits to exemplary reading/language programs in the Bay Area to be arranged with instructors. Staff

460A. Practicum in School Site Management I, (3) Three hours of lecture and field work per week. Prerequisites: Admission to Administrative Services Credential program. Supervised field experience, conference, and research. Staff

460C-460D. Research Practicum in Administration, (2.2) One hour of lecture and three hours of fieldwork per week. Prerequisites: 294A and admission to the Principal Leadership Institute. This course engages master's students in collecting and analyzing data efforts to improve educational practices or solve important problems in school systems. Tredway

460L. Field-Based Practicum: Internship in Educational Administration, (1.5) Six hours of fieldwork per week and one three hour seminar will be scheduled during each semester. Prerequisites: Possession of Preliminary Administrative Services Credential. Supervised field based internship and seminar for students working toward the Professional Administrative Services Credential. Administrative skills addressed in the course include developing community support, contract management, and written and verbal communication skills. Staff

Interdepartmental Studies Courses

Upper Division Courses

IDS 110. Introduction to Computers, (4) Three hours of lecture and four hours of laboratory per week. Formerly 110 and 110L. An introduction to computers and digital technology and culture. The conceptual foundations and functions of computer hardware and software. Structure of computer 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 “Computer Science Service Courses” in the departmental listing for Electrical Engineering and Computer Sciences, and/or consult with the instructor. (F, S) Staff

IDS 130. Seminar on Social, Political, and Ethical Issues in Health and Medicine, (2) One hour of lecture and one hour of discussion per week. Must be taken on a pass/no pass basis. An interdisciplinary approach to the social, political, and ethical aspects of health and medicine; students will then discuss and present analyses of the reading materials as well as issues raised by the speakers. Sponsoring departments: Public Health and Education. (F) Duhl

Department Office: 231 Cory Hall #1770, (510) 642-3214 http://www.eecs.berkeley.edu
Chair: S. Shankar Sastry, Ph.D. University Professor

University Professor

John R. Whitmer (Emeritus), Ph.D. University of California, Berkeley. Communications applications of lasers

Professors

Verkhtachalam Anantharam, Ph.D. University of California, Berkeley. Sensors and microactuators

Bernard E. Boser, Ph.D. Stanford University. Integrated circuits, neural networks

Robert K. Brayton (Cadien Design Systems Distinguished Professor in Engineering), Ph.D. Massachusetts Institute of Technology. Computer-aided design

Robert W. Brodersen (John R. Whinney Professor of Electrical Engineering and Computer Sciences), Ph.D. Massachusetts Institute of Technology. IC signal processing and applications

Constance Chang-Haasen, Ph.D. University of California, Berkeley. Electronic materials, semiconductor interfaces

Bernard Chueh, Ph.D. California Institute of Technology. Electronic materials, semiconductor interfaces

Leon O. Chua, Ph.D., Ph.D. (hon.) University of Illinois. Device modeling, nonlinear circuits

Rainer S. Feinberg, Ph.D. (Hon. Distinguished Researcher), Ph.D. Stanford University. Robotics, tactile sensing

Paul R. Gray (Theodore von Kbriczak and Margaret Grey), Ph.D. Stanford University. Integrated circuits and devices

K. Kenneth Gustafson, Ph.D. Massachusetts Institute of Technology. Optical, quantum, and nonlinear optical processes

Thomas A. Hengartner, Ph.D. Stanford University. Computer-aided design, computer systems and networks

David A. Hodges, Ph.D. University of California, Berkeley. Integrated circuits

Roger T. Howe (Associate Chair, Electrical Engineering), Ph.D. University of California, Berkeley. Microsystems and microelectronics

Cherng-Hu (Taiwan Semiconductor Manufacturing Company Distinguished Professor), Ph.D. University of California, Berkeley. IC devices and materials

Joseph Kahn, Ph.D. University of California, Berkeley. Communication networks

Kurt Keutzer, Ph.D. Indiana University. Computer-aided design, compilation, automated hardware design, formal verification

*Ernest S. Kuh (William S. Floyd, Jr. Professor of Engineering), Ph.D. Stanford University. Circuits and systems, CAD for VLSI

Kam Y. Lau, Ph.D. California Institute of Technology. Optoelectronics

Edward A. Lee, Ph.D. University of California, Berkeley. Signal processing, digital communications

Michael A. Lubyman, Ph.D. Massachusetts Institute of Technology. Plasma-assisted materials processing

David G. Masiarz, (Roger A. Strauch Professor of Electrical Engineering and Computer Sciences), Ph.D. University of Michigan. Signal processing and networking

Robert G. Meyer, Ph.D. University of Melbourne. IC design and computer science

*Richard S. Muller, Ph.D. California Institute of Technology. Integrated circuits

Andrew R. Neureuther (Convergent Systems Distinguished Professor in ECECS), Ph.D. University of Illinois. Integrated circuit process

A. Richard Newton (Dean), Ph.D. University of California, Berkeley. Computer-aided design, computer architecture

William G. Oldham (Robert S. Pepper Distinguished Professor of Electrical Engineering and Computer Sciences), Ph.D. Carnegie Mellon University. Computer-aided design and design optimization

Kristin Peters (Associate Chair, Electrical Engineering), Ph.D. University of California, Berkeley. Microelectromechanical systems

Elia Papai, Ph.D. University of California, Berkeley. Optimization and control

*Vinod Srinivasan, Ph.D. University of California, Berkeley. Microprocessors, computer-aided design

S. R. Sanders, Ph.D. Massachusetts Institute of Technology. Nonlinear circuits and systems

*Albert T. Sangiovanni-Vincentelli (Harold H. Butcher Professor of Electrical Engineering), Dr. Ing. Politecnico di Milano, VLSI circuits and systems

S. Shankar Sastry (Chair) Ph.D. University of California, Berkeley. Robotics, embedded systems, biological computing

Charles V. Shank, Ph.D. University of California, Berkeley. Ultrashort light pulses

Costas Spanos, Ph.D. Carnegie Mellon University. Computer integrated manufacturing

Integrated circuits

Jean Walrand, Ph.D. University of Massachusetts Institute of Technology. Networking

*Theodore Van Duzer, Ph.D. University of California, Berkeley. Cryoelectronics of superconductors and sensors

Pravin P. Varaiya (Northest Networks Distinguished Professor in EECS), Ph.D. University of California, Berkeley. Communication networks

Jean Walrand, Ph.D. University of California, Berkeley. Communication networks

William J. Welch, Ph.D. University of California, Berkeley. Radioastronomy

Richard M. White, Ph.D. Harvard University. Semiconductors and ultrasonics

Aaron Ziskind, Ph.D. Massachusetts Institute of Technology. Digital signal processing and its applications

V. Ralph Algan, Ph.D. (Emeritus)

Kurt Keutzer, Ph.D. (Emeritus)

Andrew J. Dienes, Ph.D. (Emeritus)

Albert C. English, Ph.D. (Emeritus)

Mann H. Graham, D.E. (Emeritus)

Eliahu I. Jury, S.C., D.C., Techn. (hon.) (Emeritus)

Edward L. Keller, Ph.D. (Emeritus)

T. Edwen R. Lewis, Ph.D. (Emeritus)

Hamid Reza Sarbakhshian, Ph.D. (Emeritus)

Kenneth K. Mei, Ph.D. (Emeritus)

Donald D. Pederson, Ph.D., Ph.D. (hon.) (Edgar L. and Harold H. Butcher Professor of Electrical Engineering)

Steven E. Schwarz, Ph.D. (Emeritus)

Jerome R. Singer, Ph.D. (Emeritus)

David H. Sloan, Ph.D. (Emeritus)

Oto M. Smith, Ph.D. (Emeritus)

Charles S. Steger, Ph.D. (Emeritus)

Amnon J. Tamir, Ph.D. (Emeritus)

George L. Turin, Sc.D. (Emeritus)

Eugene Wong, Ph.D. (Emeritus)

*Felix C. Young, Ph.D. (Emeritus)

Associate Professors

Laurent El Ghaoui, Ph.D. Stanford University. Optimization and control

David J. Kaelig, Ph.D. Stanford University. Computer architectures and materials development

Kannan Ramchandran, Ph.D. Columbia University. Signal processing and communications

John S. Smith III, Ph.D. (California Institute of Technology). Quantum electronics, optoelectronics

Assistant Professors

Ali Najafi, Ph.D. University of California, Berkeley. Wireless and broadband communications

Vivek Subramanian, Ph.D. University of California, Davis. Digital integrated circuits

Andrew A. Pavan, Ph.D. University of Illinois. Communications systems and signal processing

William J. Welch, Ph.D. University of California, Berkeley. Computer-aided design

Michael D. Smith, Ph.D. University of Illinois. Microelectronics
Computer Science Division
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University Professor
Richard M. Karp (Class of 1989 Emeritus), Ph.D. Harvard University. Analysis of algorithms

Professors
Alexander S. Aiken (Emeritus) (In Residence), Ph.D. Cornell University. Computer engineering
Ruzena Bajcsy (Director, CITRIS), Ph.D. Stanford University. Computer vision, robotics
Brian Barsky, Ph.D. University of Utah. Graphics, visualization, data science, computing
Elwyn R. Berlekamp, Ph.D. Massachusetts Institute of Technology. Coding theory, combinatorial game theory
John F. Canny (Emeritus) (In Residence), Ph.D. Massachusetts Institute of Technology. Robotics
James W. Demmel (Chancellor's Professor), Ph.D. University of California, Berkeley. Linear algebra, scientific computation
Richard J. Fateman, Ph.D. Harvard University. Symbolic and algebraic manipulation
Jerome A. Feldman, Ph.D. Carnegie Mellon University. Artificial intelligence
David A. Forsyth, D.Phil. Oxford University. Artificial intelligence
Kenneth Goldberg, Ph.D. Carnegie Mellon University. Robotics and geometric algorithms
Susan L. Graham (Vice Chair, Administration), Ph.D. University of California, San Diego. Machine learning, applied statistics, artificial intelligence
William Kenan, Ph.D. University of Toronto. Automated and symbolic mathematical analysis
Randy H. Katz (United Microelectronics Corporation Distinguished Professor), Ph.D. University of California, Berkeley. VLSI systems, multiprocessor architecture
Jitendra Malik (Arthur J. Chick Endowed Professor in Computer Science) (Chancellor's Professor), Ph.D. University of California, Berkeley. Geometric models, optimization, computer vision, graphics, machine learning, human perception, computational vision, computer graphics, computer vision, and robotics
Michael Jordan, Ph.D. University of California, Berkeley. Machine learning, applied statistics, artificial intelligence
William Kahan, Ph.D. University of Toronto. Automated symbolic mathematical analysis
Eugene Myers, Ph.D. University of Colorado. Computational biology, genomics
Christos H. Papadimitriou (C. Lester Hogan Professor in Electrical Engineering and Computer Sciences), Ph.D. Princeton University. Theory of computation
David A. Patterson, Ph.D. and M. E. Parise Professor, Ph.D. University of California, Los Angeles. VLSI computer architecture
Lawrence A. Rowe, Ph.D. University of California, Irvine. Cryptography and computational number theory
Alastair Sinclair, Ph.D. University of Edinburgh. Computer science theory
Alan J. Smith, Ph.D. Stanford University. Operating systems, computer architecture
Bernd Sturmfels, Ph.D. University of Washington. Combinatorics, computer algebra, algebraic geometry
Doug Tygar, Ph.D. Harvard University. Computer security, privacy, and electronic commerce
Unlin V. Vazirani, Ph.D. University of California, Berkeley. Complexity theory, cryptography
John C. Waarby, Ph.D. California Institute of Technology. Parallel computation, VLSI design, signal processing
Robert J. Wiley (Cecil V. Cheek Chair in Engineering), Ph.D. Yale University. Artificial intelligence
Katherine Yelick, Ph.D. Massachusetts Institute of Technology. Programming languages, methodologies
Lori A. Zadok, Ph.D. (Emeritus)

Manuel Blum, Ph.D. (Emeritus)
Domínguez-García, Ph.D. (Emeritus)
Arthur Gil, Ph.D. (Emeritus)
Michael A. Harris, Ph.D. (Emeritus)
Berndtford N. Parkett, Ph.D. (Emeritus)
Chittaranjan V. Rao, Ph.D. (Emeritus)
Michael R. Stonebraker, Ph.D. (Emeritus)

Associate Professors
Eri A. Browse, Ph.D. Massachusetts Institute of Technology. Parallel software systems
Michael Franklin, Ph.D. University of Wisconsin. Database management
Joseph M. Hellerstein, Ph.D. University of Wisconsin. Design of database management systems
Paul N. Hilfinger, Ph.D. Carnegie Mellon University. Programming languages and programming environments
James Landay, Ph.D. Carnegie Mellon University. User interface design
Satish Rao, Ph.D. Massachusetts Institute of Technology. Theoretical computer science

Assistant Professors
Rastislav Bodik, Ph.D. University of Pittsburgh. Software engineering
Anthony Joseph, Ph.D. Massachusetts Institute of Technology. Distributed systems frameworks for mobile computing
John Kubiatowicz, Ph.D. Massachusetts Institute of Technology. Multiprocessor computer architecture and systems
Jennifer Markoff, Ph.D. Georgia Institute of Technology. Human-computer interaction
George Neff, Ph.D. Massachusetts Institute of Technology. Programming languages and computer system research
James O'Brien, Ph.D. Georgia Institute of Technology. Computer graphics and animation
Jonathan Shewchuk, Ph.D. Carnegie Mellon University. Scientific computing, computational geometry, and computer art
Ivan Stojic, Ph.D. Carnegie Mellon University. Networking and distributed computer systems
Luca Trevisan, Ph.D. Columbia University. Theoretical computer science
David Wagner, Ph.D. University of California, Berkeley. Computer security, cryptography, systems, theory

Senior Lecturers
Michael J. Dlanyi, B.S.
Bryan Harvey, Ph.D.

Lecturers
Dan Garcia, Ph.D.

Department Overview
With rapid growth in technology, electrical engineering now encompasses solid-state devices, integrated circuits, microwave electronics, quantum and optical electronics, computational electromagnetics, radiation and propagation, plasmas, power systems, control systems, communications and information theory, circuit theory, large-scale networks and systems, computer-aided design, microelectromechanical systems, digital signal processing, robotics, and pattern recognition.

The department offers programs in computer science through its Computer Science Division. Undergraduates who wish to major in computer science may do so either through the College of Engineering (B.S. degree) or the College of Letters and Science (B.A. degree). For information about the computer science programs offered through the College of Letters and Science, see the College of Letters and Science Undergraduate Catalogue.

The CSE Program includes Option IV (Computer and Engineering Sciences). Students who takeelective units in engineering, physical or life sciences, mathematics and statistics in order to strengthen and broaden their background and to satisfy some of the requirements in these areas. The upper division program includes a selection of courses in electronics, communication, networking, networks and systems, computer systems, and computer science. Details about the curriculum can be found in the Announcement of the College of Engineering. Students should also consult the Undergraduate Notes published by the Electrical Engineering and Computer Sciences Department.

The Electrical and Computer Engineering program is accredited by the Engineering Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; (410) 347-7700. The Computer Science and Engineering Program is accredited by the Computing Accreditation Commission of ABET.

Undergraduate Program
The department offers two programs: Electrical and Computer Engineering (ECE) and Computer Science and Engineering (CSE). Students working for the B.S. degree select an option within their program; they are then assigned an appropriate advisor on the basis of their selection. Students in both programs will pursue the following basic objectives:

• Gain the ability to analyze and solve electrical and computer engineering problems through application of fundamental knowledge of mathematics, science, and engineering.
• Gain the ability to identify, formulate, and solve challenging engineering problems.
• Learn to apply modern skills, techniques, and engineering tools to create electronic systems.
• Learn to communicate their ideas to be effective in collaboration with other members of engineering teams.
• Acquire the background in humanities and social sciences required to be effective as engineers, leaders, and citizens.
• Achieve an understanding of conceptual foundations and emerging applications over a broad range of electrical engineering, computer engineering, and computer science subjects.
• Gain professional maturity through selection of their individual courses of study.

Electrical and Computer Engineering Program
The ECE options (described below) include Option I (Electronics), Option II (Communication, Networks, and Systems), Option III (Computer Systems), and Option V (General). (Option IV falls under the Computer Science and Engineering Program, below.) Students are encouraged to develop an individual program in consultation with their faculty adviser. The transcriptions of students in these options indicate that their degree is from the Electrical and Computer Engineering Program.

Computer Science and Engineering Program
The CSE Program includes Option IV (Computer Science). Details are described below. The transcriptions of students in Option IV indicate that their degree is from the Computer Science and Engineering Program.

Options
Electronics (Option I) is for students interested in integrated circuits, including fabrication technology, solid state devices, digital and analog circuits analysis and design, VLSI design, and computer-aided design and manufacturing; and for students inter-
tested in microelectromechanical systems, electromagnetics, acoustics, optoelectronics, plasmas, cryogenics, and antennas and propagation.

Communication, Networks, and Systems (Option II) is for students interested in networks, control, robotics, digital and analog communications, computer networks, signal processing, systems design, optimization, and power systems planning and operation; and for students interested in biology or medicine as well as electrical engineering, including biological sensors of study, signal and image processing, and analysis and modeling of biological systems.

Computer Systems (Option III) is for students interested in machine architecture and logical design of operating systems, database systems, programming systems and languages, and digital devices and circuits.

Computer Science (Option IV) is for students interested in design and analysis of algorithms, complexity theory and other theoretical topics, artificial intelligence, and computer graphics.

General Option (Option V) is for students whose interests are broad or are not yet focused on a specific field. This flexible option enables students to explore several areas of electrical engineering and computer sciences.

Double Majors

In addition, the department offers double major programs designed to help students qualify 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 double majors are currently established:

EECS/Materials Science and Engineering: For students interested in materials and devices, a double major in EECS/MSE can be valuable. The program combines the study of materials from a broad perspective, as taught in MSE, with the study of their applications in electronic devices and circuits, as taught in EECS.

EECS/Nuclear Engineering: The EECS/NE double major combines the traditional EE program with one in the nuclear sciences. Nuclear engineering shares with EE a concern for electrical power generation, automatic control, computer sciences, and plasmas.

Curriculum for the Bachelor's Degree

A minimum of 120 semester units is required for the bachelor’s degree in EECS, including:

1. At least 30 units of natural science, mathematics, and statistics, including:
   - (a) At least 11 units of natural science, including Physics 7A-7B or H7A-H7B, and one course chosen from among the following:
     - Physics 7C or H7C (recommended), Chemistry 1A (recommended), Biology 1A (recommended), Astronomy 7A-7B, Biology 1B, Chemistry 1B, 3A-3B, 4A-4B, and 5, Molecular and Cell Biology 32/32L, or any other division course in astronomy, biology, chemistry, geology and geophysics, integrative biology, molecular and cell biology, physics or plant biology.
   - (b) Math 1A-1B, 53, and 54.
2. A total of 45 units of engineering courses, including at least 20 units of upper division EECS courses. A student may count any letter-graded course (lower or upper division) in the College of Engineering toward the 45-unit requirement. We encourage students to consider taking courses outside the department. In the past, we have found the following courses to be of particular interest: CEE 106 and 130; E36, 45, 66, 115, 118, 120, 166, 177; MEE 102 and 111; ME 102A, 104, 135, and 136; and NE 101 and 107. This list is suggestive, not exclusive.
3. EECS lower division core courses EECS 20N, EECS 40, CS 61A, CS 61B, and CS 61C (which also count as engineering units). Students at Berkeley who transfer into EECS from other engineering departments or from the Engineering Science (Honors) program can substitute one of the EECS core courses with CS 199 (independent study and research) 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 your study list falls within the minimum and maximum unit loads.
4. A course in discrete mathematics and/or probability and statistics. Math 55 or CS 70 is required for students fulfilling requirement III (Computer Systems) or Option IV (Computer Science). Students following Option I (Electronics), Option II (Communication, Networks, and Systems) or Option V (General) may substitute a course on probability and statistics chosen from the following list: Stat 20 (permitted for junior transfer students taken at a community college only), Stat 25, Stat 134, or EECS 126. EECS 126 counts as upper division EECS units under requirement 2, and the other units do not count towards graduation.
5. Engineering 190 (also counts as engineering units for requirement 2). Students will have the option of satisfying this requirement (without receiving units) by passing an exam test offered by the College of Engineering. Students who take the E 190/IDS 140 Exam and the EEE 190 exam offered by the College of Engineering and are placed in IDS 140 must complete both IDS 140 and E 190. It is strongly recommended that students plan to enroll in E 190 during the junior year, as the course is highly impacted.
6. An upper division engineering course providing a major design experience based on the knowledge and skills acquired in earlier course work and incorporating engineering standards and realistic constraints (counts as engineering units for requirement 2). The current EECS design courses are EE 128, EE 141, EE 143, EE 145L, EECS 145M, EE150, CS 152, CS 160, CS 162, CS 164, CS 169, CS 164, CS 186, and EE 192. A course in other engineering programs having substantial engineering design content can be substituted by petition.
7. Courses that satisfy the Subject A, Humanities and Social Studies, American Cultures, and American History and Institutions requirements in effect at the time of admission.
8. Courses to satisfy requirements 1-6 must be taken for a letter grade.
9. No more than 3 units of English as a Second Language, 4 units of physical education, or 10 units of Course 199 (independent study and research) may be counted toward the 120units required for graduation.
10. You may earn a total of at most 5 units of credit toward graduation for courses labeled as “computing service” courses, which include CS 3, the CS 9 courses, IDS 110 and 110L, and Engineering 77N. You will receive no more than 1 unit of credit for each computing science course 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 your study list falls within the minimum and maximum unit loads.

Note: Details of the available fields of graduate study in electrical engineering and computer sciences are described in the Announcement of the College of Engineering. For further information on graduate programs and procedures in Electrical Engineering and Computer Sciences Graduate Information Notes, available in 395 Cory Hall and at http://www.eecs.berkeley.edu/GradNotes/
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and frequency response for systems, and sampling of continuous-time signals. A Matlab-based laboratory is an integral part of the course. (F,SP) Lee

24. Freshman Seminar. (1) 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/no pass basis. The Freshman Seminar Program has been designed to guide 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. (F,SP) Lee

39. Freshman/Sophomore Seminar, Sections (2-4) 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 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. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP) Lee

40. Introduction to Microelectronic Circuits. (4) Students will receive no credit for 40 after taking 100. Three hours of lecture, three hours of laboratory, and one hour of discussion per week. Prerequisites: Mathematics 1B and Physics 7B. Fundamental circuit concepts and analysis techniques in the context of digital electronic circuits. Transistor analysis of CMOS logic gates; basic integrated-circuit technology and layout. (F,SP) Staff

42. Introduction to Electronics for Computer Science. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 43 (may be taken concurrently); Mathematics 1B. Fundamental principles of electronics with emphasis on those of particular interest to students of computer science. Electric circuits: analysis of passive dc circuits; equivalent circuits; power calculations; inductance and capacitance; sinusoidal steady-state analysis; impedance; frequency response; transient response of first-order circuits; time constants. Digital blocks. Field-effect transistors; MOS technology; CMOS logic devices. (F,SP) Staff

43. Introductory Electronics Laboratory. (1) Two hours of laboratory/discussion per week. Must be taken on a pass/no pass basis. Prerequisites: 42 (may be taken concurrently) or equivalent or consent of instructor. Using and understanding electronics laboratory equipment such as oscilloscope, power supplies, function generator, multimeter, curve-tracer, and RLC-meter. Includes a term project of constructing and testing a robot or other appropriate electromechanical device. (F,SP) Staff

Upper Division Courses

100. Electronic Techniques for Engineering. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Mathematics 1B, Physics 7B. Analysis of passive circuits, sinusoidal steady-state response, transient response, operational amplifiers, digital building blocks, digital systems, microprocessor control, power systems and machines. This course is not for students majoring in Electrical Engineering. (F,SP)


105. Microelectronic Devices and Circuits. (4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: 40. This course covers the fundamental circuit and device concepts needed to understand integrated circuits. After an overview of the basic properties of semiconductor devices, the p-n junction and MOS capacitors are described and the MOSFET is modeled as a large-signal device. Two port small-signal amplifiers and their re- alization using single stage and multistage CMOS building blocks are discussed. Sinusoidal steady-state signals are introduced and techniques of phase characterization of amplifier circuits are developed, including impedance and the magnitude and phase response of linear circuits. The frequency responses of single- and multi-stage amplifiers are analyzed. Differential amplifiers are intro- duced. (F,SP) Howie, Spanos

113. Power Electronics. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: 105 or consent of instructor. Power conversion circuits and techniques. Characterization and design of magnetic devices including transformers, reactors, and electromagnetic machinery. Characteristics of bipolar and MOS power semiconductor devices. Applications to motor control, switching power supplies, lighting, power systems, and other areas as appropriate. (SP) Staff


117. Electromagnetic Fields and Waves. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 40, Mathematics 53, 54, knowledge of phasor analysis (e.g. as taught in 105). Formerly 117A-117B. Review of vector and magnetic fields and applications; Maxwell’s equations; transmission lines; propagation and reflection of plane waves; introduction to guided waves, microwave networks, and radiation and antennas. Minilabs on statics, transmission lines, and waves. (F,SP) Staff

118. Introduction to Optical Communication Sys- tems and Networks. (3) Three hours of lecture per week. Prerequisites: 20 and 40. Basic principles of digital and analog optical communications and optical networks. Emphasis is on principles of optical links, including channel capacity, basic limitations due to noise processes, and bit error rate requirements. Optical amplification, the detector-receiver, optical fiber and free-space propagation, the transceiver, and modulation schemes. Coherent and incoherent communications and network systems. Basic optical Fourier transform signal processing techniques. (F) Gustafson

119. Introduction to Optical Engineering. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Physics 7C. Fundamental principles of optical systems. Geometrical optics and aberration theory. Stops and apertures, prisms, and mirrors. Diffraction and interference. Optical materials and coatings. Radiometry and photometry. Basic optical devices and the human eye. The design of optical systems. Lasers, fiber optics, and holography. (SP) Bokor


120L. Signals and Systems Laboratory. (1) Three hours of laboratory every other week. Prerequisites: May be taken concurrently. Hands-on experiments designed to provide physical examples for the theoretical concepts of 120. Time- and frequency- domain examination of instrument, circuit, and linear systems to periodic and transient signals, modulation and de-
processing via nonlinear dynamics and analog VLSI signal processing, feature extraction, motion detection, data compression, secure communication, bionic eye, auto waves, and Tuning patterns. (SP) Chua

130. Integrated-Circuit Devices. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 40 or 100. Basic knowledge of microelectronics. Motor-semiconductor circuits, p-n junctions, diodes, and MOS field-effect transistors. Properties that are significant to device operation for integrated circuits. Silicon device fabrication technology. (F, SP) Sokkori, King

131. Semiconductor Electronics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 130 (which may be taken concurrently). Physics of solid-state electronics. Review of quantum mechanics, crystal structure, lattice vibrations, band theory, electrons and holes, diffusion and drift, recombination, high-field phenomena, optical effects, device applications. Several one-hour mini labs done in pairs with the aid of a Teaching Assistant. (F) Gustafson

C133. Microfabrication Equipment Laboratory. (2) One hour of lecture and three hours of laboratory per week. Prerequisites: 100, Mathematics 53 and 54, Physics 7B; an upper division course on microfabrication technology or manufacturing is recommended but not required (e.g., Chemical Engineering 175, Electrical Engineering 143, Mechanical Engineering 101, 122, Materials Science 111, 123, 125). Experiments and simulations illustrating the fundamental principles of equipment and measurement technology for microelectronic and microelectromechanical fabrication and manufacturing. The experiments involve investigation and measurement of high vacuum systems, plasma-assisted etching and film deposition, high temperature silicon oxidation, photolithography, spin coating, chemical-mechanical polishing, and electrical probing. Listed as Mechanical Engineering C123, Materials Science and Engineering C133, and Chemical Engineering C133. (SP)

140. Linear Integrated Circuits. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 105. Single and multiple stage transistor amplifiers. Operational amplifiers. Feedback amplifiers, 2-port networks, source, load, and feedback network loading. Frequency response of cascaded amplifiers, gain-bandwidth exchange, compensation, dominant pole techniques, root locus. Supply and temperature-independent biasing techniques. Selective applications of analog circuits such as analog-to-digital converters, switched capacitor filters, and comparators. The laboratory experiments are based 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) Brodersen

141. Introduction to Digital Integrated Circuits. (4) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: 40; 105 and 150 recommended. CMOS devices and deep sub-micron manufacturing technology. CMOS inverters and complex gates. Modeling of interconnect wires. Optimization of designs with respect to a number of metrics: cost, reliability, performance, and power dissipation. Sequential circuits, timing considerations, and clocking approaches. Design of large system blocks, including arithmetic, interconnect, memories, and processors. Computer-aided design, feature extraction methodologies, including hands-on experience. (F, SP) Rabaey

142. Integrated Circuits for Communications. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 120 and 140. Analysis and design of electronic circuits for communication systems, with an emphasis on integrated circuits for wireless communication systems. Analysis of distortion in amplifiers and radio receiver design. Power amplifier design with application to wireless radio transmitters. Class A, Class B, and Class C power amplifiers, harmonic-frequency mixers, oscillators, phase-locked loops, modulators, and demodulators. (F) Meyer

143. Microfabrication Technology. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 40 or equivalent. This laboratory course covers the design, fabrication and surface micromachining technology. Thermal oxidation, ion implantation, impurity diffusion, film deposition, etching, contact and interconnections, and process integration issues. Device design and mask layout, relation between physical structure and electrical/mechanical performance. MOS transistors and poly-Si surface microstructures will be fabricated in the laboratory and evaluated. (F, SP) Cheung, King

145A. Sensors, Actuators and Electrodes. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 40 plus elementary chemistry and physics. Introduction to the physical bases of transduction, detection, and measurement of the presence of noise. Applications of lumped- and distributed-parameter network theory to design and analysis of sensor and actuator systems in acoustics, optics, mechanics, fluid dynamics, thermodynamics, chemical dynamics and electrodynamics. Electrochemical bases of electrodes. Biological sensors and actuators. (F) Staff

C145B. Image Processing and Reconstruction Topography. (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 transform theory 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, photography, television, microscopy, ultrasound, and biomaging data. Analysis including hypothesis testing, parameter estimation by least squares, and compartmental kinetic modeling. Field trips to medical imaging laboratories. Also listed as Bio-engineering C165. (SP) Budinger

145L. Introductory Electronic Transducer Laboratory. (2) Two hours of lecture and three hours of laboratory per week. Prerequisites: 40. Laboratory exercises exploring a variety of electronic transducers for measuring physical quantities such as temperature, force, displacement, strain, pressure, and potential; the use of circuits for low-level differential amplification and analog signal processing; and the use of microcomputers for digital sampling and display. Lectures cover principles explored in the laboratory exercises; construction, response and signal to noise of electronic transducers and actuators; and design of circuits for sensing and controlling physical quantities. (F) Denero

145M. Introductory Microcomputer Interfacing Laboratory. (2) Two hours of lecture and three hours of laboratory per week. Prerequisites: 40 and 608L. Laboratory exercises exploring a variety of basic interfacing techniques and writing 20-100 line C programs for data acquisition, storage, analysis, and control. Use of the IBM PC with microprogrammable digital counter/timer, parallel I/O port, and analog I/O port. Circuit components include analog-to-digital and digital-to-analog converters. Exercises include interfacing and peripheral testing, and interfacing microprocessors to devices such as a mobile robot. Small teams of students will design and construct a microcomputer system incorporating sensors, actuators, and intelligence. (SP) Denero


217. Microwave Circuits. (3) Three hours of lecture per week. Prerequisites: 117. Techniques of analog circuit technology in the high-frequency regime above 1 GHz. Transmission lines and critical circuit elements; S-parameter design of high-frequency active circuits; computer-aided design and simulation. Emphasis on design of planar high-frequency circuits. Offered alternate years. (SP) Schwartz

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 an operating system is very helpful. Formerly 219. This course describes the computer algorithms, techniques, and theory used in the simulation of electronic circuits and systems. The course is concerned with techniques for the verification of correctness of complex electronic circuits and systems including detailed simulation of integrated circuits at the transistor level in the time and frequency domain. Discrete-event logic simulation, cycle-based logic simulation, RTL and behavioral simulation, equivalence checking, timing analysis, power estimation, etc. (F) Sangiovanni-Venturelli

219B. Logic Synthesis for Hardware Systems. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course is concerned with the efficient representation and ma...
nipation of logic functions in the computer and how this is applied to the analysis and synthesis of both combinational and sequential logic. 

219C. Computer-Aided Verification. (3) Three hours of lecture per week. Prerequisites: 219B and Computer Science 172 or consent of instructor. Introduction to the theory and practice of formal methods for the design and verification of concurrent and embedded systems. Focus on algorithmic techniques for checking logical and timing properties of circuits and communicating processes. Includes the semantic and operational semantics of various logics. Focus on algorithmic techniques for checking logical and timing properties of circuits and communicating processes. Includes the semantic and operational semantics of various logics.


221B. Multivariable Feedback Systems. (3) Three hours of lecture per week. Prerequisites: 221A or equivalent and one undergraduate control course. MIMO feedback systems. Matrix fraction description. Stability margin. Degree of freedom design. Robustness. Large scale interconnected systems. Linear Quadratic Optimal Control. (SP) S. Sastry

222. Nonlinear Systems—Analysis, Stability and Control. (3) Three hours of lecture per week. Prerequisites: 221A (may be taken concurrently). Basic graduate course in non-linear systems. Second Order systems. Numerical solution methods, the describing function method, linearization. Stability—direct and indirect methods of Lyapunov. Applications to the Lure problem—Popov, circle criterion. Input-Output stability. Additional topics include: bifurcations of dynamical systems, introduction to the “geometric” theory of control for nonlinear systems, passivity concepts and dissipative dynamical systems. (SP) S. Sastry


225A. Digital Signal Processing. (3) Three hours of lecture per week. Prerequisites: 123 and 125. Survey of background in stochastic processes. Advanced techniques in signal processing. Stochastic signal processing, parametric and non-parametric signal models, and adaptive filters—modeling of spectral estimation, speech and audio coding, adaptive equalization, noise cancellation, echo cancellation, and linear prediction. (SP) Ramchandran

225B. Digital Image Processing. (3) Three hours of lecture per week. Prerequisites: 123. 2-D sequences and systems, separable systems, projection slice theorem, reconstruction from projections and partial Fourier information. Radon projections, recursive computability, 2-D DFT and FFT, 2-D FIR filter design, human eye, perception, psychophysical vision properties, photometry and colorimetry, optics and image systems; image enhancement, image restoration, geometric image modification, morphological image processing, halftoning, edge detection, image compression: scalable image data compression, vector quantization, signal and image compensation, standards: JPEG, MPEG, H.3xx, pre-and post-processing, scalable image and video coding, image and video communication over noisy channels. (F,SP) A. Zakhor

225C. VLSI Signal Processing. (3) Three hours of lecture per week. Prerequisites: 141, 123. Formerly taught as EECS 225. Introduction to VLSI signal processing. Applications to audio and video coding, interrupt and equalization techniques. (SP) K. S.אד


226B. Applications of Stochastic Process Theory. (2) Course may be repeated for credit. Prerequisites: 226A. Topics in Martingale theory, stochastic calculus, random fields, queueing networks, stochastic control. (SP) A. Anantharam, V. Varaiya

227A. Introduction to Convex Optimization. (3) Three hours of lecture per week. Prerequisites: 120 and 226A or equivalent. Formerly 226. Convex analysis is a class of optimization problems where the objective to be minimized, and the constraints, are both convex. Contrarily to the more classical linear program- ming framework, convex programs often go un-recognized, and this is a pity since a large class of convex 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 more efficient than classical linear ones. The 3-unit course covers some convex optimization theory and algo- rithms, and describes various applications arising in engineering design, modeling and estimation, finance, and operations research. (SP) Y. Nesterov

227B. Convex Optimization and Approximation. (3) Three hours of lecture per week. Prerequisites: 227A or consent of instructor. Convex optimization as a sys- tematic approximation tool for hard decision problems. Approximations of combinatorial optimization problems, of stochastic programming problems, of robust opti- mization problems (i.e., with optimization problems with unknown but bounded data), of optimal control problems. Quality estimates of the resulting approximation. Applications in robust engineering design, statistics, control, finance, data mining, and operations research. (F) M. El-Ghaoui

228A. High Speed Communications Networks. (3) Three hours of lecture per week. Prerequisites: 224, 226A, or equivalent. Formerly 228B. Principles of design and analysis of communications networks. Circuit, packet, and hybrid switching approaches. Protocols, including setup, routing, flow control error recovery. M/M/1 and MG/1 queueing theory and its application to analysis of networks, including delay and blocking. (SP) V. Varaiya, W. Walrand

228B. Communication Networks. (2) Two hours of lecture per week. Prerequisites: 222 and 226A, or equivalent. Formerly 228B. Principles of design and analysis of communications networks. Circuit, packet, and hybrid switching approaches. Protocols, including setup, routing, flow control error recovery. M/M/1 and MG/1 queueing theory and its application to analysis of networks, including delay and blocking. (SP) V. Varaiya, W. Walrand

229. Information Theory and Coding. (3) Three hours of lecture per week. Prerequisites: 226 recommended. Statistics 204 or equivalent. Formerly ECECS 2298 Fundamental bounds of Shannon theory and their application. Source and channel coding theorems. Galois field theory. Algebraic error-correction codes. Private and public key cryptosystems. Offered alternate years. (SP) A. Anantharam


231. Solid State Devices. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 130 or equivalent. Physical principles and operational characteristics of semiconductor device structures. Coverage includes drift-diffusion and drift-diffusion-recombination models, and transition to drift-diffusion-limited detection, homodyne and heterodyne detection. Devices include MOS field-effect transistors and their behaviors dictated by present and probable future technologies. Metall-oxide-semiconductor systems, short-channel and high field effects, device modeling, and impact on analog, digital circuits. (SP) K. King, S. Subramanian


233. Lightwave Systems. (3) Three hours of lecture per week. Prerequisites: 120 and 121 or equivalent; 136 recommended. Transmission and signal processing characteristics of optical fibers—dispersion, attenuation, nonlinear effects (solitons). Direct-detection systems: analog and digital modulation, transmitter design, receiver design, noise properties of single and multimode fiber links, dependence on source coherence, subcarrier and multiple subcarrier CATV analog transmission issues the role of optical fiber amplifiers. Coherent communication: FM noise and modulation properties of laser diodes, quan- tum 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 (synchronous) and hop-by-hop networks. Ethernet networking, the role of optical switching. Optical net- work access protocols. Optical interconnection in high speed circuit modules and computers. (SP) K. Lau, W. K. Smith

Lieberman, Neureuther

Technology C239. Offered alternate years. (SP)

wall interactions. Also listed as Applied Science and RF, and microwave discharges. Applications to plasmas, including collisional processes, diffusion, sources, 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, Neureuther


241. Advanced Digital Integrated Circuits. (3) Three hours of lecture per week. Prerequisites: 141. Analysis of CMOS and bipolar large-scale integrated circuits at the circuit level. Fabrication processes, device characteristics, parasitic effects static and dynamic digital circuits for logic and memory functions, effect of speed and power considerations, from layout and fabrication parameters. ROM, RAM, EEPROM circuit design. Use of SPICE and other computer programs. (SP) Nikolic, Rabayj

242. Advanced Integrated Circuits for Communications. (3) Three hours of lecture per week. Prerequisites: 142, 240. Analysis, evaluation and design of present-day integrated circuits for communications application, particularly those for which nonlinear response must be included. MOS, bipolar and BICMOS circuits, audio and video power amplifiers, optimal performance of oscillators and frequency-translation circuits. Phase-locked loop ICs, analog multipliers and voltage-controlled oscillators; advanced topics in communication electronics. Use of new CAD tools and systems. (F) Moyer, Niknejad

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. Effects of phase and defect equilibria on process control. (SP) Staff

244. Computer-Assisted Design of Integrated Circuits. (3) Three hours of lecture per week. Prerequisites: 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 techniques and both the theoretical basis for the methods as well as the application of results to practical problems. Topics to be covered include simulation, layout techniques, synthesis, verification, testing, and integrated design. (F) Keutzer

C245. Introduction to MEMS Design. (3) Three hours of lecture per week. Prerequisites: 143 and either standing in engineering science. Formerly C245. Physics, fabrication, and design of Micro Electro Mechanical Systems. Review of IC fabrication, Surface, bulk, and non-silicon micromachining. Integration vs. assembly. Micro-sensor and micro-actuator devices: capacitive, piezoresistive, electrostatic, thermal, magnetic. Electrical characteristics, noise, and design considerations. CAD for MEMS and VLSI Design project required. Also listed as Mechanical Engineering C218. (F) Pister, Pisano, Staff

C246. Microelectromechanical Systems (MEMS). (3) Three hours of lecture per week. Prerequisites: Graduate standing or concurrent superconductors and Josephson junctions. Proximity effect. Mixed state in type II superconductors. Thin films. Applications in analog and digital circuits. Fabrication technology. Via fabrication processes. Formerly 291E. Anal-

247. Analysis and Design of VLSI Analog-Digital Interface Integrated Circuits. (3) Three hours of lecture per week. Prerequisites: 240. Architectural and circuit level design and analysis of integrated analog-to-digital and digital-to-analog interfaces in CMOS and BICMOS VLSI technology. Analog-digital converters, digital-analog converters, sample-hold amplifiers, continuous and switched-capacitor filters. RF integrated electronics including synthesizers, LNA’s, and baseband processing of low power mixed signal design. Data communications functions including clock recovery, CAD tools for analog design including simulation and synthesis. Boser

249. Embedded System Design: Models, Validation, and Synthesis. Four hours of lecture and two hours of laboratory/discussion per week. Prerequisites: Background in SoC design, operating systems and compilers, or consent of instructor. Principles of embedded system design. Focus on design methodologies and foundations. Platform-based design and communication-based design relationship with design time, re-use, and performance. Models of computation and their use in design capture, manipulation, verification, and synthesis. Mapping into architecture and system platform estimation and evaluation. Time and space scheduling, and real-time requirements. Synchronous languages and time-triggered protocols to simplify the design process. Simulation techniques for highly programmable platforms. Simulation and successive refinement: meta-model of computation. Use of design tools and analysis of the capabilities and limitations. Ploetmer, POLIS, Metrology, VCC, Co-ware. (F) San-giovanni-Vincenetti

290. Advanced Topics in Electrical Engineering. Course may be repeated for credit. One to three hours of lecture per week. Prerequisites: Consent of instructor. The 290 course covers current topics of re-search interest in electrical engineering. The course content may vary from year to year. (SP) Staff

290A. Advanced Topics in Computer-Aided Design. (1-3)

290B. Advanced Topics in Solid State Devices. (1-3)

290C. Advanced Topics in Circuit Design. (1-3)

290D. Advanced Topics in Semiconductor Technology. (1-3)

290E. Advanced Topics in Electromagnetics and Plasmas. (1-3)

290F. Advanced Topics in Photonics. (1-3)

290G. Advanced Topics in Mems, Microsensors, and Microactuators. (1-3)

290H. Advanced Topics in Semiconductor Manufacturing. (1-3)

290I. Advanced Topics in System Theory. (1-3)

290J. Advanced Topics in Control. (1-3)

290K. Advanced Topics in Bioelectronics. (1-3)

290L. Advanced Topics in Communication Networks. (1-3)

290M. Advanced Topics in Communications and Information Theory. (1-3)

290T. Advanced Topics in Signal Processing. (1-3)

290X. Advanced Topics in Management and Social Issues in Electrical Engineering and Computer Sciences. (3)

290Y. Advanced Topics in Social and Professional Issues in Electrical Engineering and Computer Sciences. (1-3)

291A. System Design. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: Graduate standing in the College of Engineering, basic programming skills in C. System description frameworks: finite state, continuous state, and hybrid systems. System behavior: state, languages, trajectories, controllability, observability, abstraction. Performance measures: verification, single and multiple criteria optimization. Implementation issues: data structures; simulation; reactive implementation, hardware/software co-design. System architecture: modularity, interfaces, hierarchy. Applications to computer-aided design, transportation, process control. (F) Varaiya

C291E. 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 systems and models language descriptions. Finite-state machines and automata. Model verification and control of hybrid systems. Symbolic converters and logic controllers. Adaptive, neural, and fuzzy-control systems. Applications to robotics and Intelligent Vehicle and Highway Systems (IVHS). Also listed as Mechanical Engineering 291E.

297. Field Studies in Electrical Engineering. (1-12) Course may be repeated for credit. Independent conference. Must be taken on a satisfactory/unsatisfactory basis. Supervised experience in off-campus companies relevant to specific aspects and applications of electrical engineering. Written report required at the end of the semester. (F,SP) Pister

298. Group Studies, Seminars, or Group Research. (1-12) Course may be taken four to six hours of lectures per unit. Section 1-40 to be graded on a satisfactory/unsatisfactory basis. Sections 41-49 to be graded on a letter-grade 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 Research. (1-12) Course may be repeated for credit. Independent, individual study or investigation. Investigation of problems in electrical engineering. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Independent study, in consultation with faculty member having subject knowledge and satisfactory academic standing. Individual study in consultation with the major field advisor, intended to provide an opportunity for graduate students to prepare themselves for the various examinations required of candidates for the Ph.D. (and other doctoral degrees). (F,SP) Staff

Professional Courses

301. Teaching Techniques for Electrical Engineering. (1) One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prereq-uisites: Graduate standing. Weekly seminars and discussions of effective teaching techniques. Use of educational objectives, alternative forms of instruction, and instructional techniques for teaching key concepts and techniques in electrical engineering. Student and self-evaluation. Course is intended to orient new graduate instructors to teaching in the Electrical Engineering department at Berkeley. (F) Staff

302. Designing Computer Science Education. (2) Two hours of lecture per week. Prerequisites: Computer Science 301 or two semesters of GSI experi-ence in discussion, practice, and research concerning issues relevant to the teaching of computer science: curriculum and topic organization, presenta-tion, technology, grading, staff management. (SP) Clancy
Computer Science

Except for CS 2, 95, and 99 the lower division Computer Science courses are subject to the "computing service" course restriction. See the Computer Science Co-requisite section preceding the Electrical Engineering course listings.

Lower Division Courses

3. Introduction to Symbolic Programming. (4) Refer to computer science service course restrictions. Two hours of lecture, one hour of discussion, and two hours of scheduled programming laboratory per week. 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, using the Scheme 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. Students will write a project of at least 200 lines of code, using the Scheme programming language. Units assigned depend on amount of work completed. The first two units must be taken together. (F,SP) Clancy

9A. Fortran and Matlab for Programmers. (1) Refer to computer science service course restrictions. Must be taken on a passed/not passed basis. Prerequisites: 9 or equivalent. Self-paced introduction to Fortran and Matlab for students who already know how to program. Solution of problems drawn from numerical applications, e.g., root finding, numerical integration, simulation, matrix manipulation, and graphing. (F,SP) Clancy

9B. Pascal 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 3 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

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 data structures equivalent to that gained in 9B, 61A, or Engineering 77. Self-paced course in the C programming language for students who already know how to program. Construction, 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

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 Engineering 77. 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

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 61A or Engineering 77; DOS or UNIX experience. Use of UNIX utilities and scripting facilities for customizing the programming environment, organizing files (possibly in more than one computer account), implementing a personal database, reformatting output, and searching for online resources. (F,SP) Clancy

9F. C++ for Programmers. (1) Refer to computer science course service restrictions in the General Catalog. Must be taken on a passed/not passed basis. Prerequisites: Programming experience equivalent to that gained in 6B, 61A, or Engineering 77. Self-paced introduction to the constructs provided in the C++ programming language, emphasizing object-oriented programming, aimed at students who already know how to program. (F,SP) Clancy

9G. JAVA for Programmers. (1) One hour of self-paced per week, in addition to the lab, for a passed/not passed basis. Prerequisites: 9C or 9F or 61A plus experience with object-oriented programming or C-based language. Self-paced course in Java for students who already know how to program. Applets; variables and computation; events and flow of control; classes and objects; inheritance; GUI elements; applications; arrays, strings, files, and linked structures; exceptions; threads. (F,SP) Clancy

39. Freshman/Sophomore Seminar. (2-4) 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. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars offer to two and one-half hour sections the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-seminar setting. These seminars count as all campus departmental; 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) Clancy

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 generic operations, Streams, and Iterators. Implementation techniques for supporting functional, object-oriented, and constraint-based programming in the Scheme programming language. Together with 47B, 47A constitutes an abbreviated, self-paced version of 61A for students who have already taken a course equivalent to 61B. (F,SP) Clancy

47B. Completion of Work in Computer Science 61B. (1) Students will receive no credit for 47B after taking 61B. Self-paced. Prerequisites: 47A or equivalent, 9D, and consent of instructor. Experience with assembly language instruction sets, interrupts, memory management, Design and Implementation of a program containing hundreds of lines of code. Students with sufficient programming experience may take this course for 8-10 hours of work. (F,SP) Clancy

47C. Completion of Work in Computer Science 61C. (1) Students will receive no credit for 47C after taking 61C. Self-paced. Prerequisites: Experience with assembly language instruction sets, interrupts, memory management, Design and Implementation of a program containing hundreds of lines of code. Students with sufficient programming experience may take this course for 8-10 hours of work. (F,SP) Clancy

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topical topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP) Clancy

89. 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: 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) Staff

95. Individual Study and Research for Undergraduates. (1-2) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: GPA of 3.4 or better. A course for lower division students in good standing who wish to undertake a project of individual inquiry initiated jointly by the student and a professor. There are no formal prerequisites, but the supervising professor must be convinced that the student is well-prepared to benefit from the work. (F,SP) Staff

Upper Division Courses

150. Components and Design Techniques for Digital Systems. (5) Three hours of lecture, one hour of discussion, and three hours of laboratory per week. Prerequisites: 61C, Electrical Engineering 40 or 42. Basic building blocks and design methods to construct synchronous digital systems. Analysis of digital systems and design techniques for digital systems. Bipolar TTL vs. MOS implementation techniques. Standard logic (SSI, MSI) vs. programmable logic (PLD, FPGA). Finite state machine design. Digital computer building blocks as case study...
152. Computer Architecture and Engineering. (5)
Three hours of lecture and two hours of discussion per week and one large design project. Prerequisites: 150. Instruction-level parallelism. Register Transfer. Computer design project requiring about 100 hours. Data-path design. Controller design. Memory system. Addressing. Microarchitecture. Survey of recent computers. (FSP) Culler, Kubiatowicz, Wawrzynek

160. User Interface Design and Development. (4)

164. Programming Languages and Compilers. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 61B and 61C. Survey of programming languages. The design of modern programming languages. Principles and techniques of scanning, parsing, semantic analysis, and code generation. Implementation of compilers, interpreters, and assemblers. Overview of run-time organization and error handling. (FSP) Allen, Hillinger, Rowe

169. Software Engineering. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 61B and 61C, Math 55 or 113. Ideas and techniques for design, developing, and modifying large software systems. Function-oriented and object-oriented modular design techniques, designing for re-use and maintainability. Specification and documentation. Verification, testing, and evaluation of software. Project team organization and management. Students will work in teams on a substantial programming project. (FSP) Staff

170. Efficient Algorithms and Intractable Problems. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 61B, Mathematics 55. Concept and basic techniques in the design and analysis of algorithms; models of computation; lower bounds; algorithms for optimum search trees, balanced trees and UNION-FIND algorithms; numerical and algebraic algorithms; combinatorial algorithms. Tuning machines, how to count steps, deterministic and nondeterministic Turing machines, NP-completeness. Unsolvable and intractable problems. (FSP) Sinclair, Papadimitriou, Vazirani

172. Computability and Complexity. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: Finite automata, Turing machines and RAMs. Undecidable, exponential, and polynomial-time problems. Polynomial-time equivalence of all reasonable models of computation. Nondeterministic Turing machines. Theory of NP-completeness. Cook theorem, NP-completeness of basic problems. Selected topics in language theory, complexity and randomness. (FSP) Sinclair, Papadimitriou, Vazirani

174. Combinatorics and Discrete Probability. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 170. Permutations, combinations, principle of inclusion and exclusion, generating functions, Generating functions. Ramanujan's contributions and variants. Chebyshev's inequality, Chernov bounds. Birthday paradox, coupon collector's problem, Markov chains and entropy computations, universal hashing, random number generation, random graphs and probabilistic existence bounds. (FSP) Papadimitriou, Sinclair, Vazirani

172. The Neural Basis of Thought and Language. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 61B and Cognitive Science C101, Linguistics C105 or Cognitive Science C100, Psychology C101B; 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 senses? 3. How do the computational properties of neural systems and the specific neural structures of the 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 by integrating architecture and mechanisms, using models and simulations of language and learning phenomena. Also listed as Cognitive Science C110 and Linguistics C109. (SP) Feldman, G. Lakoff

Three hours of lecture and one hour of discussion per week. Prerequisites: 61B; programming skills in C, C++, or Java; linear algebra and calculus. Techniques for modeling objects for the purpose of computer rendering: boundary representations, constructive solids geometry, hierarchical scene descriptions. Mathematical techniques for curve and surface representation. Basic elements of a computer graphics rendering pipeline: architecture of modern graphics displays, geometric transformations such as rotation, scaling, translation, and their matrix representations. Homogeneous coordinates, projective and perspective transformations. Algorithms for clipping, hidden surface removal, rasterization, and anti-aliasing. Scan-line based and ray-based rendering algorithms. Lighting models for reflection, refraction, transparency, (FSP) Forsythe, Segal. 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 by integrating architecture and mechanisms, using models and simulations of language and learning phenomena. Also listed as Cognitive Science C110 and Linguistics C109. (SP) Feldman, G. Lakoff

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, network, relational, and object-oriented data models. Query languages for models. Embedding query languages in programming languages. Database services including protection, integrity, recovery, and efficient access to data. Organization and optimization of data. High-level interfaces including application generators, browsers, and report writers. Introduction to transaction processing. Operation of test system and implementation to be done as term project. (FSP) Hellerstein

188. Introduction to Artificial Intelligence. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 61A or consent of instructor. Basic ideas and techniques underlying the design of intelligent computer systems. Topics include heuristic search, problem solving, game playing, knowledge representation, logical inference, planning, reasoning under uncertainty, expert systems, learning, perception, language understanding. (FSP) Malik, Russell, Wilensky

195. Social Implications of Computer Technology. (3)
Three hours of lecture/discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Major in EECS or consent of instructor. Topics include electronic community; the changing nature of work; technological risks; the information economy; intellectual property; privacy; artificial intelligence and the sense of self; social and cultural identity; technological determinism, or other social topics. Instructors. Students will lead discussions on some of these topics. (SP) Harvey

195. Social Implications of Computer Technology. (3)
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; social and cultural identity; technological determinism, or other social topics. Instructors. Students will lead discussions on some of these topics. (SP) Harvey

196. Honors Seminar for Computer Science Majors. (3)
Three hours of lecture per week and project work. Must be taken on a passed/not passed basis. Prerequisites: 150, 170, and consent of instructor. Study in depth of several topics in computer science to be chosen by the instructor. Students will assess current literature in the topics and present critiques to the class. Each student will carry out a project. (SP) Staff

198. Directed Group Studies for Advanced Undergraduates. (1-4)
Course may be repeated for credit. Course format varies with section. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and major advisor. Individual study. Enrollment restrictions apply. (FSP) Staff

Graduate Courses

250. VLSI Systems Design. (4)
Three hours of lecture and four hours design laboratory per week. Prerequisites: 150. Unified top-down and bottom-up design of integrated circuit systems. Engineering and design of silicon chips, focus on architectural and technological issues. VLSI architectures, systolic arrays, self-timed systems. Trends in VLSI development. Physical limits. Tradeoffs in custom-design, standard cells, gate arrays. VLSI design tools. (FSP) Culler, Kubiatowicz, Patterson

252. Graduate Computer Architecture. (4)
Three hours of lecture and one hour of discussion per week. Prerequisites: 152. Graduate survey of contemporary computer organizations covering: early systems, CPU design, instruction sets, control, processors, busses, ALU, memory, I/O interfaces, connecting networks. 2.0 GPA or better; 60 units completed. Group study of selected topics in Computer Sciences, usually relating to computer architecture. (FSP) Staff

254. Topics in VLSI Chip Design and Implementation. (4)
Course may be repeated for credit. Three hours of lecture and three hours design laboratory per week. Prerequisites: 250, 252. Design implementation and testing of silicon chips. Apply the design techniques learned in CS 250 to build systems on silicon chips. Design for testability, preparation of test system and systematic testing of the fabricated chips. (FSP) Wawrzynek

258. Parallel Processors. (3)
Three hours of lecture per week. Prerequisites: 252. In-depth study of the design, engineering, and evaluation of modern parallel computers. Fundamental design: naming, synchronization, latency, and bandwidth. Architectural evolution and technological driving forces. Parallel programs. Communication primitives, programming and compilation techniques, multiprogramming workloads and methodology for quantitative evaluation. Latency avoidance through replication in small-scale and large-scale shared memory designs; cache-coherency, protocols, directories, and memory consistency models. Message passing: protocols, storage management, and deadlock. Efficient network interface, protection, events, active messages, and cooperation. (FSP) Culler

260. User-Interfaces to Computer Systems. (3)
Three hours of lecture per week. Prerequisites: 162 and 164 recommended, or consent of instructor. For
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merly CS 287. Design and implementation of user-in-
terfaces to computer systems. Software and hardware architecture, operating systems, object-oriented programming systems. Form-based user-interfaces, Window and display management abstractions. Case studies of naive-and expert-user interfaces. Students will complete a project. Landis

261. Security in Computer Systems. (3) 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 pools; protection, access control, distributed access security, firewalls, secure coding practices, safe languages, mobile code, and case studies from real-world systems. May also cover cryptographic protocols, privacy 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: 262A and entrance exam. Formerly 262. Graduate survey of systems for managing computation and information, including both file systems and transactional storage managers; storage metadata, physical versus logical naming, scheduling, threading and concurrency control; system support for networking, including remote procedure calls, transactional RPC, TCP, and active messages; security in extensible systems and APIs; performance analysis and engineering of large software systems. Homework assignments, exam, and term paper or project required. (F,SP) Hellesteren

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 performance measurement: extensibility, with 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, Hellesteren, Joseph

263. Design of Programming Languages. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 164. Selected topics from: analysis, comparison, and design of programming languages, formal semantics, compiler construction, semantics of programming languages, structured programming techniques, structured programming, debugging, verification of programs and compilers, and proofs of correctness. Aiken, Yelick

264. Implementation of Programming Languages. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 164. Table-driven and retabletable-driven code generators. Register management. Flow analysis and global optimization methods. Code optimization for advanced languages and high-level languages. Local code improvement. Optimization by program transformation. Selected advanced topics. A term paper or project is required. Graham

265. Compiler Optimization and Code Generation. (3) Three hours of lecture per week. Prerequisites: 164. Table-driven and retabletable-driven code generators. Register management. Flow analysis and global optimization methods. Code optimization for advanced languages and high-level languages. Local code improvement. Optimization by program transformation. Selected advanced topics. A term paper or project is required. Graham


269. Advanced Topics in Distributed Computing Systems. (2) Two hours of lecture per week. Prerequisites: 162, 262V. Formerly 292J. Building distributed computing systems, issues and techniques; communication, distributed data, identification of resources and their distributed management, decentralized synchronization, security and protection, performance and modeling of distributed systems, programming language and system support for distributed applications. (F) Garofalakis, Zeng

270. Combinatorial Algorithms and Data Structures. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 170. 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; efficient implementation of combinatorial algorithms; analysis of data structures; applications of data structure techniques to sorting, searching, and geometric problems. Papadimitriou, Sinclair, Vazirani


274. Computational Geometry. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 170 or equivalent. Formerly 292T. Computational problems in geometric computer graphics: convex hulls, triangulations, Voronoi diagrams, arrangements of hyperplanes; relationships among these problems. Search problems for advanced data structures; subdivision search; various kinds of range searches. Models of computation; lower bounds. Staff

276. Cryptography. (3) Three hours of lecture per week. Prerequisites: 170. Graduate survey of modern topics on theory, formal proofs, and applications of modern cryptography. One-way functions: pseudorandomness; encryption; authentication; public-key cryptosystems; zero-knowledge proofs, multi-party cryptographic protocols, practical applications, and/or other topics, as time permits. (F,SP) Tresihas, Wagner

277. Concrete Complexity. (3) Three hours of lecture per week. Prerequisites: 170, 273. The study of inherent complexity of specific computational problems. Circuit complexity, branching programs, decision tree models, and selection, evasive games, communication complexity, communication complexity, VLSI complexity, time-space trade-offs. Staff

278. Machine-Based Complexity Theory. (3) Three hours of lecture per week. Prerequisites: 268, 277. Properties of abstract complexity measures; Determinism vs. nondeterminism; time vs. space; complexity hierarchy, aspects of the P vs NP question, relative power of various abstract machines. Vazirani

279. System Support for Scientific Computation. (3) Three hours of lecture per week. Prerequisites: 68B, Engineering 118 or Mathematics 128. Formerly 270. Trace the consequences of design decisions made by “architects” of hardware, languages and operating systems upon those who use the computer for large-scale scientific computations in business, engineering, and science. Kahan

280. Computer Vision. (3) Three hours of lecture per week. Prerequisites: Knowledge of linear algebra and calculus. Mathematics 1A-1B, 53, 54 or equivalent. PAP. Visions for computational vision are related to human visual perception. Mathematical techniques for representing and reasoning, with curves, surfaces and volumes, illumination and reflectance, color perception. Image segmentation and aggregation. Methods for bottom-up three dimensional shape recovery. Line drawing analysis, stereo, shading, motion, texture. Use of object models for prediction and recognition. Also listed as Vision Science C280. Malek, Forsyth

281A. 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, and anomaly estimation. Model, mixture models, hierarchical models, factorial models, hidden Markov, and state space models, Markov properties, and recursive algorithms for general probabilistic inference nonparametric methods include decision trees, kernal methods, neural networks, and wavelets. Ensemble methods. Also listed as Statistics C241A. (F) Jordan, Russell

281B. Advanced Topics in Learning and Decision Making. (3) Three hours of lecture per week. Prerequisites: C281A, Statistics C241A. Recent topics include: graphical models and approximate inference algorithms. Markov chain Monte Carlo, mean field and probability propagation methods. Model selection and stochastic realization. Bayesian information theoretic and structural risk minimization approaches. Markov decision processes and partially observable Markov decision processes. Reinforcement learning. Also listed as Statistics C241B. (SP) Jordan, Russell

282. Algebraic Algorithms. (3) Three hours of lecture per week. Prerequisites: 164, Mathematics 113B, or permission of instructor. Theory and construction of symbolic algebraic computer programs. Polynomial arithmetic, GCD, factorization, integration of elementary 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: 164. Formerly 278A, Mathematics 278A, or permission of instructor. Theory and construction of symbolic algebraic computer programs. Polynomial arithmetic, GCD, factorization, integration of elementary functions, analytic approximation, simplification, design of computer systems and languages for symbolic manipulation. Fateman

285. Solid Free-Form Modeling and Fabrication. (3) Three hours of lecture per week. Prerequisites: C281A, 282B. Recent topics include: Representation of various abstract machines. From shape design to computer-based descriptions
suitable for manufacturing or rapid prototyping. Solid modeling techniques and procedural shape generation. Effective surface design, shape representation, and constraint-based reverse engineering. The project will be undertaken.

Russell C293A. Vision A: Quantitative, Perceptual, and Physiological Aspects. (2) Three hours of lecture per week for seven and one-half weeks. Prerequisites: Consent of instructor. The course will present basic material on the retina and visual pathways, psychophysical measurements, visual sensitivity, color vision, visual acuity, estimation of disparity and motion. Introduction to front-end visual processing in mammalian visual system. Basic optics, anatomy and physiology of retina, photoreceptors, lateral, and primary visual cortex. Psychophysics of color, light and dark adaptation, spatial contrast sensitivity, spatial resolution, color contrast sensitivity, motion sensitivity, and disparity measurement. Connections between psychophysics and physiology. Relevant modeling techniques such as linear systems, signal detection theory, and information theory will be introduced.

V1, V2, V4, and higher areas. Also listed as Psychol 251B, Vision Science 250B, and Molecular and Cell Biology 254A. (F) Banks, Dan C293B. Vision B: Quantitative, Perceptual, and Physiological Aspects. (2) Three hours of lecture per week for seven and one-half weeks. Prerequisites: Consent of instructor. The course will present basic material on inferring 3D from visual information. This will include disparity, motion, texture, shading, and occlusion. Introduction to the psychophysics and mathematical modeling underlying the inference of 3D scene properties from 2D retinal images. Psychophysics of various aspects of 3D shape and spatial layout such as texture, contour, shading, stereopsis, and structure from motion. Geometrical analysis of these cues. Probabilistic methods for optimal combination of cues and estimation of scene properties. Relevant physiology of

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Upper Division Courses

IDS 100. History of American Technology. (4) Four hours of lecture per week. Survey of American technology from colonial times to the present. Analysis of technological innovation in its cultural, economic, and political setting. Topics include the Industrial Revolution, technology of war, diffusion of science in technology, institutions of science and technology, and the role of science in society. Sponsoring departments: History and Electrical Engineering and Computer Science.

IDS 100/AC. Technology and the American Experience. (4) Three hours of lecture and one hour of discussion per week. The history of technology in America and the place of technology in the experience, philosophy, and culture of different American groups. The technological practices and attitudes of Native Americans and of European Americans before 1700. Technological clashes, transfers, and dialogues between different American cultures. Technology and the republic and pastoral ideals. The relationship of slavery and technology. The industrial and agricultural revolutions: winners and losers. Immigration and technological progress in the 20th century. Digital technology and the global village. Sponsoring departments: Engineering Interdisciplinary Studies and History. This course satisfies the American cultures requirement. (SP)

IDS 110. Introduction to Computers. (4) Three hours of lecture and four hours of laboratory per week. For mastery 110 and 110L. An introduction to computers and digital technology and culture. The conceptual foundations and functions of computer hardware and software. Hardware and software and the use of the Internet. Prevention of programming for the Web 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 “Computer Science Service Courses” in the departmental listing for Electrical Engineering and Computer Science, and/or consult with the instructor. (F, SP)

Endocrinology (College of Letters and Science)

Group Office: 3060 Valley Life Sciences Building, (510) 642-4895
Co-Chairs: Gary L. Firestone, Ph.D. and Tyrone B. Hayes, Ph.D.

Professors

James P. Allison, Ph.D.
Marc Bredow, Ph.D.
Roy L. Caldwell, Ph.D.
Marian C. Diamond, Ph.D.
Gary Firestone, Ph.D.
Gertrude C. Buehring, Ph.D.
Stephanie G. Thorne, Ph.D.
Paul J. Traynor, Ph.D.
Thomas F. Corden, Ph.D.
Charles S. Neotl, Ph.D.
Hai Sook Sul, Ph.D.
Charles S. Neotl, Ph.D.
Irv Irving, J. Zucker, Ph.D.
Tyrone B. Hayes, Ph.D.
Ph.D. (Emeritus)
Paola S. Timiras, M.D., Ph.D. (Emeritus)

Associate Professors

Gregory A. Polon, Ph.D.
Gertrude C. Buehring, Ph.D.
Tyrone B. Hayes, Ph.D.
Ph.D. (Emeritus)

The Graduate Program

The faculty associated with the program leading to the M.A. and the Ph.D. in endocrinology have diverse interests representing the broadest sense: chemical messengers in the living world (autocrine, paracrine, endocrine and ecto-hormonal factors), with approaches from molecular and cellular and the use of correlating animals. Endocrine and comparative endocrinology to chemical ecology.

Students who plan to work for higher degrees in endocrinology at Berkeley will be guided by a graduate advisory committee, and the graduate advisor produces their research. The graduate adviser and the major pro-
Energy and Resources Group
(Special Studies)

Department Office: 310 Barrows Hall, (510) 642-1640
Contact the Energy and Resources Group Office for additional information.
Chair: Thomas M. (Zack) Powell, Ph.D.

Professors
John Hall, Ph.D., University of Wisconsin. Ecology, climate, biodiversity
Catherine Kresl, Ph.D. Stanford University. Energy, health and environment, industrial ecology
Richard Lempert, Ph.D., University of Chicago. Energy economics, environmental epistemology, sustainable development
Gene I. Rochlin, Ph.D. University of Chicago. Energy, common property resources

Associate Professor
Daniel Kammen, Ph.D. Harvard University. Energy, society, technology

Assistant Professors
Alexander E. Farrell, Ph.D. University of Pennsylvania, Energy and environmental policy, sustainability

Program Overview
The Energy and Resources Group (ERG) is an interdisciplinary academic unit that conducts graduate teaching and research. It treats issues of energy, resources, development, human and biological diversity, and international security at the intersection of technological, economic, environmental, and sociopolitical components. Established in 1973, ERG offers two-year M.A. and Ph.D. degrees in energy and resources, as well as the Ph.D.

Faculty. The faculty of ERG consists of seven professors and Resources plus some 100 other affiliated faculty members whose main appointments span all five colleges and four of the schools at the Berkeley campus, as well as the University’s Lawrence Berkeley and Lawrence Livermore national laboratories. The chair is normally drawn on a rotating basis from the affiliated faculty.

Students. There are approximately 60 graduate students enrolled in ERG degree programs, about half of them doctoral candidates. The students come from a wide variety of backgrounds—engineering, natural sciences, social sciences, and humanities. The characteristics they have in common are an interest in interdisciplinary approaches to energy and resource issues and the intellectual credentials to survive a highly competitive admissions process. All receive training at ERG in the technological, environmental, economic, and sociopolitical dimensions of energy and resource issues while pursuing additional course work and individual research tailored to their interest and backgrounds.

Graduates. ERG graduates are employed across the U.S. and around the world in universities, government and international agencies, legislative staff positions, national laboratories, public and private utilities, other energy and resource companies, consulting firms, and public-interest organizations.

Undergraduate Courses. The undergraduate courses in ERG deal with the consequences of energy and resource issues on both a national and global level in their technical, environmental, sociopolitical and economic aspects. The courses provide both basic surveys of the field and introductory training in interdisciplinary research methods. There are no prerequisites for enrollments in the courses unless specifically noted otherwise in the descriptions below.

Graduate Courses. The graduate courses in ERG provide advanced training in interdisciplinary analysis and research. Individual courses review current developments in the field and introduce par-ticular disciplinary perspectives: economics, resources, politics, public policy, or environmental science.

Admission. Applications are considered once a year for fall semester admission only. Continuing students may be recommended for admission to the Ph.D. program upon completion of their master’s work.

Further Information. Contact the Energy and Resources Group, 310 Barrows Hall #3050, University of California, Berkeley, Berkeley, CA 94720-3050, (510) 642-1640. Web site: http://socrates.berkeley.edu/erg.

Lower Division Courses
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/no pass basis. The Freshman Seminar Program has been designed to provide new students with the opportunity to explore an intellectual topic in a mini-course setting. Freshman Seminars are offered in all campus departments, and topics may vary from department to department and semester to semester.)
Upper Division Courses

100. Energy and Society. (4) Three hours of lecture and one hour of discussion per week. Energy sources, usage, and their relationship to the technological, political, economic, and environmental effects of energy in contemporary society. Energy and well-being; energy in international perspective, origins, and characteristics of energy crisis. (F) Kammen, Norgaard

102. Quantitative Aspects of Global Environmen-

120. Renewable Resources for Electric Generation. (3) Students will receive no credit for 120 after taking Engineering 162. Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division standing; Physics 7A–7B or 8A–8B or equivalent. Characteristics of electric generating technologies based on renewable resources: hydroelectric, wind solar thermal, photovoltaic, geothermal, wave, and tide power. Physical and engineering aspects; the utility perspective; criteria for implementation; cost, reliability, output profiles, operating characteristics, modu-

C130. Analysis of Environmental Data. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Linear algebra or calculus or consent of instructor. Formerly 130. Fundamentals of exploratory data analysis and hypothesis testing for environ-
tential and governmental agencies, national governments, and the role of international inequality; issues related to intellectual prop-

courses in Integrative Biology, Energy and Re-

C205. Quantitative Methods for Ecological and En-

C282. Resources, Ecology, and Development: The

C291. Ecological and Social Dimensions of Global

C292A. Analytical Methods in Energy and

C292B. Interdisciplinary Problem Solving as a Re-

C292C. Master’s Project Seminar. (2) Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prereq-

200. Interdisciplinary Energy Analysis. (4) Four hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor and graduate student. Graduate-level treatment of the interacting technological, economic, environmental, and sociopolitical as-

201. Politics of Energy and Environmental Policy. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division or graduate standing; some coursework in social science and tech-
tical areas. How existing agencies and policy makers incorporate new concerns into their deliberations, and how agencies given the mandate to address the newer technical areas. Some background in social theory and political econ-

190. Seminar in Energy, Environment, Develop-

191. Directed Group Study for Advanced Under-

192. Directed Group Studies for Advanced Under-

193. Safety and Environmental Management. (4) Course may be repeated for credit. Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and recommendation of in-

194. 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 General Catalog. Individual conferences. (F,SP) Staff

Graduate Courses

200. Interdisciplinary Energy Analysis. (4) Four hours of lecture and one hour of discussion per week. Prerequisites: Physics 7C or Physics 8B and Math 1B or Math 2B and Chemistry 1A, or their equivalents. Formerly Environmental Sciences 102. Transport and fate of persistent pollutants, impacts on activities on climate, acid precipitation and other interventions in biogeochemical cycles, environ-

202. Modeling Ecological and Meteorological Phe-

203. Politics of Energy and Environmental Policy. (3) Three hours of lecture per week. Prerequisites: 102 or consent of instructor. Modeling meth-

courses in Integrative Biology, Energy and Re-

C255. Large Socio-Technical Systems: Design, Or-

256. Natural Resources and Regional Develop-

261. Natural Resources and Regional Develop-

265. Biotechnology, Biodiversity, and Agriculture. (3) Three hours of seminar per week. This graduate seminar explores the debates surround-

260. Energy Economics. (3) Three hours of lecture per week. Prerequisites: Economics 100A or equiva-

282. Resources, Ecology, and Development: The

289. Group Seminar. (1-3) Course may be repeated for credit. Two hours of seminar per week. Prerequi-

C291. Ecological and Social Dimensions of Global

292A. Analytical Methods in Energy and

292B. Interdisciplinary Problem Solving as a Re-

292C. Master’s Project Seminar. (2) Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prereq-

292D. Biotechnology, Biodiversity, and Agriculture. (3) Three hours of seminar per week. This graduate seminar explores the debates surrounding the efforts to engineer the natural environment through the lenses of agriculture, the arena in which most biotechnology development is taking place. After reviewing theoretical perspectives on technology, the course will explore historical experiences with several antecedents to the new biotechnologies, the political-economic context in which agricultural biotechnology is being developed, and the role of the state in biotechnology research; biotechnology and interna-
tional inequality; issues related to intellectual prop-

260. Energy Economics. (3) Three hours of lecture per week. Prerequisites: Economics 100A or equiva-

282. Resources, Ecology, and Development: The

289. Group Seminar. (1-3) Course may be repeated for credit. Two hours of seminar per week. Prerequi-

C291. Ecological and Social Dimensions of Global

292A. Analytical Methods in Energy and

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292C. Master’s Project Seminar. (2) Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prereq-

292D. Biotechnology, Biodiversity, and Agriculture. (3) Three hours of seminar per week. This graduate seminar explores the debates surrounding the efforts to engineer the natural environment through the lenses of agriculture, the arena in which most biotechnology development is taking place. After reviewing theoretical perspectives on technology, the course will explore historical experiences with several antecedents to the new biotechnologies, the political-economic context in which agricultural biotechnology is being developed, and the role of the state in biotechnology research; biotechnology and interna-
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260. Energy Economics. (3) Three hours of lecture per week. Prerequisites: Economics 100A or equiva-

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292D. Biotechnology, Biodiversity, and Agriculture. (3) Three hours of seminar per week. This graduate seminar explores the debates surrounding the efforts to engineer the natural environment through the lenses of agriculture, the arena in which most biotechnology development is taking place. After reviewing theoretical perspectives on technology, the course will explore historical experiences with several antecedents to the new biotechnologies, the political-economic context in which agricultural biotechnology is being developed, and the role of the state in biotechnology research; biotechnology and international inequality; issues related to intellectual prop-

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. (F,SP) Staff

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 satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Lectures, reports, and discussions on current research in energy and resources. Sections are operated independently and under direction of different staff. (F,SP) Staff

298. Group Studies. (2) Course may be repeated for credit. Two hours of section per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Lectures, reports, and discussions on current research in energy and resources. Sections are operated independently and under direction of different staff. (F,SP) Staff

299. Individual Research in Energy and Resources. (1-8) Course may be repeated for credit. Variable. Prerequisites: Graduate standing. Investigation of problems in energy and resources from an interdisciplinary 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 themselves for the various exams required of candidates for the Ph.D. (F) Staff

Professional Courses

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 experience gained in academic teaching through employment as a graduate student instructor. (F,SP) Staff

Engineering

(Office of the Dean: 320 McLaughlin Hall, (510) 642-7594)

Associate Deans:

David M. Auslander, Ph.D. (Research and Student Affairs)

William T. Gwinn, Ph.D. (Industrial Relations)

Gary Baldwin, Ph.D. (Industrial Relations)

David Goodman, Ph.D. (Interdisciplinary Studies)

Frank Morrison, Ph.D. (Special Programs)

Carlo Sequin, Ph.D. (Capital Projects)

Paul K. Wright, Ph.D. (Distance Learning and Instructional Technology)

Overview of College

The College of Engineering consists of seven departments and an interdisciplinary studies program. Each department has its own faculty, set of courses, fields of specialization, and curriculum requirements. Seven departments offer programs leading to the B.S. and graduate degrees.

The college includes the departments of:

- Bioengineering
- Civil and Environmental Engineering
- Electrical Engineering and Computer Sciences
- Industrial Engineering and Operations Research
- Materials Science and Engineering
- Mechanical Engineering
- Nuclear Engineering

Each department with its degree programs is listed separately in alphabetical order in this catalog. There are also separate listings for programs in:

- Applied Science and Technology
- Engineering—Double Majors
- Engineering Science
- Engineering—Undeclared
- Manufacturing Engineering
- Ocean Engineering

Additional sections of interest are:

- Engineering—Interdisciplinary Studies (includes information of the Management of Technology Program)
- Interdepartmental Studies courses
- Chemical Engineering (part of the College of Chemistry)
- Computer Science (part of the College of Letters and Science)

Engineering courses (multidisciplinary courses that are not leader courses) may be offered by a single discipline are of interest primarily to students in the College of Engineering, regardless of their department affiliation.

Undergraduate Programs

The college offers programs in a wide variety of engineering fields. These programs are based on the concept that an engineer must be well-grounded in the sciences, humanities, and social studies, with full command of the principles and practices of the engineering profession.

Accredited four-year undergraduate programs are offered in the following professional fields: civil engineering, electrical and computer engineering, computer science and engineering, industrial engineering and operations research, mechanical engineering, and nuclear engineering. These programs, with the exception of computer science and engineering, are accredited by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology (ABET), 111 Market Place, Suite 1050, Baltimore, MD 21202-4012; Telephone: (410) 347-7700. Computer science and engineering is accredited by the Computing Accreditation Commission of ABET. Programs are also offered in bioengineering, manufacturing engineering, and materials science and engineering. Each of the curricula is administered by a department within the college and each emphasizes a core program of science and engineering subjects related to the particular field. In addition, there is a curriculum in engineering science with programs in computational engineering science, engineering mathematics and computer science, computer science and engineering physics, and environmental engineering science. Entering freshmen may apply for admission to an engineering undeclared option. The college offers five double major programs. These are nuclear engineering or materials science and engineering combined with either mechanical engineering or electrical engineering and computer sciences; and materials science and engineering combined with nuclear engineering. In addition to these five programs, double major programs in chemical engineering combined with materials science and engineering or nuclear engineering are offered jointly by the College of Chemistry and the College of Engineering.

Degree Requirements

Engineering students must fulfill University of California, Berkeley campus, and College of Engineering requirements to graduate.

The unit requirement for the bachelor’s degree is normally 120 semester units, within which the student is expected to satisfy graduation requirements. This minimum may be exceeded for valid reasons. To exceed 125 units, prior approval of the dean is required for registration.

Admission Requirements

Applicants should have completed the following subjects:

High School Subjects and Number of Years:

- History/Social Science—2 required
- English—4 required
- Mathematics—3 required, 4 recommended
- Laboratory Science—2 required, 3 recommended
- Visual and Performing Arts—1

Language other than English—2 required, 3 recommended

College preparatory electives—1

Graduate Programs

Graduate programs are offered leading to the Master of Science and Doctor of Philosophy degrees for study emphasizing engineering and applied sciences, and Master of Engineering and Doctor of Engineering degree programs emphasize advanced professional studies of design development. Fields of study include bioengineering, civil and environmental engineering, electrical engineering and computer sciences, industrial engineering and operations research, mechanical engineering, nuclear engineering, ceramic engineering and metallurgy, materials science and engineering, fluid mechanics, and applied mechanics. Interdisciplinary graduate programs are also available in the fields of ocean engineering, plasmas, environmental engineering, applied science and technology, management of technology, robotics and manufacturing, fire safety engineering science, surface and subsurface hydrology, and rock mechanics. Concurrent degree programs provide a broad, integrated curriculum between two disciplines. Degrees awarded are an M.Arch. in Architecture with an M.S. in Civil and Environmental Engineering (Structural); an M.C.P. in City and Regional Planning with an M.S. in Civil and Environmental Engineering (Transportation); and an M.P.P. in Public Policy with an M.S. in an engineering department.

More information will be found in the engineering sections of this catalog and in the Catalog of the College of Engineering.

The announcement is available from the College of Engineering, University of California, Berkeley, 308 McLaughlin Hall #1702, Berkeley, CA 94720-1702, or from any organizational unit listed below.

Organizational Units

Bioengineering

Department Office: 459 Evans Hall #1762, (510) 642-5833

Chair: Thomas F. Budinger, M.D., Ph.D.

Civil and Environmental Engineering

Department Office: 760 Davis Hall #1710, (510) 642-3261

Chair: Gregory L. Fenves, Ph.D.

Electrical Engineering and Computer Sciences

Department Office: 231 Cory Hall #1770, (510) 642-3214

Chair: S. Shankar Sastry, Ph.D.

Associate Chair, Electrical Engineering: Roger Howe, Ph.D.

Computer Science Division

Division Office: 389 Soda Hall #1776, (510) 642-1024

Associate Chair: Jitendra Malik, Ph.D.

Industrial Engineering and Operations Research

Department Office: 4135 Etcheny Hall #1777, (510) 642-5484

Chair: Lee W. Schruben, Ph.D.

Materials Science and Engineering

Department Office: 210 Hearst Memorial Mining Building, (510) 642-3091

Chair: Fiona M. Doyle, Ph.D.

Mechanical Engineering

Department Office: 6143 Etcheny Hall #1740, (510) 642-1338

Chair: J. Karl Hedrick, Ph.D.
11. Principles of Environmental Engineering and Science. (3) This course will cover the principles of environmental science and technology, with an emphasis on the application of these principles to environmental problems. Topics include air quality, water quality, and hazardous waste management. (F,SP) Staff

12. Engineering Mechanics I. (2) This course covers the fundamentals of statics and dynamics of particles and rigid bodies. Topics include equilibrium of particles, forces and moments, and kinematics and dynamics of rigid bodies. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

13. Introduction to Computer Programming for Scientists and Engineers. (3) This course introduces students to the basic concepts and techniques of computer programming with an emphasis on applications in the sciences and engineering. Topics include programming languages, algorithms, data structures, and numerical methods. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

14. Engineering Mechanics II. (2) This course continues the study of statics and dynamics of particles and rigid bodies. Topics include equilibrium of systems of particles, forces and moments, and kinematics and dynamics of rigid bodies. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

15. Engineering Thermodynamics. (3) This course covers the fundamental principles of thermodynamics, including thermodynamic systems, energy balance, and the first and second laws of thermodynamics. Topics include applications to engineering systems, such as heat engines, refrigeration cycles, and power plants. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

16. Introduction to Operations Research. (3) This course introduces students to the fundamental concepts and techniques of operations research, including linear programming, network analysis, and queuing theory. Topics include formulation and solution of linear programming problems, network flow problems, and queuing models. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

17. Methods of Engineering Analysis. (3) This course provides an introduction to the methods and techniques used in engineering analysis, including numerical methods, optimization, and simulation. Topics include linear algebra, calculus of variations, and numerical methods for solving differential equations. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

18. Introduction to Computer Programming for Scientists and Engineers. (3) This course introduces students to the basic concepts and techniques of computer programming with an emphasis on applications in the sciences and engineering. Topics include programming languages, algorithms, data structures, and numerical methods. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

19. Engineering Economics. (3) This course covers the fundamental principles of engineering economics, including the time value of money, cash flow analysis, and capital budgeting. Topics include examples of engineering project financing, risk analysis, and decision making. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

20. Principles of Engineering Economics. (3) This course covers the fundamental principles of engineering economics, including the time value of money, cash flow analysis, and capital budgeting. Topics include examples of engineering project financing, risk analysis, and decision making. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff

21. Ethics and the Impact of Technology on Society. (3) This course covers the ethical and social implications of technology, including the role of technology in society, the impact of technology on the environment, and the responsibilities of engineers. (F,SP) Staff

22. Principles of Engineering Economics. (3) This course covers the fundamental principles of engineering economics, including the time value of money, cash flow analysis, and capital budgeting. Topics include examples of engineering project financing, risk analysis, and decision making. Prerequisites: Math 53, 54; Physics 7A, 7B recommended. (F,SP) Staff
focuses on the changing nature of technology and the complex ethical issues that are emerging as a result. These issues arise in such areas as biotechnology, information technology, nanotechnology, and nuclear technology. The nature of these issues, their ethical, social, and policy ramifications, and how we face them will be explored in relation to these issues are discussed. Philosophy, religion, and the natural and social sciences will be explored in relation to these issues.

147. Supplementary Work in Upper Division Engineering. (1-3) Course may be repeated for credit. Prerequisites: Required to students who must make up a fraction of a required upper division course. May be taken with permission of the Deans of the College of Engineering. Students with credit in an upper division engineering course may complete the course under this heading. (F,SP) Staff

168. Engineering Project Management. (3) Five hours of laboratory and one hour of lecture per week. Prerequisites: At least senior standing in engineering and consent of instructor. Students will be mentors to the students enrolled in the course Engineering Design Studio. Developing and presenting a technical lecture. Control of scope/scheduling/development of the project. Teaching, building, and motivating the project team. The design review, prototype testing and qualification, product liability. No final examination. Sponsoring departments: Mechanical Engineering and Electrical Engineering and Computer Sciences. (F,SP) Staff

170A-170B. Introduction to Modeling and Simulation I, II. (2,2) Two hours of lecture per week. Prerequisites: Computer Science 35, 54, junior standing. The course introduces concepts of analytic modeling and computer simulation, using projects drawn from the interdisciplinary areas of computer and engineering science. Areas covered span biology, chemistry, applied mathematics, and engineering. Models progress sequentially through problem statement, mathematical model, approximations and analytic solution, discrete model, object-oriented model, implementation and simulation, visualization, and comparison to analysis. (F,SP) Narasimhan

C233. Applications of Parallel Computers. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 230A or consent of instructor. Upper division standing, plus particular courses to be specified by instructor. Group study of selected topics. (F,SP) Staff

201. Ocean Engineering Seminar. (2,3) Two hours of lecture or two hours of lecture and one hour consultation per week. Prerequisites: Enrolled in Ocean Engineering Master of Engineering Program or consent of instructor. Lectures on new developments in ocean, arctic engineering. The optional third unit covers the analysis and design of arctic structures for ice structure interaction. The additional unit will require that students meet with the instructor one extra hour per week to work on an individual project. Topics covered: Ice mechanics, determination of global and local forces, and other ice actions on structures. Term paper required. Sponsoring department: Engineering Interdisciplinary Studies. (SP) Staff

217. Magnetic Materials. (3) Three hours of lecture per week. A comprehensive introduction to magnetic materials, and related applications. A description of magnetic phenomena on a macroscopic scale will be followed by discussions of modern experimental methods for magnetic measurements. Intrinsic and phenomenological concepts of magnetism will be developed, including electronic magnetic moments, classical, quantum, and band theories of magnetic behavior. Ordered magnetic materials will be explored in detail. (F, SP) Staff

219. Diffusion: History, Physics, and Mathematics. (3) Three hours of lecture per week. Prerequisites: Graduation standing in the sciences or engineering; consent of instructor. Formerly 200. Fourier's heat-diffusion model as a basis for studying diverse physical, biological, geological, and social systems. Basic concepts and equations of diffusion, observational justification and solution methods. Evolution of ideas as revealed by papers of historical significance. Heat, chemical, solid and gas, diffusion of pollutants, and stochastic differential equations. Students study their individual interests in diffusion (experimental, theoretical, or historical) with a broader scientific context. Also listed as Materials Science and Engineering C219. (SP) Staff

230A. Engineering Analysis. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing in the sciences or engineering; consent of instructor. Formerly 200. Fourier's heat-diffusion model as a basis for studying diverse physical, biological, geological, and social systems. Basic concepts and equations of diffusion, observational justification and solution methods. Evolution of ideas as revealed by papers of historical significance. Heat, chemical, solid and gas, diffusion of pollutants, and stochastic differential equations. Students study their individual interests in diffusion (experimental, theoretical, or historical) with a broader scientific context. Also listed as Materials Science and Engineering C219. (SP) Staff


load balancing. Detailed study and algorithm/program development of medium sized applications. Also listed as CS 267. Demmel, Yelick

240. Fundamentals of Multiphase Flow in Earth Systems. (3) Three hours of lecture per week. Prerequisites: Graduate standing; Mathematics 53, 54, or 200A; Chemical Engineering 140 or equivalent. Formerly 261 and ME 251. Fundamental physics and mathematics of multiphase, nonisothermal flow of immiscible fluids in porous media. Pore level characterizations of porous media; pore networks; invasion percolation in drainage and imbibition; description of capillary pressures and relative permeabilities in two and three phase flow; upscaling; method of coherence in three phase flow; nonisothermal flow with phase change. MATLAB used as the computing environment for all course work. Sponsoring Department: Civil and Environmental Engineering. (F) Marcus

241. Mathematical and Numerical Methods in Earth Sciences. (4) Three hours of lecture and one hour of computer laboratory per week. Prerequisites: Graduate standing; Math 53, 54, or equivalent. MATLAB is used as the computing environment for all course work. Numerical operators and GGO theorem; two-dimensional and three-dimensional boundary element methods for problems with irregular boundaries, fast (PPPM and multipole) summation methods for far-field interactions, and finite element methods to current problems of fluid dynamics, including compressible and incompressible flow. Sponsoring department: Mechanical Engineering. (F) Marcus

298A. 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

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

### Engineering—Double Major Programs

(Office of Engineering)

Engineering Student Affairs Office: 308 McLaughlin Hall
H102A, (510) 642-7594

Overview of Programs

Double Major Programs of Study. The Double Major Program is 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 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 to double major programs is closed to freshmen but open to transfer students. Continuing students may petition for change to double major programs in the final semester of the sophomore year. For complete information about programs of study under the double major, see the Announcement of the College of Engineering.

Students may prepare for a bachelor's degree combining study in the following areas:

- Electrical Engineering and Computer Sciences/ Materials Science and Engineering; Mechanical Engineering/Materials Science and Engineering; Materials Science and Nuclear Engineering; Electrical Engineering and Computer Sciences/Nuclear Engineering; Mechanical Engineering/Nuclear Engineering.

In addition to the double major programs within the College of Engineering listed above, two double major curricula involving the College of Engineering and the College of Chemistry are offered. These are: (1) Materials Science and Engineering/Chemical Engineering; and (2) Nuclear Engineering/Chemical Engineering. Details on these curricula can be found in the Announcements of the College of Chemistry and College of Engineering. Students must apply for admission to the College of Chemistry for these double major programs.

### Engineering Interdisciplinary Studies

(Office of Engineering)

Program Office: 230 Bechtel Engineering Center #1708, (510) 642-8700
Assistant Dean: David Dornfield, Ph.D., donfield@me.berkeley.edu

Overview

Interdisciplinary studies involving various branches of engineering, the natural sciences and mathematics, the biological sciences, the social sciences, and the humanities are coordinated through the Meakin Interdisciplinary Studies Center. The Meakin Center has four main goals: (1) to promote knowledge of the humanities and social sciences among students of the College of Engineering; (2) to include students in the social sciences and humanities with a working knowledge of information technology and computing; (3) to sustain the interdisciplinary undergraduate programs in Engineering Science (Computational Engineering Science, Engineering Mathematics and Statistics, Engineering Physics, Environmental Engineering Science, and Engineering—Undeclared); and (4) to support interdisciplinary graduate programs and research (the Applied Science and Technology Graduate Group, the Ocean Engineering Graduate Group, and several interdisciplinary committees).

In keeping with its first goal, the Meakin Center offers two courses on the role of engineering in society: IDS 1 (Technology and Society) and IDS 100 (History of American Technology). Also offered are courses in technical communication (E 190: Technical Communication; and IDS 140: Technical Communication for Non-Native Speakers of English) and business aspects of engineering (E 110: Venture Design: The Startup Company).

Consistent with its second goal, the Meakin Center serves a large number of non-engineering students through its information technology course (IDS 110: Introduction to Computers).

The third goal of the Meakin Center is realized in the undergraduate programs in Engineering Science, which accommodate some 400 students. (For details on these programs, see the Engineering Science section of this catalog).

In accordance with its fourth goal, at the graduate level the Meakin Center supports the activities of two graduate groups and several interdisciplinary committees.

The graduate groups include Applied Science and Technology, and Ocean Engineering. The Applied Science and Technology Graduate Group leads to the Ph.D. degree in applied science and technology. The Ocean Engineering Graduate Group leads to the M.S. and Ph.D. degrees in ocean engineering. For more information about these graduate groups, see the relevant sections of this catalog.

The interdisciplinary committees are Applied Science and Technology; Control, Robotics and Manufacturing; Environmental Engineering; Social and Historical Aspects of Engineering; Fire Safety Engineering Science; Ocean Engineering; Energy and Resources; and Management of Technology. These committees provide a wide range of interdisciplinary activities, including special course offerings, group studies and seminars, and public lectures and conferences.

In addition, the Management of Technology (MOT) Certificate Program was established in 1987 as a research and a teaching program that seeks to bring together faculty and students to address critical technology management issues. The certificate program is open to all graduate students enrolled...
Engineering — Interdisciplinary Studies

in either the Haas School of Business, the College of Engineering, or the School of Information Management Systems, and it allows students to specialize in the management of technology as they obtain their degrees. There is no separate admissions process for the MOT program. Once enrolled, students are eligible to take courses leading to a Certificate in Management of Technology. For information, contact the Management of Technology Program, 230 Bechtel Engineering Center, University of California, Berkeley, CA 94720-1708; (510)-642-8790. E-mail: motadmin@haas.berkeley.edu. Web site: http://mot.berkeley.edu.

Additional information about the center may be obtained by writing to the Meakin Interdisciplinary Studies Center, 230 Bechtel Engineering Center, #1708, College of Engineering, University of California, Berkeley, CA 94720-1708.

Courses

Engineering’s Interdisciplinary Studies Center offers the following Engineering courses found in the Engineering section of this catalog:

39A. Sources of Science, Engineering, and Technology
39B. Introduction to Computational Engineering Science
92. Perspectives in Engineering
110. Venture Design: The Startup Company
C111. Introduction to Networked Applications and Computing
170A-170B. Introduction to Modeling and Simulation I/II
180-180B. Computational Engineering Science Modeling and Simulation I/II
190. Technical Communication
195. Science, Technology, and Culture
201. Ocean Engineering Seminar
298A. Applied Science and Technology Seminar: Introduction to Electron Beam Lithography and Nanofabrication Technology
298B. Soft X-Rays, Nanostructures, and Applications

*See the Management of Technology Program’s web site (http://mot.berkeley.edu) for further course listings and relevant details about the certificate program.

The center also offers the following Interdepartmental Studies (IDS) courses:

1. Technology and Society
100AC. Technology and the American Experience
110. Introduction to Computers
140. Technical Communication for Non-Native Speakers of English

Engineering Science (College of Engineering)

Program Office: 230 Bechtel Engineering Center #1708, (510) 642-8790
http://www.coe.berkeley.edu/engsci/
Associate Dean: David Dornfeld, Ph.D., dornfeld@me.berkeley.edu

Programs for the Bachelor’s Degree

Each undergraduate Engineering Science curriculum is multidisciplinary and interdisciplinary. The programs include closely related fields of the natural sciences, mathematics, physics, and engineering. The option within engineering science prepares students especially for advanced graduate study in engineering or the natural sciences. The four Engineering Science options—computational engineering science, engineering mathematics and statistics, engineering physics, and environmental engineering science—are listed below.

- **Applicants at the freshman level may apply to any of the engineering science options. Students will be advanced to the upper division in engineering science upon satisfactory completion of the lower division requirements.**

Computational Engineering Science

This new interdisciplinary program recognizes the growing importance of computation as a methodology for attacking complex scientific and engineering problems. Combined with mathematical modeling and experimental observations, scientific computation enables engineers and scientists to solve problems that are otherwise intractable. The Computational Engineering Science (CES) Program provides a solid foundation in mathematics, the sciences, and engineering and fosters skills required for modeling, simulating, and solving complex problems. The emphasis is on the computation of science rather than the science of computation (i.e., CES is not computer science). Students have the opportunity to select courses from a wide variety of disciplines (see the section on clusters in the detailed description of the program in the Announcements of the College of Engineering). The program provides a sound basis for graduate studies in engineering and the applied sciences. Additionally, it nurtures skills that are needed in large-scale technological modeling and simulation of situations that occur in industrial and national laboratories.

- **LOWER DIVISION. Mathematics 1A-1B, 53, 54; Physics 7A-7B-7C; Chemistry 1A-B; the advanced science sequence; and the engineering science skills cluster as outlined in the Announcements of the College of Engineering.**

Upper Division.

MOT Program.

**ENVIRONMENTAL ENGINEERING SCIENCE**

This is a multidisciplinary field requiring an integration of physical, chemical, and biological principles with environmental protection and restoration. The program incorporates courses from many departments on campus to create a discipline that is rigorously based in science and engineering, while addressing a wide variety of environmental issues. Although environmental engineering undergraduate options exist in the chemical, civil, and mechanical engineering departments, the engineering science curriculum provides a more broadly based foundation in the sciences than is possible in these departments. This major prepares the student for a career or graduate study in many environmental areas.

- **LOWER DIVISION. Mathematics 1A-1B, 53, 54; Chemistry 1A and 1B or 3A, Engineering 77 or Chemical Engineering 140; Physics 7A-7B; Biology 1; Environmental Engineering 11, 36; two basic science electives from approved list (Physics 7C, Biology 1A, Chemistry 3B, Chemistry 5, or Geology 50 and 50L); humanities and social studies electives.**

For details, see the Announcements of the College of Engineering.

Engineering Mathematics and Statistics

This interdisciplinary program offers students an opportunity to study pure and applied mathematics as essential components of modern engineering. The balance between pure mathematics, applied mathematics, statistics, and engineering allows the student to index the area of study in theory or applications or both. The program provides a broad foundation for graduate studies in theoretical branches of engineering and physical sciences; as well as in mathematics.

**Lower Division.** Mathematics 1A-1B, 53, 54; Physics 7A-7B-7C; Chemistry 1A; two lower division computer science courses approved by an adviser; humanities and social studies electives. For details, see the Announcements of the College of Engineering.

**Upper Division.** Mathematics 110, 128A, 104, and 105 or 185; Statistics 101 or 134; electives which must include at least four approved upper division courses in mathematics or statistics.
General Degree Requirements

All engineering science programs must include six courses of at least 3 units each in humanities and social studies selected from an approved list of courses. Of these, at least one course must be an English composition course taken from the currently approved college list (List E), one must be from a list of selected courses in History and Cultures, one must be from a list of selected courses in Western Literature and Values, and two must be upper division courses. The English composition course and either the course in History and Cultures or that in Literature and Values must be taken for a letter grade. A minimum of two courses, at least one of which is in the upper division, must be taken from a single department.

All engineering science programs also must include at least 40 units of approved technical subjects (mathematics, statistics, science, engineering), of which at least 16 units are upper division engineering courses (required upper division courses may be included). For further details, see the Announcement of the College of Engineering.

Engineer—Undeclared

Program Office: 230 Bechtel Engineering Center, (510) 642-8790

This lower division program is intended for academically strong students who are interested in pursuing an engineering education—but who are not yet ready to choose a specialization within engineering. The undeclared option supplements the freshman-sophomore curriculum with seminars and attractor courses (courses designed to attract students to a major) that introduce the student to the various engineering fields. Before their junior year, students must transfer into a degree program. The programs available for transfer within the College of Engineering include bioengineering, civil engineering, computer engineering, environmental engineering, geological engineering, mechanical engineering, nuclear engineering, and the engineering double majors.

Lower Division.

Mathematics 1A-1B, 53, 54; Chemistry 1A-1B; two lower division computer science courses approved by an adviser; Physics 7A-7B; Engineering 92; Humanities and Social Studies electives; attractor course; technical electives. Please consult the Announcement of the College of Engineering for the latest information on this program.

English

(College of Letters and Science)

Undergraduate Office: 322 Wheeler Hall, (510) 643-3467
Graduate Office: 319 Wheeler Hall, (510) 642-4005
http://english.berkeley.edu

Professors

Elizabeth F. Abol, Ph.D., Princeton University, Modern fiction
Hedda M. Adams, Ph.D., Yale University, Shakespeare, English Renaissance
Charles F. Alten, Ph.D., University of North Carolina, 20th-century American literature, literary theory, history of ideas
Joel Altman, Ph.D., Stanford University, English Renaissance
Lorna Bechtel, Ph.D., University of California, American literature, modernism, American democracy
Michael A. Borman, Ph.D., Oxford University, 19th-century poetry, literature and culture, comparative literature
Stephen Booth, Ph.D., Harvard University, Aesthetics, Renaissance literature
Michael R. Brotwasser, Ph.D., SUNY Buffalo, Postwar British literature
Ian Duncan, Ph.D., Yale University, The novel, 19th-century British literature, Scottish literature
Mary Catherine Gallagher, Ph.D., University of California, Berkeley, American literature, comparative literature
Richard Hajdus, Ph.D., Yale University, English Renaissance
Robert Hass, Ph.D., Stanford University, Poetry, poetry writing
Lynt Hai, Ph.D., Harvard University, Poetry writing
Robert K. Monk, Ph.D., modern literature
Nicholas Horvath, Ph.D., Yale University, Medieval literature, literature and translation
Loma Hutson, Ph.D., Oxford University, 16th and 17th-century Renaissance literature, drama
Victoria Kihn, Ph.D., Yale University, 17th century English literature, prose writing
Jeffrey Knapp, Ph.D., University of California, Berkeley, English Renaissance
Ron Lewinson, Ph.D., Harvard University, Poetry, fiction, American literature
Heather McLaren, M.A., Denver University, Poetry in English and in translation
Donald A. McQueen, Ph.D., Rutgers University, Nonfiction, American studies, American literature
Anne Middleton, Ph.D., Harvard University, Old and Middle English literature
D.A. Miller, Ph.D., Yale University, 19th-century British literature
Bharati Mukherjee, Ph.D., University of Iowa, Fiction writing, comparative literature
Nan Nelson, Ph.D., University of California, Berkeley, History of drama, Medieval and Renaissance English literature
John D. Niles, Ph.D., University of California, Berkeley, Old and Middle English, folklore, history of English language
Carolyn Porter, Ph.D., Rice University, American literature
American intellectual history
Jose Saldívar, Ph.D., Stanford University, Inter-American literature, Chicano/a literature
George A. Starr, Ph.D., Princeton University, Restoration and 18th-century literature
Neil Teraoka, Ph.D., Boston University, Literary theory, philosophy, 19th- and 20th-century poetry
James Turner, D.Phil. Oxford University, Literature, art, and sexuality, 1550-1750
Paul A. Álvarez, Ph.D. (Emeritus)
Robert Bloom, Ph.D. (Emeritus)
Julian C. Boyd, Ph.D. (Emeritus)
Richard Blickenstaff, Ph.D. (Emeritus)
Carol Christ, Ph.D. (Emeritus)
John B. Colledge, Ph.D. (Emeritus)
Friederike C. Crewe, Ph.D. (Emeritus)
Richard Fingest, Ph.D. (Emeritus)
Donald M. Friedman, Ph.D. (Emeritus)
Leonard Michaels, Ph.D. (Emeritus)
Charles Muscatine, Ph.D. (Emeritus)
Raymond Oliver, Ph.D. (Emeritus)
Morton D. Paley, Ph.D. (Emeritus)
Norman Rabkin, Ph.D. (Emeritus)
Ralph W. Rader, Ph.D. (Emeritus)
Richard Bridgman, Ph.D. (Emeritus)
Julian C. Boyd, Ph.D. (Emeritus)
Donald M. Friedman, Ph.D. (Emeritus)
Marcel Gonzalez, Ph.D., Stanford University, 20th-century American literature, Chicano literature
Kevin Goodman, Ph.D., Yale University, 18th-century and Romantic literature, 19th-century poetry (Milton)
Colleen Lye, Ph.D. (Emeritus), 20th-century literature, Asian American literature
Kent Puckett, Ph.D., Stanford University, 19th-century British literature and literary theory
Bryan Wagner, Ph.D. of University of Virginia, American and African American literature

Senior Lecturers

Maxine Hong Kingston, A.B. University of California, Berkeley, Prose writing
Ishmael Reed, Short fiction and poetry
Thom Gunn, M.A. (Emeritus)

Affiliated Faculty

Gerard Visser (Professor of Native American Studies)

Department Overview

The Department of English offers courses in literature, in language, and in writing. Our courses in literature have many different focuses: major authors, historical periods, genres, critical theories and methods, and perspectives on cultural and social 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 areas, to develop a critical understanding 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 seven courses: English 45A-45B-45C, a course in Shakespeare, an upper division course in literature before 1800, and two upper division seminars, English 100 and 190. English 45A-45B-45C is an intensive survey of literature in English from Chaucer through the 20th century, including British, American, and Anglophone writing. Together with the required course in Shakespeare’s time, this sequence provides a foundation on which to build more specialized upper division course work in accord with the Areas of Concentration described below. Prerequisites, as well as a detailed description of major requirements, may also be found there.

College Writing. Students must have fulfilled the requirement in College Writing before taking any course in the Department of English. For further information, please consult the College Writing handbook or the Petroleum Engineer's Guide.
II. Upper Division Courses.

Major Program

The English major program comprises two parts: a core structure of foundational courses, and a set of 11 Areas of Concentration from which students choose courses in order to focus their literary study at the upper division level. No fewer than 12 courses (not including R1A-R1B) constitute the major, of which at least seven must be upper division courses.

Major Requirements

I. Foundational Courses. All majors must take English 39A, 45A, or 45B; English 100, 150, or any of the three courses within a student’s area of concentration. (Students may declare an individual Area of Concentration at this time.) Any subsequent change in the choice of an area must be approved by the faculty adviser.

Pass/Not Pass. English majors are permitted to take P/NP no more than two of the 12 required courses. These two courses may not include any of the specific courses listed above, i.e., 45A-45B, 45C, Shakespeare, the pre-1800 course, English 100, 150, or any of the three courses within a student’s area of concentration.

II. Upper Division Courses. Of the 12 courses required for the major, at least seven must be upper division.

A. Areas of Concentration. At least three courses must be chosen from one Area of Concentration, normally selected from the following 11 areas. (Students may also propose an individual Area of Concentration with the advice and consent of their major adviser. For a description of the areas and a list of courses regularly taught in each area, please consult the official description of the major, available at the department office.)

- Medieval Period (literature in English through 1485)
- Early Modern Period (Renaissance through Milton)
- Enlightenment (late 17th century 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)
- Sexual Identities/Gender Studies
- Literary Theory
- Folklore, Popular Culture, and Cultural Theory
- Linguistics/English Language

B. Seminars. Two upper division seminars (English 100, Junior Seminar, and English 150, Senior Seminar) are required. Ordinarily, but not necessarily, these will fall within at least one of the 11 Areas of Concentration listed above, and therefore can be used to meet both requirements A and B. (For courses that fall in specific areas each semester, please consult the English Department’s “Announcement of Classes,” available at the Cal Student Store, Textbook Department.)

Note: Students may count up to two upper division courses in departments other than English toward the required 12 courses. One of the two may be counted toward fulfilling requirement IIA as well. (These courses must be approved by a major adviser as related to the student’s program of study.)

Other Requirements

Meeting with Major Adviser. All students majoring in English must meet with a faculty major adviser no later than the beginning of the semester following declaration, in order to plan their course selection in accord with the choice of an Area of Concentration. (Students may propose an individual Area of Concentration at this time.) Any subsequent change in the choice of an area must be approved by the faculty adviser.

Graduate Program

Students are admitted to graduate studies only in the fall semester. The GRE General Test and Subject Area Test in Literature are required.

The Ph.D. Program. The Ph.D. program requires successful completion of a 10 letter-graded courses, of which at least seven will be in English, distributed as follows: English 200, an introductory course in literary scholarship, normally taken in the first semester of graduate study; one course in the graduate level in each of four historical fields: Medieval through Sixteenth Century (British); Seventeenth through Eighteenth Century (British and/or American); Nineteenth Century (British, American, and/or Anglophone); Twentieth 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 course work or examination, by demonstration of 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 writing a dissertation. The normative time for completing the doctoral program is six years.

Prospective students are urged to undertake substantial course work 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 English department 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 pass/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: Passing grade in Subject A (exam or course). R1A is 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 Write 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.
RS0. Freshman and Sophomore Studies. (4) Three hours of lecture per week. Prerequisites: R1A or equivalent. Writing-intensive introduction to the study of literature; fulfills the second half of Reading and Composition requirement. Highly recommended for prospective English majors who have not yet taken R18. Topics and readings vary from semester to semester. Students should consult the “Announcement of Classes” for current offerings well before the beginning of the semester. Sections limited to 17 students.

Upper 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-R18 or equivalent. Writing in connection with reading in recent English literature and its continental background.

142A. Advanced Composition for Potential English Teachers in Secondary Schools. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced composition and methods of teaching composition: emphasis on writing about literature with readings from literature of major English ethnic groups suitable for young people. Primarily for students who wish to pursue English as their single subject teaching credential.

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. Yes, (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. A seminar in writing poetry.

143D. Expository and Critical Writing. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. A seminar in expository and critical writing.

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 seminar in the writing of prose nonfiction as an art.

143T. Poetry Translation Workshop. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor, willingness to translate, working knowledge of at least one foreign language. Open to those who wish to assimilate foreign influences for writing poetry or to seek a fuller understanding of any foreign poetry by rendering it into English.

C143V. 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 these 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 discursive textual/visual literacy. Also listed as Visual Studies C185A, Undergrad Interdisciplinary Studies C135, and American Studies C174. This course satisfies the American cultures requirement.

Courses in Language

Note: In addition to the courses listed below, see also 105.179, 201A, 202B, and 205A-3, as well as offerings in Linguistics, Philosophy, Anthropology, Rhetoric, and other disciplines.

Lower Division Courses

25. English as a Language. (4) Three hours of lecture per week. An introduction to the grammar of English, including morphology (word structure), syntax (sentence structure), semantics (linguistic meaning), and pragmatics (contextual meaning), with consideration of different varieties of English in use within the United States and throughout the world, and comparison of English with other languages.

Upper Division Courses

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 today.

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

Note: 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.

20. Modern British and American Literature. (4) Three hours of lecture per week. Lectures on and discussion of major authors of modern British and American literature.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. Three hours of seminar per week. Must be taken on a pass/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.

26. Introduction to the Study of Poetry. (4) Three hours of lecture per week. Lectures and discussion on poetry intended to develop the student’s ability to understand and evaluate a poem. Designed primarily for students whose major is not English, but majors and prospective majors are welcome.

27. Introduction to the Study of Fiction. (4) Three hours of lecture per week. Lectures and discussion intended to develop the student’s ability to understand and evaluate fiction. Designed primarily for students whose major is not English, but majors and prospective majors are welcome.

28. Introduction to the Study of Drama. (4) Three hours of lecture per week. Lectures and discussion intended to develop the student’s ability to read, understand, and evaluate plays. Designed primarily for students whose major is not English, but majors and prospective majors are welcome.

31AC. Literature of American Cultures. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. An introduction to the ethnocultural 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.

33. African American Literature and Culture. (4) Three hours of lecture per week. Major literary and cultural texts in the African American tradition from origins to the present.

37. Chicana/o Literature and Culture. (4) Three hours of lecture per week. Major literary and cultural texts in the Chicana/o tradition from origins to the present.

39. Freshman Seminar. (4) Course may be repeated for credit as topic varies. 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. (Sections limited to 15 students each.)

44A-44B. Masterpieces of Literature. (4;4) Three hours of lecture per week. Lectures on great works of the world’s literature.

A. Classical Literature.

B. Medieval and Renaissance Literature.

45A-45C. Literature in English. (4;4;4) Three hours of lecture/seminar per week. Historical survey of literature in English from Chaucer through the 20th century.

A. Literature in English through Milton.

B. Literature in English from the late-17th through the mid-19th century.

C. Literature in English from the mid-19th through the 20th century.

C77. Introduction to Environmental Studies. (4) Will count toward Environmental Science, Policy, and Management requirement for the conservation and resource studies major. Students will not receive credit for C77 after taking Environmental Science, Policy, and Management 10 or C12. Three hours of lecture and one and one-half hours of discussion per week. This innovative course taught by a small group of humanities professor surveys current global environmental issues; introduces students to the basic intellectual tools of environmental science; views 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 environmental citizenship. Also listed as Undergrad Interdisciplinary Studies C12 and Environ Sci, Policy, and Management C12.

84. Sophomore Seminar. (1) 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 letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interdisciplinary courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate.

95. Other Voices: Multicultural Literary Perspectives. (2) Course may be repeated for credit. One hour of lecture and one hour of discussion per week. Must be taken on a pass/not passed basis. This course will introduce students to the multi-voices and cultural perspectives being undertaken by English Department faculty interested in issues of race and class, gender and ethnicity, and the formations of minority discourse. Each week a scholar or writer will lecture on literary studies that reflects cultural and racial concerns. Upper division English majors will lead discussion groups focusing on the discussion and methods advocated in the lecture and on various readings. This course does not satisfy major requirements.

Upper Division Courses

100. Junior Seminar. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Intensive study of critical and methodological problems in the study of literature. Normally fulfills one or more of the area of concentration requirements. Designed for English majors. Topic varies from semester to semester. Students should consult the department’s “Announcement of Classes” for offerings well before the beginning of the semester.

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. (B105.)

C107. The English Bible As Literature. (4) Three hours of lecture per week. Formerly 107. Introduction

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
10. 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 fifteenth century.

11. Chaucer. (4) Three hours of lecture per week. Lectures on and discussion of Chaucer's major works.

12. 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.

115A-115B. The English Renaissance. (4,4) Three hours of lecture per week.
A. Beginnings of the English Renaissance and literature of the 16th century.
B. Literature of the 17th century.

116. Backgrounds of English Literature in the Continental Renaissance. (4) Three hours of lecture per week. A survey of the principal continental documents which are important to an understanding of the English Renaissance.

117A-117B. Shakespeare. (4,4) Three hours of lecture per week. A chronological survey of Shakespeare's career.

117E. Shakespeare for Non-Majors. (4) Three hours of lecture per week. General introduction to Shakespeare's plays, intended for non-majors.

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. (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 or as a sequel to 117S or 117A-117B. The interpretation 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 Dryden, Swift, Pope, and some of their contemporaries.

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. The Age of Johnson. (4) Three hours of lecture per week. Lectures on and discussion of the later eighteenth-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. Lectures on the Victorian period with an emphasis on poetry and nonfiction prose.

125A-125B. The English Novel. (4,4) Three hours of lecture per week.
A. Defoe through Scott.
B. Dickens through Conrad.

125C. The European Novel. (4) Three hours of lecture per week. Lectures on and discussion of major European novels.

125D. The 20th-Century Novel. (4) Three hours of lecture per week. Lectures on and discussion of major novels of the twentieth century.

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.

128. Modern Drama. (4) Three hours of lecture per week. British and American drama: 1860 to the present.

130A. American Literature: Before 1800. (4) Three hours of lecture per week. Lectures on and discussion of American literature from the prehistoric period to the early American period.

130B. American Literature: 1800-1865. (4) Three hours of lecture per week. Lectures on and discussion of the major works of the early American period.

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.

130D. American Literature: 1900-1945. (4) Three hours of lecture per week. Lectures on and discussion of American literature from the post-Civil War period to the pre-World War II era.

131A. 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 the time of the slave trade in Africa to the end of the Civil War.

131B. 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 twentieth century.

133A. African American Literature and Culture Between 1917 and 1945. (4) Three hours of lecture per week. Major literary and cultural texts in the African American tradition from the Harlem Renaissance through World War II.

133B. African American Literature and Culture Between 1945 and 1970. (4) Three hours of lecture per week. Major literary and cultural texts in the African American tradition from World War II through the civil rights movement.


133D. African American Literature and Culture Between 1990 and 2000. (4) Three hours of lecture per week. Major literary and cultural texts in the African American tradition from the 1990s to the present.


135A. 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, Chicano/Latinos, and European Americans. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

135B. Literature of American Cultures. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. A historical survey of American poetry and its background. The course will take substantial account of the literature of three or more of the following groups: African Americans, Native Americans, Asian Americans, Chicano/Latinos, and European Americans. Topics vary from semester to semester. Students should consult the department's "Announcement of Classes" for offerings well before the beginning of the semester.

135C. Literature of American Cultures. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. A survey of modern American literature.

135D. Literature of American Cultures. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. A survey of modern American literature.

136. 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. Also listed as American Studies C111E. (F,SP)

137A. Chicano/a Literature and Culture to 1910. (4) Three hours of lecture per week. Major literary and cultural texts in the Chicano/a tradition from origins through the Mexican Revolution of 1910.

137B. Chicano/a Literature and Culture Since 1910. (4) Three hours of lecture per week. Major literary and cultural texts in the Chicano/a tradition from 1910 through the contemporary Chicano/a period.

137T. Topics in Chicano/a Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Topics in Chicano/a 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. Literature of various regions in which English is one of the spoken languages, such as Canada, the Caribbean, Australia, Africa, India, 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 beginning of the semester.

150. Senior Seminar. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Topics will vary from semester to semester.

166. Methods and Materials of Literary Criticism. (4) Three hours of seminar per week. An introduction to issues in literary criticism with emphasis on application of principles and methods to selected literary texts.

169. 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.

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.

170. Literature and the Arts. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Studies in the relationship 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 the thematic, literary convention, psychology, and the particular politics and sociology of individual cultures. The course may range broadly over Western literature or concentrate on one historical period.

172. Literature and Psychology. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Studies in the relationship of literature in English to psychology.

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. Studies in film as a mode of representing reality; cinematic techniques and the "language" of film. Lectures, class 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 and 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. Topics will vary from semester to semester.

177. Literature and Philosophy. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Studies in the relationship of literature in English to philosophy.

178. British and American Folklore. (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 as topic varies. Three hours of lecture per week. Study of the English language as a medium for literature. Topics may include rhyme, alliteration, meter, poetic syntax, metaphor, irony, the language of point of view, narrative tense, orality, literacy, and media.

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 development and variations, its technical possibilities, 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., Middle Ages; Modern).

180T. Tragedy. (4) Three hours of lecture per week. Study of representative tragic forms, techniques, and ideology.

180Z. Science fiction. (4) Course may be repeated for credit with different topic. Three hours of lecture per week. Study of speculative fiction (or science fiction) as a genre. Topics may vary from semester to semester. Focus may be historical or thematic.

Honors 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 of the student’s choice which may not coincide with that of any regular course and shall be specific enough to enable students to write essays based on their studies. Upper Division Courses

H195A-H195B. Honors Course. (4,4) Three hours of lecture per week. Credit and grade to be awarded on completion of sequence. Prerequisites: Open only to senior English majors honors candidates (i.e., students with an overall GPA 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 for a passing grade in the course.

198. 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 on 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 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 on their studies.

Graduate Courses

200. Problems in the Study of Literature. (4) Three hours of lecture per week. Prerequisites: Open only to students in the English Ph.D. program. Approaches to literary study, including textual analysis, scholarly methodology and bibliography, critical theory and practice.

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 graduate students in writing programs and literature and history. Enrollments vary from semester to semester. Prerequisites: Consent of instructor is required. 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 for a passing grade in the course.

203A-203B. Old English. (4,4) 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 twelfth century to the fifteenth century.

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 based on prior writings submitted. 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 based on prior writings submitted. A writing workshop in poetry for graduate students.

246. Graduate Proseminars. Three hours of lecture per week. Proseminars 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, Shakespeare). (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 from 1855. (Modern British literature will be covered in 203).

250. Research Seminars. (4) Course may be repeated for credit. Two to three hours of seminar per week. Required of all Ph.D. students. Advanced study in various fields, leading to a substantial piece of writing. Enrollments vary from semester to semester. Students should consult the department’s “Announcement of Classes” for offerings well before the beginning of the semester.

258. Special Studies. (1-12) Course may be repeated for credit. Independent. Normally reserved for students directly engaged upon the doctoral dissertation.

299. Special Study. (1-4) Course may be repeated for credit. Independent. Primarily for students engaged in preliminary exploration of a restricted field, involving research and the writing of a report. May not be substituted for available seminars.

602. Individual Study for Doctoral Students. (1-12) Course may be repeated for credit. Independent. 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. May not be used for unit or residence requirements for the doctoral degree.

Professional Courses

302. The Teaching of Composition and Literature. (3) Course may be repeated for credit with different topic. Three hours of lecture/discussion per week. Must be taken on a satisfactory basis. Prerequisites: Enrollment at the discretion of the instructor. Consideration of course aims, instructional methods, grading standards, and special problems in the teaching of composition and literature, with practice in handling sample essays. When given for graduate student instructors in the English R1A-R1B Program or the English 45 series, the course will include class visitation.

310. Field Studies in Tutoring Writing. (1-3) Course may be repeated for a maximum of 6 units. Two to four hours of supervised tutoring in Student Learning Center and one 2-hour seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Pre-enrollment interviews required. Tutoring Berkeley undergraduates in College Writing R1A, R1B, and other writing and/or literature courses. Seminar topics: the writing process, responding to writing, composition theory, grammar, collaborative learning, tutoring methods. Tutors keep a weekly journal, read assigned articles, videotape their tutoring, and write a final paper. This course cannot be used toward fulfillment of the major requirements.

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
Environmental Design
(College of Environmental Design)

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 undergraduate and advanced graduate instructional programs. In addition to preparing students in these three professions, the college is committed to improving practice, contributing to basic knowledge, and addressing ethical issues in areas related to the built environment and its natural setting. To this end, instruction, service, and research programs in this college aim at educating people to build more efficiently, more beautifully, and in ways better fitted to the multiplicity of human, social, and ecological needs.

The college consists of three departments: Architecture, Landscape Architecture, and Environmental Planning. Undergraduate degree programs in architecture and landscape architecture offer unusual learning opportunities that combine general education, basic skills, and knowledge in the professional fields, with a broad introduction to the built and natural environment. 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 degree programs. A unique interdisciplinary program among all three departments offers a master's degree in urban design. Each department provides advanced graduate work leading to the Ph.D.

Undergraduate Programs
Undergraduates enroll in a four-year curriculum leading to the Bachelor of Arts (A.B.) degree with a major in architecture, landscape architecture, or an individual major. These curricula provide a broad (breadth) and informed (depth) competency in environmental design fields. In addition, they serve as undergraduate preparation for graduate studies in the design fields and lead to properly selected elective courses, in other fields such as business, law, and engineering. Graduates also work in related fields such as urban development, real estate, and construction.

Accreditation. In the United States, most state registration boards require a degree from an accredited professional degree program as a prerequisite for licensure. The National Architectural Accrediting Board (NAAB), which is the sole agency authorized to accredit U.S. professional degree programs in architecture, recognizes two types of degrees: the Bachelor of Architecture and the Master of Architecture. A program may be granted a five-year, three-year, or two-year term of accreditation, depending on its degree of conformity with established educational standards.

Master's degree programs may consist of a preprofessional degree and a professional degree and a postprofessional graduate degree, which, when earned sequentially, comprise an accredited professional education. However, the preprofessional degree is not, by itself, accredited as an independent degree. Berkeley's four-year degree is useful for those wishing a foundation in the field of architecture, as preparation for either continued education in a professional degree program or for employment opportunities in architecturally related areas.

The four-year, preprofessional degree in landscape architecture is not accredited by the Landscape Architecture Accrediting Board (L.A.A.B.). The preprofessional degree is useful for those wishing a foundation in the field of landscape architecture, as preparation for either continued education in a preprofessional degree program or employment opportunities in entry-level professional practice.

Admission. High school preparation for the college should include four years of mathematics, one year of physics, and one year of English, or other natural science. Additional preparation could include freehand drawing or introductory drafting. Transfer applicants who have completed 60 semester units should have completed the prerequisite course work described in the Announcement of the College of Environmental Design. As transfer admissions become increasingly competitive, the college consistently retains those applications that demonstrate the most complete academic preparation (fewest prerequisite courses either lacking or in progress) and the highest level of scholastic achievement (indicated by the applicant's GPA). Enrollment in the college beyond 130 semester units is not usually permitted; consequently, California community college transfer students may receive up to 70 semester units of transfer credit. Units above 70 receive no credit. Transfer students from four-year institutions who have credit for more than 86 semester units are not normally admitted to the undergraduate program. An undergraduate major in architecture or landscape architecture is not a prerequisite for admission to graduate study in these fields.

Degree Requirements. The A.B. degree programs in the college require a completion of 120 units distributed according to regulations that appear in the Announcement of the College of Environmental Design, available from the Undergraduate Office, University of California, Berkeley, 232 Wurster Hall #1800, Berkeley, CA 94720-1800.

Minor Programs. The College of Environmental Design offers several minors. These minors consist of at least five upper division courses as an optional program with two objectives: to encourage coherence in course work taken outside the major, and to give recognition to the work when it is completed. The following minors are currently being offered to all majors; city and regional planning, ecological design, environmental design in developing countries, history of the built environment, landscape architecture, and social and cultural factors in environmental design. The A.A.S. minor offers a concentration in landscape architecture and civil engineering majors only. The landscape architecture minor is open to architecture majors only. For further information, contact the Undergraduate Office, 232 Wurster Hall.

Information on the courses and degree programs in architecture, city and regional planning, environmental design, and landscape architecture can be found in those sections of this catalog, as well as in the Announcement of the College of Environmental Design.

Graduate Programs
Architecture, City and Regional Planning, and Landscape Architecture 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 urban design. The three departments have advanced graduate programs leading to the Ph.D. degree for students who have programs of advanced study in research and teaching. A research M.S. degree in architecture also is available. These programs have limited enrollments and are not regarded as advanced degrees for professional purposes.

An undergraduate major in architecture or landscape architecture is not a prerequisite for admission to graduate study in these fields.

Organizational Units
Architecture
Department Office: 232 Wurster Hall, (510) 642-4942
Graduate Office: 370 Wurster Hall, (510) 642-5577
Chair: Charles C. Benton, M.Arch.

City and Regional Planning
Department Office: 228 Wurster Hall, (510) 642-3256
Graduate Office: 228 Wurster Hall, (510) 643-9440
Chair: Frederick C. Collignon, Ph.D., A.I.C.P.

Landscape Architecture and Environmental Planning
Department Office: 202 Wurster Hall, (510) 642-4022
Graduate Office: 206 Wurster Hall, (510) 642-2965
Chair: Walter Hood, M.L.A.

The college faculty has established several courses and a core of lower division courses that form a prerequisite to upper division major 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 courses, rather than department offerings. Though these courses are typically staffed by more than one department, they are administered by only one. For information regarding ED 1, 4, 11A, 11B, 101, 105, 169A, 169B, or 195, contact the Department of Architecture. For information regarding ED 104, 134, or 135, contact the Department of Landscape Architecture. ED 201, 291, and 282 are part of the Master of Urban Design degree. For information about these courses, please contact the Graduate Office in the Department of Landscape Architecture.

For information on the Master of Urban Design degree, see the Urban Design section of this catalog.

Lower Division Courses
1. Introduction to Environmental Design. (3) Three hours of lecture and two hours of discussion per week. Introductory survey course. Environmental awareness and environmental design. Berkeley campus used for case study. (F) Staff

4. People and Environment. (3) Three hours of lecture and one hour of discussion per week. Survey of relationships between people and environments, designed and natural, and the manifestations of architecture and landscapes and introduction to their literature. (SP) Staff

11A. Introduction to Drawing. (4) Three hours of lecture and twelve hours of studio per week. Prerequisites: 1 or 4. Introductory studio course: freehand drawing, perspective, color, and design; theories of representation and the use of visual means to analyze and convey ideas regarding the environment. (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 and conventions of graphic representation and model building as related to the study of architecture and landscape architecture. 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
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. Required of 101A. An intensive workshop for students interested in writing about architecture, landscape, and...
Environmental Science, Policy, and Management

Environmental Science, Policy, and Management (College of Natural Resources)

Department Office: 140 Mulford Hall, (510) 643-2626
Undergraduate Student Services: 131 Mulford Hall, (510) 642-4249
Graduate Student Services: 133 Mulford Hall, (510) 642-4140
Chair: Steven R. Beissinger, Ph.D.
Vice Chair for Instruction: Gregory Biging, Ph.D.
Professors
Barbara H. Allen Diaz, Ph.D. University of California, Berkeley. Rangeland ecology and management
Miguel A. Alcaín, Ph.D. University of Florida. Biological control
Ronald G. Amundson, Ph.D. University of California, Riverside. Soil biology and biogeochemistry

Dennis J. Baldock, Ph.D. University of Nebraska. Biotechnology, biosphere and water trace gas fluxes
Allan F. Banfield, Ph.D. Johns Hopkins University. Geomicrobiology, environmental biotechnology

Reinhard H. Barrett, Ph.D. University of California, Berkeley. Environmental biology and management
James W. Bartolome, Ph.D. University of California, Berkeley. Rangeland ecology and management
Frank C. Beazley, Ph.D. State University of New York, Syracuse. Forest products and wood technology
Steven R. Beissinger, Ph.D. University of Michigan. Conservation biology

Gregory S. Biging, Ph.D. University of Wisconsin, Madison. Forest biometrics and remote sensing

Thomas D. Bruns, Ph.D. University of Michigan. Fungal molecular evolution and ecology

Jay A. Costabile, Ph.D. University of Wisconsin, Madison. Pesticide chemistry and toxicology

David L. Dahm, Ph.D. University of California, Berkeley. Forest entomology, biological control

Harvey E. Droke, Ph.D. University of Riverside. Soil ecology, trace elements, elemental associations/distributions

Sally K. Fattor, Ph.D. Duke University. Conservation policy, public land administration

Mary K. Firestone, Ph.D. Michigan State University. Soil microbiology, nutrient cycling

Louise P. Forrinn, Ph.D. Cornell University. Natural resource sociology

Gordon W. Frankie, Ph.D. University of California, Berkeley. Urban entomology

Inez Fung, Sc.D. Massachusetts Institute of Technology. Climate changes, biogeochemical cycle

Wayne M. Gartz, Ph.D. University of Wisconsin, Johannesburg. South Africa. Population modeling, epidemiology, resource and wildlife management

Rosamary Gillespie, Ph.D. University of Tennessee. Island biogeography, evolution, arthropod systematics

J. Keith Gilliss, Ph.D. University of Wisconsin, Madison. Forest economics

Peng Gong, Ph.D. University of Waterloo, Ontario, Canada. Remote sensing and GIS

Andrew Gutierrez, Ph.D. University of California, Berkeley. Systems ecology, biological control, population genetics

John Hart, Ph.D. University of Wisconsin. Global change, ecosystem ecology

Isao Kubo, Ph.D. Otsuka City University, Japan. Natural products chemistry

Robert S. Lane, Ph.D. University of California, Berkeley. Parasitology

Steven E. Lind, Ph.D. University of Wisconsin. Microbial ecology, epidemiology of bacterial plant diseases

Joo R. McBride, Ph.D. University of California, Berkeley. Forest ecology, urban forest, fire science

John G. McComb, Ph.D. University of Washington. Soil science, nutrient cycling, forest soils

Dale R. McCougal, Ph.D. University of California, Berkeley. Wildlife biology and management

Carolyn Merchant, Ph.D. University of Wisconsin. Environmental history, philosophy, ethics

Nicholas J. Mills, Ph.D. University of East Anglia, Norwich. Biological control

Katharine Milton, Ph.D. New York University. Tropical ecology of human/mammalian primate, diet, parasite-host interactions

T. N. Narasimhan, Ph.D. University of California, Berkeley. Groundwater in relation to ecological system, water policy

Ken P. Pavlacka, Ph.D. University of Washington. Stand dynamics, silviculture, forest management

Geoffrey C. Osier, Ph.D. Columbia University. Mathematical ecology

Nancy A. Prusak, Ph.D. Cornell University. Environmental sociology/resource policy

Jerry A. Powell, Ph.D. University of California, Berkeley. Systematic entomology

Alexander H. Purcell, Ph.D. University of California at Davis. Insect vectors of plant pathogens

Vincent K. Ravelo, Ph.D. University of Louisville. Aquatic ecology

Adrian T. Reamm, Ph.D. Cornell University. Natural resource and environmental policy

Gay E. Reamer, Ph.D. University of California, Berkeley. Soil physical chemistry

Mark A. Tantuvo, Ph.D. Yale University. Insect neurophysiology

Lei Y. Volkman, Ph.D. University of Washington. Baculovirus pathogenesis and host interactions
ESPM Mission Statement

The Department of Environmental Science, Policy, and Management (ESPM) brings together a range of biological, physical, and social sciences to provide educational, research, and extension programs in:

- fundamental processes of ecosystem functioning;
- identification, protection, and sustainable uses of forest, rangeland, and managed ecosystems;
- insect biology;
- interactions of natural resources, human economics, and social systems.

The department is organized into four divisions for the promotion of research programs. These divisions are:

- Ecosystem Sciences
- Forest Science
- Insect Biology
- Society and Environment

The multidisciplinary strength and strong vertical integration, from the molecular to landscape levels, offers students in ESPM an educational opportunity for future leadership roles in conservation and management of natural resources. ESPM provides majors in which students can develop interdisciplinary educational backgrounds to address the science, policy, and management of natural resources.

The Faculty

The ESPM faculty have expertise in diverse areas of critical importance to environmental issues. Their multidisciplinary strengths will develop in the program’s students the intellectual leadership required to conserve and wisely manage the earth’s resources and to raise the environmental and scientific literacy of all students at Berkeley.

Facilities

The Department of Environmental Science, Policy, and Management occupies space in Giannini Hall, Mudd Hall, Hilgard Hall, the Valley Life Sciences Building, and Williman Hall. In addition to laboratories and classrooms, the facilities include outstanding libraries and collections: the Bioscience and Natural Resource Library has some of the world’s largest collections of books and periodicals on forest, 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 greenhouses at the nearby Oxford Research Unit and at the Division of Biological Control on the Gill Tract near Albany.

Computer facilities include microcomputer laboratories and terminal rooms. ESPM manages field facilities at the 3,000-acre Bldgett Forest near Georgetown, Whittaker’s Forest adjacent to Sequoia National Park, the Howard Forest near Wilits, Russell Reservation near Lafayette, and the Baker Forest adjacent to the department’s Summer Camp property. Berkeley’s location also allows 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 forestry, conservation and resource studies, botany, biochemistry, geology and geography. 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 studies.

Transfer Applicants

Transfer candidates must complete all lower division requirements for their intended major and may be denied admission if they have not done so. The Intersegmental General Education Transfer Curriculum (IGETC) is not an appropriate pattern for students applying to ESPM. In cases where the transfer institution does not have a course equivalent to a specific prerequisite for the major, the applicant will be required to remedy the deficit by taking the course work the first semester of enrollment at Berkeley.

Major in Conservation and Resource Studies

Chief Adviser: Gordon Frankie

The conservation and resource studies major is an interdisciplinary program designed for those who are interested in environmental studies and its role in the conservation of natural resources. Students may choose one of the following areas of concentration: natural resources, agricultural economics, and environmental science. Courses in these areas provide a comprehensive understanding of the complex interrelationships among the natural environment, human activity, and the economy. The major in conservation and resource studies is designed to prepare students for careers in both the public and private sectors, including agencies responsible for the conservation and management of natural resources. The major also provides a strong foundation for graduate study in related fields such as environmental policy, natural resources management, and sustainable development.
Course requirements for the major include ESPM 10, 90, 100, and 194. In the freshman and sophomore years, students are expected to complete two courses in reading and composition, one course in calculus or statistics, a minimum of two courses in the biological sciences and two in the social sciences. In addition, students must take two courses from any of the following three areas: physical sciences, humanities, analytical reasoning; and two courses preparatory to the individual areas of interest. In the junior and senior years, students will concentrate on their areas of interest. A more detailed statement of major requirements is available from the department. Applications for on-campus transfers from other majors are reviewed once a year, starting in the junior year. Check with the Undergraduate Services Office, 131 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 conservation studies 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 a letter grade and must have a minimum of 2.0 grade points overall. Students interested should obtain the requirements from the department before starting the minor. Students who complete the minor following satisfactory completion and certification from the department will be awarded the minor.

Major in Forestry

Chief Adviser: Joe McBride

The major in forestry is one of the top-rated programs of its kind in the country. It is designed to prepare students to manage forests and wildlands to produce wood, water, forage, wildlife, recreation opportunities, and other environmental benefits. Graduates from the major are employed in federal, state, and local government, the U.S. Forest Service, the U.S. Fish and Wildlife Service, the U.S. Bureau of Land Management, the U.S. National Park Service, various state and local forestry, wildlife, and park departments, international development and conservation agencies, private timber companies, consulting firms, and environmental organizations.

Accreditation and Licensing. Established in 1914, the forestry major 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 towards meeting the required seven years of qualifying education or professional experience for licensing as a professional forester in California. An additional year of credit towards licensing may be obtained by completing the Master of Forestry degree. By careful selection of electives, students who complete the Bachelor of Science in forestry degree can meet the U.S. Civil Service and state requirements for the forester position. 

Preparatory Program. During the freshman and sophomore years, students are expected to complete Biology 1A, 1B, Chemistry 1A, 3A, ESPM 50AC, and ESPM 60; 4 units of economics, 8 units of Reading and Composition, 6 units of calculus, and 4 units of statistics. Additionally, freshmen on the Berkeley campus are required to take ESPM 11 (Wildland and Resource Conservation). Students elsewhere are required to take a course in computer programming. Sophomores may also elect to take courses in the biological sciences and in computer programming. Sophomores who complete Biology 1A, 1B, and ESPM 60; 4 units of economics, 8 units of Reading and Composition, 6 units of calculus, and 4 units of statistics. Additionally, freshmen on the Berkeley campus are required to take ESPM 11 (Wildland and Resource Conservation). Students elsewhere are required to take a course in computer programming. Sophomores may also elect to take courses in the biological sciences and in computer programming. Students who complete Biology 1A, 1B, and ESPM 60; 4 units of economics, 8 units of Reading and Composition, 6 units of calculus, and 4 units of statistics. Additionally, freshmen on the Berkeley campus are required to take ESPM 11 (Wildland and Resource Conservation). Students elsewhere are required to take a course in computer programming. Sophomores may also elect to take courses in the biological sciences and in computer programming.

Summer Field Program. In the summer between the sophomore and junior years, students will be expected to complete the eight-week, 10-unit summer field program in the northern Sierra Nevada. The program emphasizes the acquisition of practical field skills and the integration of knowledge about soils, water, trees, wildlife, forage, and recreation to manage forests and wildlands. About 80 percent of each day is spent in a field setting, and the program includes several field trips to the surrounding pine and fir forests of the Plumas National Forest.

Upper Division Course Work. Forty units of core upper division course work are required in the last two years of the program. In addition to these 40 units, 20 units of electives are needed to complete the degree. These electives are chosen in consultation with a faculty adviser, and may include technical courses from across the Berkeley campus. Selection of elective courses allows students to tailor the forestry major to their areas of special interest.

Summer Employment. Students are encouraged to further their professional training by taking summer positions in forestry, wildlife, or range management.

Minor in Forestry. A minor in forestry is available to any Berkeley student in good academic standing. Requirements are completion of a minimum of five courses related to forestry totaling a minimum of 12 units. At least one course must be taken on the Berkeley campus (i.e., not all can be summer field program courses). All courses must be taken for a letter grade, and must have a minimum of 2.0 grade points overall. Students who are interested must go to the department and obtain the requirements before starting the minor. Students who complete the minor following satisfactory completion and certification from the department will be awarded the minor.

Major in Molecular Environmental Biology

Chief Adviser: Mark Tanouye

The molecular environmental Biology (MEB) major is designed to expose students to the organization and function of biological organisms at the molecular, cellular, organismal, and ecological levels. The breadth of this vertically integrated program is valuable in the added perspective it provides future students interested in how organisms function in their environment. Molecular approaches are expected to play an increasing role in environmental problem solving in the near future, and educated citizens and researchers alike will need to have a grasp of basic molecular techniques and ecological 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 genetics. Students in this major have a choice among four areas of emphasis: 1) ecology, 2) animal health and behavior, 3) microbiology, and 4) environmental and human health.

Major in Resource Management

Chief Adviser: John Battles

The major in resource management provides the academic preparation and skill development appropriate to students desiring a future in the field of renewable natural resource management. It also serves as undergraduate preparation for graduate study in fields such as resource management, range management, forestry, recreation management, or conservation biology. In addition, it provides an excellent background for graduate study in professional fields such as law or business administration.

This major is distinguished from the forestry major by its broad focus on the management of renewable natural resources and by the flexibility of its curriculum.

Preparatory Program. The preparatory program requires two years (60 semester units) of college work designed to provide a solid foundation in natural and social sciences and adequate command of composition and speech.

Summer Field Program. An eight-week program of study for 10 units of credit is intended to introduce the student to wildland resource management. Ecology, identification and measurement of resources, policy, and the social dynamics involved in resource management are the focus of the summer field program.

Upper Division Course Work. Eight units of core requirements are taken in the final two years of the program. In addition to these 8 units, students select 21-24 units of restricted electives according to the degree they choose in resource management. These electives are wildlife management, grassland and woodland management, soil and watershed management, and natural resource management and general resource management. There are 28-31 units of free electives that may be taken in any subjects. For example, the free electives may be used to gain more technical knowledge in the chosen option, or to broaden one’s background with the wide array of courses available at Berkeley.

Graduate Programs

Graduate Student Services: 133 Mulford Hall, (510) 642-6410

Graduate Advisers: Nicholas J. Mills, Chair; Dennis B. Baldocchi, James W. Bartolome, Gregory S. Blitch, Richard S. Dodd, Harvey E. Doner, Mary K. Firestone, J. Keith Gilless, Kevin L. O’Hara, Per Palsbøll, George Roderick.

The degree programs address environmental problems of major social and political impact, which are based in the biological and physical sciences. Two general types of education are needed to produce people qualified to address these hybrid problems: (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.

Interest in environmental problems has resulted in a dramatic recent increase in undergraduate and graduate programs dealing with various aspects of environmental science. Our program integrates the biological, social, and physical sciences to provide advanced education in basic and applied environmental sciences, develops critical analytical abilities, and fosters the capacity to conduct research into the structure and function of ecosystems at molecular, organismal, and ecosystem scales and their interlinked human social systems.

The goal of the program is to provide both a strong disciplinary education and broadly based experience in cross-disciplinary communication and problem solving. In order to achieve this, the program leading to the M.S. and Ph.D. in environmental science, policy, and management will require that a student complete three core courses, and course work in the following four broad areas: disciplinary emphasis, area of specialization, research methods, and breadth requirement. The graduate adviser and a guiding committee, chosen by the student and approved by the graduate adviser, will be responsible for designing a program that fulfills the degree requirements and meets the student’s needs. This program structure provides flexibility with a common core of disciplinary education and broad experience, and complements the student’s chosen discipline. The program structure is designed to provide flexibility within a clear program structure.
Disciplinary Emphasis
The disciplinary emphasis is the broadest academic area encompassing the student’s interests. Currently, the primary emphases within the department are Ecosystem Sciences, Forest Science, Insect Biology, and Society and Environment. A student pursuing a strongly interdisciplinary program must study more than one of these disciplines in depth.

Ecosystem Sciences
The study of the patterns, processes, and dynamics of terrestrial ecosystems is a rapidly growing, interdisciplinary area of intellectual inquiry that is fundamental to our very concept of nature. Graduate students in the Division of Ecosystem Science are concerned with quantitative understanding of ecosystem properties and processes and the controls on these features. Central to this mission is a full partnership between physical and biological science. The department leads in the understanding of ecosystem composition, structure, and function and the extension of these findings in modeling and management activities. The multidisciplinary faculty of Ecosystem Sciences conducts vigorous research related to the following important components: soils, water, atmosphere, plants, fungi, and animals. They develop and apply knowledge from chemistry, ecology, genetics, mathematics, modeling, physics, and statistics to manage atmospheres, biological diversity, forests, grasslands, soils, and wildlife. The scales of interest, both temporal and spatial, vary greatly among the faculty, leading to a rich academic setting for graduate students interested in ecological and earth sciences properties and processes.

Forest Science
The Division of Forest Service seeks to promote excellence in education, research, and outreach programs in the science and practice of forestry. These programs range from tree biology to forest ecology, and from forest biometry to the management of forests for a variety of goods and services. Research conducted by faculty and graduate students in the division spans the organism-level to ecosystem-level studies and management issues concerning small private landowners, industrial holdings, and public forests.

Insect Biology
Insects are one of the most successful groups of living organisms and play key roles in almost all natural resource systems. They provide unique ecosystem services, such as pollination and natural pest control, and are excellent model organisms for environmental research. The mission of insect biology is to use fundamental research on ecosystems to address critical environmental issues and to solve vital environmental problems. Research interests in insect biology are wide ranging, from the molecular level to whole ecosystems, providing a strong integration of biological processes and a diversity of intellectual challenges to students. Systematics, biodiversity, behavior and neurobiology, and ecology and biological control are notable strengths in insect biology. Other research emphases include environmental toxicology, medical entomology, and insect-microbe interactions.

Society and Environment
Our mission is to bring social science perspectives and tools to the teaching and analysis of natural resource and environmental problems and to develop management strategies to address these problems. The research, teaching, and extension of Society and Environment faculty and students explore how social and cultural processes and institutions influence and are influenced by natural resources and environmental phenomena. We study, teach, and work on processes, methods, and implications of formulating and applying environmental policy and management across various political-economic conditions and in a range of institutional and environmental contexts. Current topics of faculty and student interest include social and economic; global environmental change and international agreements; resource-dependent communities, regions, and industries; modes of international, national, and local development; property, jurisdiction, and sovereignty; decision models and methods in ecosystem management; policies and politics concerning land, water, coastal resources, watershed and river basin regimes; environmental history and ethics; and environmental justice.

Area of Specialization
The area of specialization is a narrower field within the context of the disciplinary emphasis. Some examples include: social-ecological community ecology, ecosystem function, insect population and community ecology, biological control of arthropods, insect conservation biology, American environmental history and policy, international forest management, biogeochemistry, Mediterranean grassland ecosystems, remote sensing, and forest 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 three areas of research design, sampling design, estimation, and hypothesis testing is expected.

Breadth Requirement
Each student’s program must include course work addressing human and ecosystem processes and the relationship between human and ecosystem processes. Students must complete the required core courses, ESPM 201A-201B-201C. In addition, while in residence, doctoral students in the program may complete one additional course in the application of social 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 course 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 an S/U or P/NP basis only.

Required Core Courses
Each doctoral student in ESPM will be required to take three core courses. The first required course, ESPM 201A, Research Approaches in Environmental Science, Policy, and Management (3 units), will be taken in the first semester. ESPM 201B, Case Studies in Environmental Science, Policy, and Management (3 units), will be taken in the second semester. Students should also enroll in ESPM 201C, the seminar entitled Environmental Forum (1 unit), at least one semester before taking their doctoral oral qualifying exams. Students will be required to prepare short analytical papers each week based on the research presented. ESPM 201C may be repeated for credit. Doctoral students must present their dissertation research at one seminar meeting of ESPM 201C before graduation. Students will also be required to complete a minimum of 6 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 students in social sciences must complete one additional course in the biological or physical sciences. The Qualifying Committee and the head graduate advisor will approve the selection of appropriate courses to meet these course requirements.

Admission to the Graduate Program
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 must normally be in a field relevant to the disciplinary emphasis chosen. Applicants without this background may be admitted with the understanding that their course work 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 research facilities on Oxford Tract (on campus). Field facilities available to departmental faculty and students include the 3500 acre Bioguide Forest; White's Bog; and the 1200 acre 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 sociocological dimensions of forestry and wildlife 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 Advisor: 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 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 diverse problems involved in professional practice. The Master of Forestry program is designed to advance the student’s understanding of the essentials of professional forest management at the graduate level in the context of resource and environmental planning of sustainable systems.

The M.F. program consists of three components: course work, an internship, and a professional paper. The course work consists of 24 semester units of upper division and graduate courses of which at least 12 units must be at the graduate level. This program of study must be approved by the graduate advisor and guiding professor as constituting appropriate advanced specialization 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 data and to recommend a resolution to a specified forest problem. The paper may be based on the internship or on another supervised professional work experience, or may be a report based on independent analysis. The paper must be completed within one semester and must, in all cases, be accepted and approved by the guiding professor and graduate advisor.
Upon completion of the program of course work, and approval of the professional paper, the student will have demonstrated comprehensive oral examination covering the field of management. Although major emphasis will be placed on work done in the period immediately preceding, 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, 133 Mulford Hall, (510) 642-6410; fax: (510) 642-4034; e-mail: espgrradpropinfo@nature.berkeley.edu.

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 unifyning ecological and environmental concepts underlying our scientific understanding of the biosphere. Topics covered include the physical life support system on earth, basic biological and ecological factors regulating the chemical composition of water, air, and soil; the architecture and physiology of life; population biology and community ecology; human dependence on the biosphere; and the magnitude and consequences of human interventions in the biosphere. (F) Goldstein, Allen-Diaz

6. Environmental Biology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Lower division CA or equivalent. Two hours of lecture per week; additional two-hour discussion for students enrolling for 3 units. Physical and chemical properties of the environment; living organisms; human activities and environmental degradation. Students with weak backgrounds in chemistry should enroll for 3 units. (SP) Husman

8. Ecology Field Methods. (3) One hour of lecture and three hours of laboratory per week. Formerly 6L. Laboratory field course in ecology to acquaint students with the flora and fauna of several diverse ecosystems in California and the human influence involved in the disruption of these ecosystems. Students will have opportunities for taking effective field notes, will learn methods for sampling plants and animals in aquatic and terrestrial systems, and will learn statistical methods of analyzing data from field experiments and prepare reports on each of the studies. (F,SP) Dahlsten

Environmental Issues

10. Environmental Issues. (4) 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, resources, technology, and alternative systems. (SP) Wetter

10L. Environmental Issues: Special Projects. (1) Course may be repeated for credit. One and one-half hours of laboratory per week. Prerequisites: 10 (to be taken concurrently) or consent of instructor. Group projects related to the 10 lecture series. (F,SP) Staff

11. Forest and Wildland Resource Conservation. (3) Three hours of lecture and one hour of discussion per week. Ecological, social, and economic principles applied to the management of wildland resources: forests, range, water, and wildlife. Two mandatory all day field trips. (F) Williams

C12. Introduction to Environmental Studies. (4) Will count toward completion of the 10L (environmental issues) for the conservation and resource studies major. Students will not receive credit for C12 after taking 10 or English C77. Three hours of lecture and one and one-half hours of discussion per week. This innovative course taught by a scientist and a humanities professor surveys current global environmental issues; introduces students to three intellectual tools of environmental science; investigates 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 environmental citizenship. Also listed as Undergraduate Interdisciplinary Studies C12 and English C77.

Environmental Sciences

20. Soils and Their Significance to Society. (3) Three hours of lecture per week. Introduction to soils; their properties, classification, distribution, and significance to society. Interpretation of soil and landscape characteristics in relation to land use, and reper- cussions of land misuse. (F) Gersper

24. Freshman Seminar. (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. Sections 5 to be graded on a letter-grade basis. Freshman Seminar Program has been designed to provide an introduction to a different topic each year. Freshman Seminar students will meet every other week for one hour with a faculty member in a small-seminar setting. Freshman Seminars are offered in all campus departments, and topics vary from semester to department and department to semester. (F,SP) Staff

39. Freshman/Sophomore Seminar. (1-3) 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 given to freshman 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

40. Insects and Human Society. (2) Two hours of lecture per week. An introduction to the diversity and natural history of insects in human and environmental contexts. The course examines the wonder of insects, their interactions with plants and animals, and their contribu- tions to and impacts on human society. (F) Purcell

42. Natural History of Insects. (2) Two hours of lecture per week. An outline of the main facts and principles of biologyplus, with special emphasis on their relations to plants and animals, in- cluding humans. (SP) Gillespie, Roderick

44. Biological Control. (2) Two hours of lecture per week. Regulation of populations of organisms, espe- cially insects, through interactions with parasites, predators, pathogens, competitors. Discussion of example from agricultural, forest, urban, and recre- ational environments. (F) Mills, Gutierrez

Environmental Policy and Management

50A. Introduction to Culture and Natural Resource Management. (4) Three hours of lecture and one hour of discussion per week. Formerly 50. An in- troduction to how culture affects the way we use and manage fire, wildlife, vegetation, fisheries, rangelands, parks and preserves, and croplands in America. The basic concepts and tools for evaluating the role of culture in resource use are introduced and used to examine the experience of American cultural groups in the development and management of western natural resources. One and one-half hours satisfies the American cultures requirement. (F) Huntsinger

60. Environmental Policy, Administration, and Law. (4) Three hours of lecture and one hour of discussion per week. Formerly 151. Introduction to U.S. envi- ronmental policy process focuses on history and evo- lution of political institutions, importance of property, federal and state roles in decision making, and chal- lenges of environmental policy. Emphasis is on use of science in decision making, choices between regula- tions and incentives, and role of bureaucracy in re- source policy. Case studies of natural resource manage- ment, risk management, environmental regulation, and environmental justice. (SP) Fairfax

70. Forestry Computer Programming and Appli- cations. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: High school al- gebra. Introduction to computer operating systems, pro- gramming, and applications software in natural re- sources. Includes the BASIC programming language and computer exercises drawn from forestry applica- tions. (F,SP) Staff

Special Topics and Independent Study

90. Introduction to Conservation and Resource Studies Major. (1) Three hours of lecture per week. Must be taken on a pass/no pass or on a letter-grade basis. Intro- duction to the major, emphasizing each student's ed- ucational goals. Overview of ecological problems and contrasting approaches to solutions through institu- tional and community-based efforts. Required of all CRS sophomores majors and all entering off-campus transfer students to CRS major. Restricted to CRS ma- jors. One field trip is normally required. (F,SP) Huis- man, Frankie

98. Directed Group Study in ESPM. (1-3) Course may be repeated for credit. Individual discussion per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing; consent of instructor, adviser, and depart- ment chair. Study of special topics that are not covered in depth in regular courses in the department. (F,SP) 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 ba- sis. Prerequisites: Lower division standing (3.4 GPA or better), consent of instructor, adviser, and department chair. Usually restricted to ESPM majors. Supervised independent study or research on topics relevant to department that are not covered in other courses. Open to students in good standing who, in consultation with a faculty sponsor, present a proposal with clearly formulated objectives and means of im- plementation. Intended for exceptional students. (F,SP) Staff

Upper Division Courses

General Broad Spectrum Courses

100. Environmental Problem Solving. (4) Three hours of lecture and one and one-half hours of dis- cussion/demonstration per week. Prerequisites: One course in ecology; one course in statistics; one course in a social science or economics. Analysis of contrasting approaches to understanding and solving environmental and resource management problems. Case studies and hands-on problem solving that integrate concepts, principles, and practices from physical, biological, social, and economic disciplines. Their use in environmental policy and resource and management plans. (F) Frankie, Milton

101. Field Study of Forestry and Wildland Re- sources. Courses 101A-101E comprise a field study program in Forestry and Wildland Resources. (101B, 101C, 101D) 101B. Silviculture. (1) Forty hours of lecture/field ex- ercises per week for one week. Prerequisites: 101A.
Evaluation of systems for managing forest stands including regeneration, controlling stand density, forest growth modeling, tree improvement, and prescribed burning. Staff

101C. Forest Measurements, Aerial Photography, and Surveying. (2) Forty hours of lecture/lab exercises per week for two weeks. Prerequisites: 101B. Procedures for measuring and analyzing forest resources, introduction to manual and airborne measurement of trees and forest growth. Staff

101D. Timber Resource Utilization. (1) Forty hours of lecture/lab exercises per week for five weeks. Prerequisites: 101C. Harvesting and access systems, wood quality, and manufacture of forest products. Visits to industrial operations to evaluate land management practices and utilization operations. Staff

102A. Terrestrial Resource Ecology. (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: Biology 1A-1B or equivalent. Provides a foundation in terrestrial ecology. Organized around five topics: environmental biophysics, ecosystem carbon balance, ecophysiology, population ecology, community ecology. Examines how each contributes to understanding of distribution and abundance of organisms in biosphere. Laboratory exercises, a mandatory weeklong field trip, and a group research project provide opportunities to explore questions in depth. Emphasis on building quantitative understanding of ecological phenomena. (F) Bartolome, Battles

102B. Resource Assessment. (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: Junior standing, 70 or computer programming course. An introduction to environmental assessment techniques and the use of available resources. Integration of data collection and analysis techniques to provide a reliable basis for answering scientific and policy questions. Course examines the effects of management and conservation on terrestrial ecosystems. (F) Biging

102C. Resource Management. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Precalculus, 136, 184, and 70 are recommended. Presents current and practical approaches to public and private natural resource management decision making. The focus is on goals, criteria, data, models, and technology for quantifying and communicating the consequences of planning options. A range of contemporary air, soil, wetland, rangeland, forest, social, economic, and ecosystem management problems is addressed. (SP) Gilless

102D. Resource and Environmental Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: SOAC 60, Environmental Economics 80, or equivalent courses, or consent of instructor. The course develops capacities to analyze and affect the cause, dynamics, and consequences of resource and environmental policy formulations and policies. The course connects public policy and how it affects management and conservation on terrestrial ecosystems. (F) Gilless

C103. Principles of Conservation Biology. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: Biology 1A-1B or equivalent. A survey of the principles and practices of conservation biology. Factors that affect the creation, destruction, and distribution of biological diversity at the level of the gene, species, and ecosystem are examined. Three hours of lecture and one hour of discussion per week. Staff

104. Modeling and Management of Biological Resources. (4) Three hours of lecture per week and ad-hoc microcomputer laboratory meetings. Prerequisites: Two semesters of calculus and consent of instructor. Models of population growth, chaos, life tables, and Leslie matrix theory. Harvesting and exploitation theory. Methods for analyzing population interactions, predation, competition, range management, and insect pest management. Genetic aspects of population management. Mathematical theory based on simple differences and ordinary differential equations. Use of simulation packages on microcomputers (previous experience with computers not required). Also listed as Environmental Economics and Policy C115. (SP) Geitz

Biology and Conservation

105A. Conservation Biology. (4) Three hours of lecture and one hour of discussion per week, plus a mandatory two and one-half day field trip. Prerequisites: Basic biology or ecology course or consent of instructor. Formerly 105. Theory and practice of conservation biology in developed and developing countries. Conservation biology will be examined within a context that integrates biology, land management, and development with cultural, socioeconomic, and political constraints. Role of biologists in policy and decision-making in land management/development priority areas will be reviewed. Case histories will be analyzed for specific conservation contributions and for model value. (F) Frankie, Milton

105C. Genetic Diversity and Conservation. (3) Students will receive 1.5 units for 105C after taking Integrative Biology 161. Three hours of lecture per week. Prerequisites: Biology 1B-1C or Introduction to the study of genetic variation within species and the population genetic principles underlying the conservation of genetic diversity and the processes of genetic evolution. Patterns of variation and gene pool structure; sexual and asexual populations; mating systems; fitness and selection; the genetics of fragmentation and small populations; genetic evolution; issues for conservation genetics. (SP) Spiehl

106. American Wildlife: Identification and Conservation. (3) One hour of lecture and three hours of laboratory per week. Prerequisites: 105C. Study of wildlife history of North America, with emphasis on species with important ecological and recreational value. The conservation of rare and endangered species is highlighted. (SP) Barret

C107. Biology and Geomorphology of Tropical Islands. (13) Nine hours of lecture for 6 weeks; field projects for 6 weeks; three hours of lecture for 3 weeks. Natural history and evolutionary biology of island terrestrial and freshwater organisms, and of marine organisms in the coral reef and lagoon systems will be studied, and the geomorphology of coral islands, coral reefs, and island landscapes will be discussed. Features of island biogeography will be illustrated with topics linked to the study of the island of Moorea (French Polynesia). Also listed as Integrative Biology C158. (F) Staff

108A. Trees: Taxonomy, Growth, and Structures. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Botany 1A-1B or equivalent. Study of associated woody species including their taxonomy and distribution, modes of shoot growth and diameter growth, and stem structure. Modes of stem structure and growth will be considered in relation to habitat and life cycles, and to suitability for timber value. Instruction in oral communication. (SP) Solow

108B. Forest Genetics. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B or equivalents. 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 the theoretical aspects of population 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 forest management. (SP) Dodd

109. Range Plants. (3) Two hours of lecture and three hours of laboratory per week. Systematic relationships and identification of range grasses, forbs, and shrubs; their distribution and range values, and responses to use. (SP) Bartolome

110. Primeval Ecology. (4) Three hours of lecture per week. This course examines the comparative ecology of sympatric primeval forest species in temperate forests of North America, South America, Africa, and Southeast Asia. In addition to primeval ecology, students will master comparative information on the three major tropical forest regions of the world and examine the impact of selective logging on primeval densities and diversities in each area. Milton

111. Ecosystem Ecology. (3) Three hours of lecture per week. Prerequisites: Biology 1B. Formerly 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) Benning

Ecology

112. Microbial Ecology. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Biology 1A or equivalent. Introduction to the study of microorganisms and their environment; the role of bacteria, actinomycetes, algae, protozoa, and fungi in cycling of the elements, in macroecology and in global ecology; physical, chemical, and biological properties of terrestrial, aquatic, and organellar habitats; population dynamics. Enrollment is limited. (SP) Husman

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-plant interactions; social insects; pollination biology; applied insect ecology. (SP) Welter

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. (F) McCullough

115B. Biology of Aquatic Insects. (3) Two hours of lecture and three hours of laboratory 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) Rest

116A. Forest Ecology. (4) Three hours of lecture and four hours of field laboratory exercise per week plus three hours of field trips. Prerequisites: 115A, or equivalent, 8 units of biological science, and 8 units of chemistry. The ecology of forests from the perspectives of ecosystem analysis, physiological plant ecology, and vegetation dynamics. Major emphasis on the understanding of forest ecosystems as a basis for management of forest ecosystems. Field laboratory exercises to illustrate ecological principles and to develop techniques for the assessment of forest ecosystems. (F) McBride, Battles

116B. Range Ecology, Improvements, and Management. (3) Three hours of lecture per week. Prerequisites: 115A, or equivalent, or instructor consent. The role of range management activities, considered in the context of western range ecosystem types. Special range improvement and range management programs are discussed in the context of ecosystem processes. (SP) Allen-Diaz, Bartolome

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, forest 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 fundamentals of horticulture, soil properties and fertility, pest and disease management, and food preservation. Laboratories include methods in garden design, plant propagation, compost technique, soil preparation, irrigation systems, pest management, individual or group projects, demonstrations, and discussions. Enrollment may be limited. (F) Huisman

117L. Urban Garden Ecosystems Laboratory. (1) Three hours of supervised laboratory project per week. Must be taken on a pass/no passed basis. Prerequisites: 117. Special projects. (F) Staff

118. Agricultural Ecology. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Examines the levels and frameworks of interaction: physical, technical, socio-economic, and political processes that govern agroecosystem productivity and stability. Management techniques and farming systems design that sustain long-term production 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, microbiology or consent of instructor. Plant toxins and their effects on animals, hormonal interactions between plants and animals, feeding preferences, animal defense systems, soil defense substances, biochemical interactions between higher plants, and phytoalexins and phytotoxins. (F) Kubo

Soil, Water, Atmosphere

120. Soil Characteristics. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, 3A, Introduction to physical, engineering, chemical, 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 management for agriculture, forestry, and urban uses will also be discussed. Includes a Saturday field trip. (F) McCoil

121. Development and Classification of Soils. (3) Three hours of lecture per week. Prerequisites: Soil science 115A, 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 paleoclimatic studies, anthropogenic effects on soil ecosystems. (Amundson)

122. Field Study of Soil Development. (1) Five day-long Saturday field trips to locations in central California. The field study of soil development and morphological analysis of soil morphological deposits; study of factors controlling soil development; relationship of soil morphology to land use; quaternary geology of central California; use of soils in dating landscapes. (SP) Amundson

123. Summer Field Course. (6) Four 8-hour days of lecture and a month of rigorous field study. Prerequisites: 120, 121, or consent of instructor. An intensive study of soils of California. Field days consist of detailed description, classification, and rating of selected soils. Emphasis placed on understanding relationships of soil development to vegetation, geology, and climate. Discussions of suitability of soils for various land uses included. The final week consists of report writing and final exam. Amundson

124. The Soil As a Medium for Plant Growth. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, 3A, Chemical, physical, biological processes which control nutrient availability in soil-plant systems. Ion exchange, water potential relations, plant-soil interactions are emphasized. Characteristic and causes of acid, alkaline, and saline soils. Offered odd-numbered years. (SP) Firestone, Silver

125. Soil Physics. (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: 120 and Math 16. Physical characterization of soils; soil water potential and effects of water, gases, and heat in soil. Offered odd-numbered years. (F) Ghodrell

126. Environmental Soil Chemistry. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, 3A, and Math 16 or consent of instructor: 120, 121 or EPS 50 or equivalent. Focus on processes controlling distribution, solubility, and biological availability of environmentally important elements in soils. Covers role of soil minerals and organic matter in controlling retention and release of soluble ions and molecules; reaction mechanisms; and energetics. Applies principles of soil chemistry to different environmental conditions in soils, e.g., acid/alkalinity, aeration, water potential, and salinity, to predict changes in plant behavior. (SP) Done

127. Terrestrial Ecosystem Analysis: Below Ground Processes. (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: 120 or consent of instructor. This course emphasizes laboratory and field methods of soil analyses to understand selected environmentally important terrestrial ecological systems functions and processes. Basic concepts of biological, chemical, and physical principles of soils and their applications are presented through lectures and workshops. During the last part of the course, students will undertake a complete independent project using a combination of techniques presented to the class. This course is directed to students wishing to get hands-on experience in understanding soil processes, analyzing and interpreting soil samples, and undertaking a research project to apply their knowledge to a specific problem. (SP) Doner, Firestone, Ghodrell

C128. Environmental Aquatic 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 surface environment. Chemical reactions in subsurface waters. Geochemical pathways of detoxification. Chemical modeling of pollutant geochemistry. Also listed as Civil and Environmental Engineering C116. (SP) Spieles

129. Biometeorology. (3) Three hours of lecture per week. Prerequisites: Mathematics 16A or equivalent, Physics 10, 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 affect their physical environment. Using experimental data and theory, it examines physical, biological, and chemical processes affecting transfer of momentum, energy, and material (water, CO2, atmospheric trace gases) between vegetation and the atmosphere. Plant biometeorology instrumentation and measurements are also discussed. Also listed as Earth and Planetary Science C129. (F) Baldocchi

Environmental Microbiology

130. Water in Terrestrial Environment. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A, 3A-1B, Physics 7A, or consent of instructor. Formerly 130. This course will focus on the processes and mechanisms of water in the environment in the context of the physical environment (light, wind, temperature, humidity) of plants and soil. Offered odd-numbered years. (F) Lane

131. Soil Microbiology. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B. Introduction to soil microorganisms; diversity, ecology, and activity in relation to biogeochemical cycles, atmosphere, and soil organic matter. Offered odd-numbered years. (SP) Firestone

134. Fire, Insects, and Diseases in Forest Ecosystems. (3) Two hours of lecture per week and four one-two hour lab per week. Prerequisite: course in biology. Study of the influence of fire, insects, and diseases on species diversity, succession, and the survival of native North American forests including the evolution of these interactions due to modern human policies of preservation and management and exploitation. (F) Bruns, Dahlsten, Benning

135. Biological Control of Pests. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 140 and 142, or consent of instructor. Study of various host-parasite, prey-predator systems, especially those of significance to agriculture, forestry, urban, and recreational environments. Also listed as biological control methods involving importation, augmentation, and conservation of natural enemies. Offered odd-numbered years. (F) Mills

136. Forest Health. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 101A-101B, 185, junior standing, and consent of instructor. Examine the biology and ecology of forest insects and pathogens: their impacts on forests and ecosystems, and their interactions with other disturbances. Explore forest health concepts in terms of the frequencies and severities of these disturbances from utilitarian and ecosystem perspectives. (SP) Williams

C138. Introduction to Comparative Virology. (4) Three hours of lecture per week. Prerequisites: Introductory chemistry (1A or 3A-B or equivalent) and introductory biology (1A-B or equivalent). May be taken concurrently. (F) Volkman, Jackson

Entomology

140. General Entomology. (4) Two hours of lecture and six hours of laboratory per week. Prerequisites: In- introductory course in a biological science. Biology of insects, including classification of orders and common families, morphology, physiology, behavior, and ecology. (SP) Purcell, Rodnick

142. Principles of Systematic Zoology. (2) One hour of lecture and three hours of discussion/laboratory per week. Prerequisites: 140 or consent of instructor. Principles and methods of animal taxonomy and phylogeny: history, concepts of species and other taxa, methods of classification, bibliographic procedures, nomenclature and museum practices, with emphasis on examples in insects. (F) Gillespie

144. Insect Physiology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: General biology, zoology, or entomology. A survey of the unique physiological mechanisms of insects, including the analysis of physiological processes at the cellular and 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 246. 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 conducting field and laboratory studies will be demonstrated. Includes methods for collecting blood-feeding arthropods and trapping selected vertebrates; processing of specimens for study; and examination of arthropod and vertebrate tissues for pathogens. Offered even-numbered years. (SP) Lane

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 and causation of diseases in humans and domestic animals, including the geographical areas and types of ecosystems inhabited by various vectors and the structural behaviors associated with parasitism. Examples of vector-borne diseases considered include malaria, yellow fever, plague, typhus, filariasis, African trypanosomiasis, Lyme disease, Rocky Mountain spotted

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

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fever, relapsing fever. Offered odd-numbered years. (SP) Lane

146L. Medical and Veterinary Entomology Laboratory. (1) Three hours of laboratory per week. Lab- oratory studies of the major arthropod vectors of disease agents to humans and other animals, and study of the structural adaptations associated with free- living and food, the problems they are supposed to solve, and the main debates in the field, including trade-environmental conflict, security, and environmental justice issues. Issues covered vary, but may include climate change, biodiversity, population, and toxics. (F) O'Neill

Resource Assessment and Evaluation

171. Forest and Wildland Resource Inventory. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 70, 156, and Statistics 20 or equivalent; Math 16A-16B recommended. Statistical and practical concepts presented to introduce concepts of forest and wildland resource inventory systems. Statistical designs include random, stratified, double and two-stage sampling as well as basic methods of regression estimation. Applications include timber sale; compartment, forest, and range land stocking estimates, as well as estimates of change or growth. (SP) Staff

172. Photogrammetry and Remote Sensing. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Geometry, algebra, and calculus. 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 in spatial science such as ecology, geology, civil engineering, and environmental design. Photo measurements of scale, area, and object height, flight planning, an introduction to the electro-magnetic spectrum, photo interpretation and mapping, digital remote sensing, and data management in geographic information systems will be discussed. (SP) Gong

173. Characteristics and Utilization of Woody Biomasses. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. Past, current, and emerging issues and approaches to the use of woody biomass; conversion to useful wood products; performance of materials in use; substitutions and hybrid materials. (SP) Beall

176. Performance of Wood in Structures. (3) Three hours of lecture per week. Formerly Architecture 153. The survey of woodland properties and wood products important to building design and construction. Emphasis is placed on prevention of biodeterioration. Case studies will be presented in the interpretation of structures, showing proper use of wood products. (F) Beall

Resource Management

180. Atmospheric Chemistry. (3) Three hours of lec- ture and one hour of discussion per week. Prerequi- sites: Chemistry 1A-1B,Physics 8A or equivalent. Concepts of the chemical composition of the earth’s atmosphere. Effects of human influence: stratospheric ozone depletion, increasing concentrations of greenhouse gases, changes in the oxidation capacity of the troposphere, smog. (F) Goldstein

C180. Atmospheric Chemistry. (3) Three hours of lecture and one hour of discussion per week. Prerequi- sites: Chemistry 1A-1B, Physics 8A or consent of in- structor. Processes controlling the chemical compo- sition of Earth’s atmosphere. Effects of human influence: stratospheric ozone depletion, increasing concentrations of greenhouse gases, changes in the oxidation capacity of the troposphere, smog. Also listed as Earth and Planetary Science C180. (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 in- cident behavior modeling, fire history methods, prescribed fire techniques, fire ecology, fire manage- ment, fire in the urban-wildland intermix, wildland fire, and ecosystem sustainability. Laboratories on inven- tory methods, fire history, monitoring and behavior 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 in environmental science or forestry curriculum. Course focuses on the fundamental skill sets necessary for modern forest management. Two hours of lecture per week. Consent of instructor required. (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 forestlands to meet multiple objectives related to society’s need for environmental and economic benefits. The role of forest management in the worldwide range of stewardship activities and the economic, social, and political conditions for successful agroforestry. (SP) Miller

184. Agroforestry Systems. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 116A or course in community ecology. This course will provide a framework for understanding the importance of agroforestry systems and will analyze the processes that influence their function. (F,SP) Staff

185. Multiple Resource Silviculture. (4) Three hours of lecture and four hours of laboratory per week. Prerequisites: Biology course or consent of instructor. This course will provide a framework for understanding the importance of multiple resource silviculture and will analyze the processes that influence their function. (SP) Miller

186. Management of Grassland and Woodyland Systems. (3) Two hours of lecture and four hours of laboratory per week. Prerequisites: Biology course or consent of instructors. This course will provide a framework for understanding the importance of the grassland and woodyland systems and will analyze the processes that influence their function. (SP) Miller

187. Wildlife Conservation. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 114. Advanced coverage of the principles, procedures, and techniques of managing terrestrial wildlife, with an emphasis on North American forest and rangeland ecosystems. (SP) McCullough

188. Case Histories in Wildlife Management. (2) Four hours of seminar per week. Prerequisites: 114. Seminar format with presentation and discussion by each student, with long term paper requirement. Examinations 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; 120, 136, 182, 183, and 185, or consent of instructor. A capstone workshop with faculty and outside professionals for students planning to enter the field of professional forestry. The workshop develops and reinforces the skills and knowledge gained in forest management courses. (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. Consent of instructor required. (F,SP) Staff

191. The American Forest: Its Ecology, History, and Representation. (4) Three hours of lecture and one hour of discussion per week. The American forest will be examined in terms of its ecology, history, and representations in paintings, photographs, and literary essays. This examination will seek 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 C136, History of Art C119B, and American Studies C112F. (F,SP) Lovett, McBride

192. Molecular Approaches to Environmental Problem Solving. (2) Two hours of lecture/discussion per week. Prerequisites: Junior or senior standing in Molecular Environmental Biology or consent of instructor. Seminar in which students consider how modern biotechnological approaches, including recombinant DNA technology, can be used to solve problems in the area of conservation, 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. (F) Staff

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. (F) Staff

194. Senior Seminar in Conservation and Resource Studies. (2) Two hours of seminar per week. Prerequisites: Seminar in CRS major. Seminar in which students synthesize their knowledge, skills, and interests into a holistic perspective. A one-hour oral presentation in the first quarter and a senior thesis synthesizing the area of interest are required. Required final seminar for all CRS majors. (F,SP) Staff

195. Senior Thesis. (3-4) Students who have successfully completed 193 may petition for exemption from 194. Three hours of laboratory/research work per week per unit. Prerequisites: Senior standing in CRS major; 3.0 GPA. Subject must be approved by faculty sponsor during final semester of junior year and course initiated in the first semester of the senior year. (F,SP) Staff

H196. Honors Research. (4) Course may be repeated for maximum of 15 credits. Six hours of seminar per week. Prerequisites: Open only to upper division Environmental Science, Policy, and Management majors. 3.2 minimum GPA. Eligibility restrictions related to GPA and unit accumulation. Supervised independent honors research specific to aspects of environmental science, policy, and management. Conducted, followed by written report to department. Submission of no more than 300 words required for approval. (F,SP) Staff

196A. Internship in ESPM—Field Module. (3-8) Fifteen to 40 hours per week. Required for location 10 weeks. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing; consent of advisor, faculty sponsor, and ESPM department; normally open only to ESPM majors. Intern placement relevant 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

198. Internship in ESPM—Research/Seminar Module. (2-5) Two hours of seminar per week; variable hours of research/analysis for five weeks. Prerequisites: Upper division standing in a ESPM major; consent of advisor, faculty sponsor; completion of 196A. A five-week period for the student’s analysis of his/her internship experience, preparation of internship report (under the supervision of chair of the intern’s committee), and participation in a weekly seminar required of all returning interns. (F,SP) Staff

197. Field Study in Environmental Science, Policy, and Management. (1-3) Course may be repeated for credit. Three hours of field study per week per unit. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing. Campus and departmental restrictions apply. Supervised experience in off-campus organizations relevant to specific aspects of environmental science, policy, and management. Individual student meetings with faculty sponsor and written reports required. (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 passed/not passed basis. Prerequisites: Upper division standing; consent of instructor; campus and departmental restrictions apply. Enrollment restrictions apply; see the Courses and Curricula section of this catalog. Supervised independent study and research specific to aspects of environmental science, policy, and management. (F,SP) Staff

Graduate Courses

200A. Case Studies in Environmental Science, Policy, and Management. (3) Three hours of lecture per week. The application of science, policy analysis, and management to a series of specific case histories covering the array of issues representative of the Environmental Science, Policy, and Management program, including agricultural, urban, and wildland cases. 200A is the first semester of a three-semester core course sequence required for all Environmental Science, Policy, and Management graduate students. (F) Staff

200B. Research Concepts and Methods. (3) Three hours of lecture/seminar per week. Prerequisites: Basic course in statistics. Formerly 2004. Conceptual and methodological bases of research design, data analysis, and interpretation. Case studies and individual projects critiqued. 200B is the second semester of a three-semester core course sequence required for all Environmental Science, Policy, and Management graduate students. (SP) Staff

200C. Environmental Forum. (1) Course may be repeated for credit. Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Presentation and analysis of current topics in environmental science, policy, and management. 200C is the third semester of a three-semester core course sequence required for all Environmental Science, Policy, and Management graduate students. (SP) Staff

201A. Research Approaches in Environmental Science, Policy, and Management. Three hours of research/analysis per week. Consent of instructors. Three hours of research/analysis per week. Consent of instructors. Three hours of research/analysis per week. Consent of instructors.
duction to the diverse ways environmental problems are researched, comparing the approaches and method- ods of various disciplines represented among faculty and students. This course is the first of the core course sequence required for all ESPM graduate students. (F,SP) Mills

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 elements of Environmental Science, Policy, and Management 201A, incorporating specific local and regional case histories that emphasize the role of students in the development of issue-specific solutions. (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. Formerly 200C. Presentation and analysis of current topics in environmental science, policy, and management. This course is required for all ESPM doctoral students. (F,SP) Staff

C204. Research Reviews in Animal Behavior: Behavior Review. (1) Course may be repeated for credit. One and one-half hours of seminar per week. This course will present 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. 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 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 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 relating to the genetic basis of phenotypes and their dependence on environmental variables. (F) Dodd

210. Spatial Data Analysis for Natural Resources. (3) Three hours of lecture/discussion per week. Prerequisites: Upper division probability and statistics, one course in multivariate analysis, or consent of instructor. An introduction to natural resource spatial data analysis. Topics to be covered include spatial sampling, quadrate analysis, distance methods, spatial point patterns and Ripley’s K function, spatial autocorrelation, and geostatistics (Kriging). 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) Three hours of lecture per week. Prerequisites: 102 or consent of instructor. Modeling methods in ecology and meteorology; stability analysis; effects of anthropogenic stress on natural systems. Also listed as Integrative Biology C271 and Energy and Resources Group C202. (SP) Powell

C212. Ecological and Social Dimensions of Global Change. (3) Three hours of lecture and one-half hour of discussion per week. Prerequisites: Consent of instructor. This seminar will explore the possible social and ecological im-
254. Ecosystem Modeling. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Calculus, probability and statistics, basic ecology, and consent of instructor. Lecture topics include quantitative analysis of ecological processes and patterns across a spectrum of spatial scales, spatial modeling and its applications to global change, and resource and environmental management. Basic modeling techniques of fundamental ecosystem processes, case analysis of representative models, and system simulation based on numerical techniques are emphasized. Offered even-numbered years. (F) Qi

255. Seminar in Sociology of Forest and Wildland Resources. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly 255. Individual topics may be selected concerning social constraints to, and effects of, natural resource planning and management. Application of sociological theories to management of wildland and ecosystems. Students will examine topics of individual interest related to the management of wildland uses. Enrollment limited. Also listed as Geography C250. (F)

264. Silviculture Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This seminar in workshop format introduces the faculty and doctoral students investigating the application of ecological, systems analysis, and environmental modeling techniques to the context of forest and wildland ecosystems. Organization of research presentations, the scientific publication process, and research funding issues will also be addressed. (F,SP) Gilliss, Qi

265. Seminar on Fire as an Ecological Factor. (2) Two hours of lecture per week. Prerequisites: Geography 188 or Landscape Architecture 188X or consent of instructor. Formerly 265A. Advanced course on spatial data acquisition, including remote sensing, GIS, design of geographic information systems through principles, conceptual design and functional construction, GIS data validation; applications in natural resource studies; data source, data representation and data quality issues; project management. Offered every even-numbered years. (F) Gong

266. Seminar in Forest Economics and Management. (F) 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. Individual case studies involving the inventory, analysis, and management of forest resources. (F,SP) Student Staff

267. GIS in Natural Resource Systems. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Geography 188 or Landscape Architecture 188X or consent of instructor. Formerly 267A. Advanced course on spatial data acquisition, including remote sensing, GPS, design of geographic information systems through principles, conceptual design and functional construction; application of GIS; system validation; applications in natural resource studies; data source, representation, and quality issues; project management. Offered even-numbered years. (F) Qi

274. Case Studies in Forest Management. (1-8) Course may be repeated for credit. Minimum of four hours per week. Prerequisites: Consent of instructor. (1-8) Offered even-numbered years. (F) Harris

275. GIS in Natural Resource Systems. (3) Three hours of lecture per week. Prerequisites: Basic ecology, microeconomics, and resource management. Examine major issues and approaches in ecosystem management. Topics include development of the ecosystem approach, valuation of ecosystem commodities and services, assessment of ecosystem sustainability, simulation and prediction of ecosystem dynamics, decision-making methods, social and institutional aspects. Particular emphasis is given to emerging conceptual frameworks and case studies. Offered every other year. (F,SP) Qi

276. Advanced Silviculture. (2) Two hours of lecture per week. Prerequisites: 185 or equivalent. Advanced topics related to the management and planning of forest stands such as competition effects, mixed-species interactions, mulched stand silviculture, pruning, thinning regimes, management for old-growth features, wood quality effects, and others. Field trips may be included. Offered odd-numbered years. (SP) O'Hara

277. Range Assessment. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 186 and one semester of statistics. Rangeland vegetation sampling techniques with emphasis on comparing the relative efficiency of different techniques of vegetation measurement. Includes weekly lab exercises on artificial sampling boards and/or in the field. Juniors and seniors are encouraged. Offered odd-numbered years. (SP) Allen-Diaz

278. Seminar on Pastoralism. (2) Three hours of lecture per week plus four field trips. Prerequisites: Consent of instructor. A survey of pastoral animal management and production systems, as they influence and are influenced by the rangeland environment. Review of the evolution of animal management practices; contemporary management systems in California, the West, 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 ranching, and organic meat production will be included. (SP) Student Staff

279. Seminar in Range Ecosystem Planning and Policy. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. A seminar course dealing with selected current topics in range ecosystem planning and policy. (F) Bartolome

281. Seminar in Wildlife Biology and Management. (2-3) Course may be repeated for credit. Minimum of four hours 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) McCullough

283. Wildlife Management Planning. (3) Three hours of lecture per week. Prerequisites: 187 or equivalent. A review of the latest methodologies of wildlife management plans. Students will prepare and present wildlife management plans for specific situations. Open to qualified graduate students from other departments. (SP) Barrett

284. Demographic Methods for Population Viability Analysis. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Application of demographic methods to the management of plant and animal populations. Conservation problems faced by small populations of threatened or exploited species will be emphasized. Implications for life-history theory will also be discussed. Demographic analyses include: (1) understanding the life cycle diagram to predict population changes, and (2) calculation of population growth rate and sensitivity of demographic parameters to perturbations. (SP) Student Staff

285. Physical Properties of Wood. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly 285A. Absorption of water, non-aqueous liquids, absorption of vapors and gases by wood, shrinkage and swelling, diffusion and sorptions, and nonaqueous liquids. Fluid flow including permeability and diffusion. Thermal properties with models of heat transfer important in wood processing and usage. Offered odd-numbered years. (SP) Beall

286. Chemistry of Polysaccharides, Lignin, and Ex- tractive. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Aspects of nomenclature, structures, biosynthesis, reactions, and distribution of terpenoids, fats, flavonoids, tannins, lignins, monosaccharides, and polysaccharides, and related materials occurring in plant material, with emphasis on woody plant structures. Qualified undergraduates may take this course. Offered odd-numbered years. (SP) Beall

288. Special Topics in Wood Science and Technol- ogy. Course may be repeated for credit. Prereq- usites: Consent of instructor. (SP) Student Staff

288B. Wood Chemistry. (1-3) Advanced study in wood chemistry primarily for advanced graduate students. (F,SP) Student Staff

288C. Chemical Processing of Wood. (1-3) Advanced study in chemical wood processing primarily for advanced graduate students. (F,SP) Student Staff

288D. Wood Mechanics. (1-3) Advanced study in wood mechanics primarily for advanced graduate students. (SP) Student Staff

288E. Wood Physics. (1-3) Advanced study in wood physics primarily for advanced graduate students. (F,SP) Student Staff

288F. Physical/ Mechanical Processing of Wood. (1-3) Advanced study in physical/mechanical processing of wood primarily for advanced graduate students. (F,SP) Student Staff

288G. Wood Products Pathology. (1-3) Advanced study in wood product pathology primarily for advanced graduate students. (F,SP) Student Staff

288I. Production Management. (1-3) Advanced study in forest production management primarily for advanced graduate students. (F,SP) Student Staff

289A. Colloquium in Wood Science and Technol- ogy. Course may be repeated for credit. Three hours of lecture per week. Technical topics in wood science
Environmental Science

(offers course work for the comprehensive examination in consultation with the field adviser. (F,SP)

Major Advisers
James Bartabe (Environmental Science, Policy, and Management)
Ignacio Chapela (Environmental Science, Policy, and Management)
Lynn Ingram (Geography)
James Kirchner (Earth and Planetary Science)
Timothy Duane (Landscape Architecture and Environmental Planning)
Doug Forshmann (Environmental Science, Policy, and Management)
Brian Wright (Agricultural and Resource Economics)

Advisers: Students enrolled in the College of Letters and Science; Carol Snow.
College of Natural Resources: Kristin Kohn.

Choice of College
Students can complete a major in environmental sciences in either the College of Letters and Science (A.B. degree) or the College of Natural Resources (B.S. degree). Course and breadth requirements are identical for all students, regardless of college. Please refer to the announcement of the appropriate college for details.

Major in Environmental Sciences
The environmental sciences major is supervised by the interdepartmental and intercollegiate committee in consultation with the major adviser, Kristin Kohn, in 260 Mulford Hall for details.

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 advisor, Kristin Kohn, in 260 Mulford Hall for details.

Required Courses for All Three Areas of Emphasis (Biological, Physical, Social Science)

Lower Division Courses
Environmental Sciences 10:
Environmental Economics and Policy 1 or Economics 3;
Biology 1A-1B (required for biological science) or Biology 11 plus one of the following: ESPM 102A, 113, 114, 115B, 115A, 115B, 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 Courses
Energy and Resources 102;
Earth and Planetary Science C120/energy and Resources Group C130, Public Health 142A, or Statistics 131A (prerequisite to EnvSci 100);
Environmental Sciences 100 (prerequisite to 196A-196B);
Environmental Sciences 196A/L and 196B/L;
One of the following: Demography 100, Demography C125, Environmental Sciences 125, ESPM 100, ESPM 102D, ESPM 153, ESPM 155, ESPM 160, ESPM 165, ESPM 168, Environmental Economics 101, or 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.

Students are required to have 30 upper division units of major course work. Any remaining units may come from courses on any of the electives lists.
Honors Program
To be eligible for honors, students must meet the minimum GPA established by their college. See Carol Snow (L&S) or Kristin Kohn (CNRS) 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 8-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 endangering 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 completed with a passing grade). For students in 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. (F) 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 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 welcome 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 academic departments, and topics vary from department to department and semester to semester. Enrollment limited to fifteen freshmen. (F,SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. Upper-division courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

98. Directed Group Study. (1-4) Course may be repeated for credit as topic varies. Group meetings of various lengths. Must be taken on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Topic will vary from semester to semester. (F,SP) Staff

100. Introduction to the Methods of Environmental Science. (4) Three hours of lecture, one hour of discussion, and one 8-hour and one-half hours of fieldwork per week. Prerequisites: Environmental science statistics requirement. Open only to declared environmental science 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 thesis research in the required senior seminar, 196A-196B. 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) Sousa

125. Environments of the San Francisco Bay Area. (3) Three hours of lecture per week. The weather and climate, plants and animals, geology, landforms, and soils of the Bay Area, with an emphasis on the interaction of these physical elements, their modification by humans, and problems deriving from human use. (SP) Berry

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: Must be taken concurrently with Environmental Science 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 the General Catalog. (F,SP) Staff

Ethnics Studies / 255

Ethnic Studies (College of Letters and Science)
Department Office: 506 Barrows Hall, (510) 643-0796 Chair: to be announced

Professors
Norma Alarcon, Ph.D. (Chicana Studies)
Evelyn N. Glenn, Ph.D. (Asian American Studies)
Patricia P. Hilden, Ph.D. (Native American Studies)
Talia L. Rabin, Ph.D. (Asian American Studies)
José Saldívar, Ph.D. (Chicana Studies)
Thais T. Talakai, Ph.D. (Chicana Studies)
Sau Ing C. Wong, Ph.D. (Asian American Studies)
Marlene Ambar (Meisters), Ph.D. (Chicana Studies)
Carlos Muñoz, Jr. (Meisters), Ph.D. (Chicana Studies)

Associate Professors
Naima Ahmad, Ph.D. (Chicana Studies)
Ramon Gómez Balingit, Ph.D. (Chicana Studies)
Arieh Hesser, Ph.D. (Chicana Studies)
David Morey, Ph.D. (Chicana Studies)
Benjamin Sharmat, Ph.D. (Chicana Studies)
Alex M. Saraga, Ph.D. (Chicana Studies)
Katharyn Uhl, Ph.D. (Asian American Studies)
L. Ling-chi Wang, M.A. (Asian American Studies)
Margaret B. Melvin (Meisters), Ph.D. (Chicana Studies)

Assistant Professors
Atif Anwar, Ph.D. (Chicana Studies)
John Balmes, M.D. (Chicana Studies)
Barbara Abrams, Dr. P.H. (Public Health)
Laura Pace, Ph.D. (Chicana Studies)
Nicholas Petrakis, M.D. (Chicana Studies)

Undergraduate Major Adviser: Mr. St. Germaine.

The Group Major in Ethnic Studies
The major in ethnic studies provides a core curriculum designed to develop a comparative 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 in the United States within the general context of American society and institutions. Thus, they pursue knowledge within a critical understanding of contemporary society and for social changes 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
The major in ethnic studies consists of 12 courses for a total of 48 units.

Lower Division. Ethnic Studies 10A, 10B; completion of one course in consultation with an advisor, in African American Studies, Asian American Studies, Chicano Studies, Ethnic Studies, Native American Studies, or an approved course from another department.

Upper Division. Ethnic Studies 101A, 101B, and 103; completion of three courses from Ethnic Studies 100, 130AC, 141, 147, 150AC, or 173; completion of two courses from African American Studies, Asian American Studies, Chicano Studies, Ethnic Studies, Native American Studies, or an approved course from another department; Ethnic Studies 197 (4 units cumulative).
The Department of Ethnic Studies provides a program leading to the A.B. degree with honors for majors who have completed a minimum of three of the six upper division courses listed in the major requirements (not including Ethnic Studies 197); completion of one upper division course from African American Studies, Chicano Studies, Native American Studies, Chicano Studies, Native American Studies, or an approved course from another department.

Lower Division Courses

10A. A History of Race and Ethnicity in Western North America, 1500-Present. (4) Three hours of lecture and one hour of discussion per week. The 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 racial group “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)

10B. Theories and Concepts in Comparative Ethnic Studies An Introduction. (4) Three hours of lecture and one hour of discussion per week. This explores the work of key theorists of race, ethnicity, and de-colorization whose work and ideas have formed the basis of scholarly work in the broad, interdisciplinary field of comparative ethnic studies. It is intended both to offer beginning students a ground in the ideas and methods they will encounter throughout their major and to provide course names, texts, and concepts with which all majors should be familiar. (SP, Staff)

20AC. Introduction to Ethnic Studies. (4) Three hours of lecture and one hour of discussion per week. Formerly 20. The course examines 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 class will focus on the three groups, the course will also address salient features of the experiences of Asian 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. (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 class will focus on the three groups, the course will also address salient features of the experiences of Asian 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. (F, 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 pass/no pass basis. 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 format. 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, Staff)

41AC. A Comparative Survey of Protest Movements Since the 60’s. (4) Three hours of lecture and one hour of discussion per week. Formerly 41. An introductory, comparative, and interdisciplinary study of Native American, Chicano, Asian American, and African 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 racism, 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, Staff)

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)

110. Narrative Writing. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. A writing seminar with attention to the narrative practices that enrich ethnic identities in descriptive, historical, and fictional stories. (F)

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. This course aims to develop an understanding of the social, political, and cultural context in which these films were produced. The films will be analyzed in terms of their relationship to the larger social, political, and cultural context of the period in which they were made. (F)

125AC. Ethnic Music in America. (4) Three hours of lecture and one hour of discussion per week. Ethnic music in America runs the gamut from those that attempt to remain true to traditions in their place of origin, to contemporary rock, rap, and music videos made and consumed by many different ethnic groups in America. This course will discuss the music of four groups; Native Americans, European Americans, Chicanos, and Asian Americans. No experience of music is necessary. Three weeks will be spent on each of the four groups; the remaining time will be devoted to introductory issues concerning the history and ethnicity in America. This course satisfies the American cultures requirement. (SP)

128. Film-Video Images of Communities of Color: Analysis and Video Production. (3) Three hours of lecture per week. Prerequisites: Must be taken in conjunction with a 3-unit 190 video production seminar; consent of instructor. Formerly 123. Films analyzed for understanding of range of alternative stories in filmic concepts of history, culture, class, and personal identity. Selected films show producers’ points of view and social-critical stances. Production training for making video projects are conceived/shot/edited within teams. (F)

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 and European immigrant groups examines selected historical developments, events, and themes from the 17th century to the present. Course satisfies the American cultures requirement. (F, Staff)

130C. A History of Race and Ethnicity in Western North America, 1500-Present. (4) Three hours of lecture and one hour of discussion per week. Formerly 130. An examination of patterns of women’s immigration to the U.S. in specific socio-historical and cultural contexts. Special attention to race, ethnicity, and identity issues from woman-centered analysis and methodology. (F, Staff)

135AC. Contemporary U.S. Immigration. (4) Three hours of lecture per week. Formerly 135. The myth, reality, and history of U.S. Immigration. Three hours of lecture per week. Considers issues raised by 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, 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 to the U.S. in specific socio-historical and cultural contexts. Special attention to race, ethnicity, and identity issues from woman-centered analysis and methodology. (F, Staff)

141. Racial Politics in America. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Upper division standing with priority to Ethnic Studies majors. A critical and comparative analysis of
144AC. Racism and the U.S. Law: Historical Treat- ment of Peoples of Color. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: SPO 250 or consent of instructor. Intensive his- tori-legal survey of racism in the United States, ex- ploring the legal antecedents of the country's con- temporary legal society and emphasizing the role of law as a social policy instrument. Readings and lec- tures will investigate the prevailing legal currency of race in the United States through an examination of the country's formative legal documents and the con- sequent effects of a myriad of judicial decisions on peoples of color. This course satisfies the American cultures requirement.

147. Women of Color in the United States. (4) Three hours of lecture per week. Prerequisites: 20 or the introductory class in any of the 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 constructs of race, class and gender. (SP)

150AC. People of Mixed Racial Descent. (4) Three hours of lecture and one hour of discussion per week. Formerly 150. Deals with phenomenon of mixed racial identity, focusing on United States but with reference to other nations for comparative purposes. Includes historical perspective as well as exploring the psychology, ecology, literature, and cinema per- taining to topic. This course satisfies the American cultures requirement. (F,SP) Staff

159AC. The Southern Border. (4) Four hours of lec- ture-discussion per week. Prerequisites: Upper division standing. The southern border—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 dimen- sion, and as a region which has been the testing ground for opposing social issues as free trade, immigration, and ethnic politics. Also listed as Education 186AC and Geog- raphy 159AC. This course satisfies the American cultures requirement. (F,SP) Mertz, Shakerin

190. Advanced Seminar in Comparative Ethnic Studies. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prere- quisites: Consent of instructor. In addition to class meetings, an assignment/research component will be added to the course to increase contact hours with students. Possible components include additional readings, outside-of-class projects and any other project which the instructor feels will add to the value of the course. Topics to be announced at the be- ginning of each semester. (F,SP) Staff

190AC. Advanced Seminar in Ethnic Studies. (3-4) Course may be repeated for credit as topic varies. Three to four hours of lecture per week. For a four unit course, an extra assignment/research component will be added to the course to increase contact hours with students. Possible components include additional readings, inside-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 begin- ning of each semester. This course satisfies the Amer- ican cultures requirement. (F,SP) Staff

195. Selected Issues in Comparative Ethnic Studies Research. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prere- quisites: Consent of instructor. 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

H196A-H196B. Senior Honors Seminar for Ethnic Studies Majors. (3.3) Three hours of seminar per week. Credit and grade to be awarded on completion of seminar. Prerequisites: 195, consent of instructor, 3.3 GPA on all University work, and a 3.3 GPA in

Ethnic Studies Graduate Group / 257

Group Office: 506 Barrows Hall #2570, (510) 642-6643 Chair: Jose David Saldívar, Ph.D.

Profs.
Norma Alarcón, Ph.D. (Chicana Studies)
William M. Banks III, Ed.D. (African American Studies)
Svelin Nakara-Baer, Ph.D. (Chicana Studies)
Charles Henry, Ph.D. (African American Studies)
Patricia P. Hilden, Ph.D. (American Languages)
Percy Hirtz, Ph.D. (African American Studies)
Stanie H. Kim, Ph.D. (African American Studies)
Michel S. Laguere, Ph.D. (African American Studies)
José Saldívar, Ph.D. (Chicana Studies)
Hironak Takai, Ph.D. (Asian American Studies)
Sau Ing C. Weng, Ph.D. (African American Studies)
Carrie Barrera, Ph.D. (African American Studies)
Margarita Melville (Emerita), Ph.D. (African American Studies)

Associate Professors
Alfred Arteaga, Ph.D. (Chicana Studies)
Viví Claro, Ph.D. (Chicana Studies)
Ramon Groosloog, Ph.D. (Chicana Studies/Ethnic Studies)
Beaute Maza, Ph.D. (Chicana Studies)
John McWhorter, Ph.D. (Linguistics)
David Montejano, Ph.D. (Chicana Studies/Ethnic Studies)
Michaell Omi, Ph.D. (Asian American Studies)
Lauri新常态ke, Ph.D. (Chicana Studies)
Rox M. Sargasso, Ph.D. (Chicana Studies)
Steven Smale, Ph.D. (African American Studies)
Ultras Taylor, Ph.D. (African American Studies)
Kathryn Um, Ph.D. (Asian American Studies)
L. Ling-chi Wang, M.A. (Asian American Studies)
Margaretta Melville (Emerite), Ph.D. (Chicana Studies)

Assistant Professors
Minhac Hernandez, Ed.D. (Native American Studies)
Darren Ranco, Ph.D. (Native American Studies)

Affiliated Faculty
Hanfeng Lin, Ph.D. (Asian American Studies)

Graduate Advisers: Prof. Sau Ing (Head), Prof. Al- fred Arteaga

The Ethnic Studies Graduate Group doctoral pro- gram focuses on the historical and sociocultural- study of the core groups racialized in United States history: African Americans, Asian Americans, Chi- canos and Latinos, and Native Americans. Trans- disciplinary in approach, the program encourages students to adopt a broad range of theories and methods to the construction of the racialized ethniccultural groups in relation to each other, in the EuroAmerican context, and in a transnational context.

The Ethnic Studies Ph.D. Program is a graduate group program, which means that its courses are taught, and its students advised, by faculty not only from the Department of Ethnic Studies but also from other departments on campus. The Graduate faculty consists of faculty from the Department of Eth- nic Studies (composed of Asian American Studies, Chicano and Latino Studies, African American Studies) and the Department of African American Studies. The affiliated faculty is composed of fac- ulty from other departments on campus whose ex- pertise and research interests address the con- cerns of comparative ethnic studies and who have expressed a special interest in working with grad- uate students in ethnic studies. The affil- iated faculty may teach courses and sit on the ex- amination and dissertation committees of students in the Ethnic Studies Graduate Group doctoral pro- gram.

Students may obtain information regarding the re- quirements and curriculum from the student affairs officer of the Ethnic Studies Graduate Group.

Graduate Courses

200. Critical Terms and Issues in Comparative Eth- nic Studies. (4) Four hours of seminar per week. For- merly 200A. Introduction to the field examining the crit- ical practices and salient terms and issues in the study of contemporary American and transnational formations. The focus is interdisciplinary. (F) Staff

201. History and Narrativity: Contemporary Theo- ries 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 articula- tion with theories and methods in the social sciences. (F) Staff

202. Social Contexts: 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 articula- tion with theories and methods in the social sciences. (F) Staff

230. Series in Transdisciplinary Comparative The- ories 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 Top- ics. (4) Course may be repeated for credit. Four hours of seminar per week. Research seminar focus is on critical history and practices across disciplines. (F,SP)

270. Directed Dissertation Research. (4-12) Course may be repeated for credit. Four hours of seminar per week. Prerequisites: 200 or consent of instructor. A seminar course designed to involve Eth- nic Studies students directly in the research process. Emphasis on examination and analysis of primary sources, methodology, and the development of theo- retical constructs. A major research paper is required. (F,SP)

299. Directed Reading. (2-4) Course may be repeated for credit as topic varies. Individual instruction. Must be taken on a satisfactory/unsatisfactory basis. For qualified students directly working on the doctoral dis- sertation. (F,SP)

601. Individual Study for Master's Students. (4) Course may be repeated once for credit. Individual in- struction. Must be taken on a satisfactory/unsatisfactory basis. Individual study, in consultation with Group

I prefix=language course for business majors
C prefix=cross-listed course
# 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
To declare the film major: Film 25A must be completed; in addition, the student must be progressing in the chosen languages.

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 the first Latin American Cinema (1930-1971) [Film 25B].

Documentary Film: Film 28A.
Avant-Garde Film: Film 28B.

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 courses being offered to satisfy the film language requirement on a Passed/Not Passed basis. 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. Any natural language is 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 credit are required)

Required Courses: See the major “Announcement of Classes” for current offerings that satisfy these requirements and for specific topics being taught.

Film Theory: One course on the history of film theory (e.g., Film 100).
Auteur: One course on an individual auteur (e.g., Film 151).
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 approved courses.

Honors Program. To be eligible for admission to the honors program in Film, a student must have attained senior standing with a grade-point average of 3.3 or higher on all University work and a 3.5 grade-point average 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 senior honors thesis. Although the production of a film may 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. The designated emphasis provides curricular and research resources for students who want to concentrate on film within their respective disciplines and have their work formally recognized. Designed to bring together faculty and students from different departments, the program provides a unique context for rigorous cross-disciplinary thinking and promotes innovative research in the theory and history of cinema.

Applicants must be enrolled in a doctoral program at Berkeley and must 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: a minimum of three graduate seminars in film studies taken at Berkeley; Film Studies 200, Film Studies 201, 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. A member of the Graduate Group in Film Studies must be an unofficial 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 analysis of rhetorical strategies. Satisfacts the first term 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. Formerly Rhetoric R5B. Intensive argumentative writing simulated through selected readings, films, and class discussion. Satisfies the second half of the Reading and Composition requirement. (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 Pass/Not Pass 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

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 cinema, this 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

28A. The Documentary Film. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: 25A or equivalent. An analysis of the development of the documentary film, including examples by Flaherty, Grierson, Riefenstahl, Wiseman, (F,SP) Staff

28B. 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, Duchamp, Leger, Buhu, Clair, Deren, Brakhage, Kubelka, Snow, Gehr, Framp- ton, and Rainer. (F) Staff

39. Freshman/Sophomore Seminar. 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 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)

40AC. Film Seminar in American Cultures. (3) Course credit as topic varies. Students may remove a deficient grade in 40A by taking 40AC. Three hours of lecture per week. Topics in the study of film in American culture. This course satisfies the American cultures requirement. (F,SP) Staff

50. Introduction to Film for Nonmajors. (4) Three hours of lecture and one and one-half hours of discussion per week. An introduction to film art and film technique for students who are interested in learning 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 1970s, with examples from American, European, Asian, and Third World cinema. Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will be Student Monitors for their students from the time they declare the major until the time they graduate. (F,SP)

85. In the Mix: Anatomy of an Industry. (2) One hour of lecture and one hour of discussion per week. The course will introduce students to the American cultures requirement. (F,SP)

108. Special Topics in Film Genre. (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 film's major genres. (F,SP) Staff

151. Auteur Theory. (4) Course may be repeated for credit. Three hours of lecture and three to four hours of laboratory per week. Prerequisites: 100 or equivalent. The works of a single director. (F,SP) Staff

160. National Cinema. (4) Course may be repeated for credit as topic varies. Three hours of lecture and 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

160A. Screenwriting. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Previously 160B. The course explores the art and craft of writing a feature-length, narrative screenplay. Participants present three story ideas to the class, develop one concept into a detailed treatment, and write the first act of the script in professional screenplay form. The focus is on rewriting, with regular presentations of scenes to fellow writers. The emphasis is on 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. Previously 180A. 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. The focus is on 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 course culminates with reading of completed scripts. (F,SP)

185. The Language of Cinema. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Foundation 180. Completion of all lower division requirements with grade of B+ or better; consent of instructor. The course will focus on 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. The focus is on 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 course culminates with reading of completed scripts. (F,SP) Staff

C185. Digital Video: The Architecture of Time. (4) Nine hours of studio per week. Prerequisites: 25A and 28A or 28B with consent of instructor. 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. As digital technologies continue to expand the skills, theories, and concepts used in digital video production—camera, sound, lighting, and editing. Drawing on previous study of narrative, documentary, avant-garde film and video, students gain a deeper understanding of the complex relationship between the visual and aural elements of moving-image art and entertainment. Occasional screenings. (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. This course is designed to provide students with hands-on experience in the field, gaining a broad knowledge of the kinds of film reviews and criticism found in a variety of sources. (F,SP) Staff

197B. Field Studies for Majors. (3) Course may be repeated for credit. Individual conferences with Faculty Sponsor, and at least nine hours per week at field study. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; film majors only. This supervised field program may include experience in a broad range of pre- and post-production film 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 sponsor and student will establish individual meeting times and academic requirements for acceptable completion of the course. Commitment to at least nine hours of field work per week. (F,SP) Staff

197C. Avant-Garde Film Study. (2) Two hours of field study and one hour of discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Declared film major, 25B (may be taken concurrently). Interning at Pacific Film Archive three hours per week. Interns will gain experience in various aspects of archival and exhibition work, with a focus on experimental film. Working with PFA's experimental film curator interns will curate an exhibition from the PFA's avant-garde collection (to be presented in PFA's evening program the following semester), and will write program notes. Interns will also contribute to a database indexing exhibition of experimental film and video at PFA, and research a bibliography on some aspect of experimental film (which will eventually be published as part of a larger project indexing all published articles on experimental film). Staff

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. Consent of instructor. Interning at Film Quarterly. Interns will gain experience in the editorial process. This internship will help the student refine critical skills, develop editorial skills, and experience working on a film journal. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Three to four hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores; consent of instructor. Formerly C108. The course will expose students to a broad range of in-depth study on topics in the study of film. (F,SP) Staff

H195. Film Honors Thesis. (4) Independent study with film faculty. Prerequisites: Senior standing with a 3.3 GPA on all University work and a 3.5 GPA in courses counted in the major. Students interested in taking H195 for a letter grade to complete a senior honors thesis. Although the production of a film may be required, the thesis will focus on the process of planning, writing, directing, shooting, and editing a film. (F,SP) Staff
with that of any regular course and shall be specific enough to allow students to write an essay based on the study. Staff

199. Supervised Independent Study for Advanced Undergraduates, (1-4) Hours to be arranged. Must be taken on a passed/not passed basis. Prerequisites: 25A or equivalent and consent of instructor. 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 the student to write an essay based upon his/her study. (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. This seminar will examine both traditional and recent critical approaches to a systematic and historical study of film. Although we will emphasize contemporary structuralist-semantic, psychoanalytical, and socio-critical methods, we will also study the classical debates in film theory about representation, filmic vs. literary signification, sexual difference, and the social function of images in modernism and postmodernism. Illustrations will be taken from film history from 1910 to 1980. 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 other students interested in starting work on film history, the seminar provides both a theoretical overview of film historiography and an introduction to the practice of historically oriented film research. The first part of the course uses both overtly historiographic read- ings and film history examples to raise historical ques- tions of technology, institution-formation, exhibition, cultural history, and spectatorship. (F,SP) Staff

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 discussions with the instructor and a final written report. (F,SP) Staff

The Major

There is no undergraduate major in folklore.

Preparation for Graduate Study

The preparation for the graduate program in folklore is a strong undergraduate record in one of the broad fields with which folklore is closely affilia- ted. 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 mani- fested in customs and beliefs, it has close affilia- tions with anthropology, design, history, linguistics, philosophy, psychology and sociology. Conse- quently, a good undergraduate record in any of these disciplines is highly desirable though not nec- essarily 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.) Stu- dents must take at least one course in two of the following three areas: folk narrative, folk or ethnic music, folk or primitive art. As an introduction to the discipline, students must take Anthropology 160, The Forms of Folklore. In addition, all students are required to take the interdisciplinary Folklore 250A- 250B, Folklore Theory and Techniques. The stu- dent must also demonstrate proficiency in reading at least one foreign language. German is perhaps the most useful language for folklore studies, but French, Spanish, or some language intimately con- nected with the M.A. thesis may be approved to satisfy the language requirement. Questions on the requirements for the M.A. in folklore should be ad- dressed to the graduate adviser, Folklore Program, in 201 Kroeber Hall.

Graduate Courses

250A-250B, Folklore Theory and Techniques. (4) Two hours of seminar per week plus seven hours of outside class. An interdisciplinary consideration of di- verse topics related to fieldwork and research in folk- lore. Dundes

266. The Folktale and Allied Forms. (4) Two hours of seminar per week. The study of folk narrative, in- cluding motif and type classifications, theories of myth and folktale, and methods of analyzing prose narrative. 298. Readings in Folklore. (3-6) Course may be re- peated for credit. Individual conferences to be ar- ranged.

299. Directed Research. (3-6) Course may be re- peated for credit. Individual conferences to be ar- ranged.

French

(College of Letters and Science)

Department Office: 4125 Dwinelle Hall, (510) 642-2712
http://french.berkeley.edu
Chair: David Hult, Ph.D.

Professors

Joseph J. Duggan, Ph.D., Ohio State University. Medieval epic; lyric poetry; romance; textual criticism
Suzanne Guérard, Ph.D., Johns Hopkins University. 19th and 20th century literature, contemporary cultural criticism, literary theory and hermeneutics, text editing
Timothy Hampton, Ph.D. Princeton University. Renaissance literature
David F. Hult, Ph.D. Cornell University. Medieval literature, literary theory and hermeneutics, text editing
Michael Lucyce, Ph.D. Princeton University. Modern literary and cultural studies; gender; sexuality
Ann A. Smoak, Ph.D. Yale University. 20th-century literature
Leo Bersani, (Emeritus), Ph.D. Harvard University. 19th and 20th-century literature
Bast G. Ytterman, (Emeritus). Ph.D. Yale University. 18th-century literature

Associate Professors

Karl Britto, Ph.D. Yale University. Francophone literature
Richard Kern, Ph.D. University of California, Berkeley. Applied linguistics, foreign language acquisition
Nicholas Page, Ph.D. University of Pennsylvania. 17th- century English literature and culture
Bertrand Augst, (Emeritus). Ph.D. University of Colorado. 19th- and 20th-century literature; film history and theory

Assistant Professors

Susan Maslan, Ph.D. Johns Hopkins University. 17th and 18th-century literature
Deborah Sanyal, Ph.D. Princeton University. 19th- and 20th-century literature, intellectual history, literature and performance

Lecturer

Francesca Sargen, Diplôme d'études supérieures, Paris. Phonology, composition, translation, French for business

The Department of French places primary em- phasis on instruction in French at all levels, and the majority of its upper division courses are conducted entirely in that language. Nonmajors and non- majors, however, may write in English in any upper division course.

Note: Students should consult the department “Course Description,” issued at the beginning of each semester, for current course topics.

The Major

Courses 1, 2, 3, 4, and 35 or their equivalents; 9 upper division courses in French. Twelve upper di- vision units must be taken in residence.

There are two options in the major, which share a common base in language study and the acquisi- tion of competence in spoken and written French. Option A offers a strong concentration in literature and is especially suitable as preparation for further literary study for those interested in college-level teaching careers. Option B focuses on literature in the broader context of French civilization in its his- torical, social, and artistic dimensions and intro- duces students to an interdisciplinary approach.

Option A. French 102 and three courses chosen from three different centuries (112-120); one course from 121-126; one course from 145-189;
three electives. Courses H195A-H195B and 199 do not count toward the major.

Option B. French 102 and three courses chosen from among 103A-103B; one course from 180A-180D; one course from 112-120; one core elective. Courses H195A-195B and 199 do not count toward the major.

Honors Program (H195A-H195B). Senior majors in French literature may apply to the honors program. Students who meet specific criteria may obtain an invitation to the honors program from the undergraduate assistant. Upon admission to the honors program, students undertake research on an approved topic of their choice in French literature or civilization. The results of this research constitute an honors essay, written under the supervision of a member of the regular faculty. Credit and grade are awarded upon completion of the sequence. The honors sequence is undertaken in addition to the course work for the major.

Prospective and current majors should consult the department's brochure, The Undergraduate Major in French.

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.

The Department of French offers four minor options: general French minor, French literature, French civilization, and French language studies. Each minor requires five upper division courses.

General Minor in French: French 102 and four upper division courses from French 103-189 (see note below).

Minor in French Literature: French 102 and four courses from 103-126 or 140A-140D (see note below).

Minor in French Civilization: French 102 and four courses from 140A-140D or 150-189 (see note below).

Minor in French Language Studies: French 102 and four courses from 130-139 or 145-149, and French 35 (Phonetics).

Note: All minor courses must be taken for a letter grade. Conversion courses cannot be included as coursework. One course from 102, 103A-103B and 140A-140D may be counted toward the major or minor programs.

Graduate Study

The graduate programs in the Department of French blend strong coverage 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 gender, 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 engage in 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 major's degree, students take a minimum of six core courses, for a total of 14. (2) fulfill the foreign language requirement through the successful completion of two upper division or graduate courses in a foreign language (other than French) which have been taken on the students' courses of study. (3) pass a written and oral qualifying examination in three areas of study based on the student's reading list developed in consultation with faculty; (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, a second Romance Literature as a collateral field, and knowledge of a prescribed list of masterworks in a third Romance 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. 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 background. Language requirement: Latin, French, Italian, and Spanish. Knowledge of German is recommended.

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. Prerequisites: 1 or equivalent. Introduction to speaking, listening, reading, and writing in French. (F,SP)

1G. French for Graduate Students, Beginning. 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)

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)

2G. French for Graduate Students, Advanced. Three hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Preparation for graduate reading examination in field of English and in all other disciplines. (SP)

3. Intermediate French. (5) Five hours of lecture per week. Prerequisites: 2 or equivalent. Development of reading and writing skills leading to the ability to produce coherent expressions in French. (F,SP)

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)

5. 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 pass/fail basis. (F,SP)

39. Freshman/Sophomore Seminar. (2-4) 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-setting seminar. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester.

43A-43B. Aspects of French Culture. (3,3) Three hours of lecture per week. Formerly 43. Various historical and aesthetic themes and topics are used to develop an understanding of the French civilization. In English. (F,SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topical aspect of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they the time they graduate. (F,SP)

Upper Division Courses

102. Reading and Writing Skills in French. (4) Three hours of lecture per week. Prerequisites: 4 (taken at Berkeley) with a B-or better, or consent of instructor. (may be taken concurrently with 103). An exploration of the ways words and images structure thought, communication and interactions of the society. Development of reading and writing skills leading to correct and effective expression in French. (F,SP) Staff

103A-103B. Language and Culture. (4,4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Discussion and composition based on the analysis of literary and cultural texts. (F,SP) Staff

112A-112B. Medieval Literature. (4,4) Course may be repeated for a maximum of 8 units. One course from 112A-112B may be repeated once for credit with a different topic and with consent of the Undergraduate Adviser. Three hours of lecture per week. Prerequisites: 102 or equivalent. Medieval literature from the Chanson de Roland to the Roman de la Rose. (F,SP)

114A-114B. Late Medieval Literature. (4,4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Poetry and prose of the first half of the 16th century, in the context of the intellectual and aesthetic trends of the period: humanism, evangelism, and the development of a new poetics. (F,SP)

116A-116B. Sixteenth-Century Literature: Marot to Montaigne. (4,4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Poetry and prose of the first half of the 16th century, in the context of the intellectual and aesthetic trends of the period: humanism, evangelism, and the development of a new poetics. (F,SP)

117A-117B. Seventeenth-Century Literature. (4,4) One course from 117A-117B should be repeated once for credit, for a maximum of 8 units, with a different
topic and consent of the undergraduate adviser. Three hours of lecture per week. Prerequisites: 102 or equivalent.

A. Authors from the first half of the 17th century. The Baroque: its chief exponents, literary attempts to solve the crisis in Renaissance values, formulation of new concepts in philosophy and psychology, experiments with new formal structures in poetry, fiction, and the theatre. Preciosity, Descartes, and rationalism.

B. The concept of classicism and the development of tragedy. Jansenism, the doctrine of Port-Royal. Social satire and comedy. (F,SP)

118A-118B. Eighteenth-Century Literature. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent.

A. Authors from the first half of the 18th century, with emphasis on the origins of the philosophical movement and the development of modern art forms in the theater and the novel.

B. A study of authors of the second half of the 18th century stressing the importance of the “Movement Philosophique” and the development of libertine values as well as the emergence of the pre-Romantic aesthetics.

119A-119B. Nineteenth-Century Literature. (4;4) Course may be repeated once for credit if topic varies. Course may be repeated for a maximum of 8 units. Three hours of lecture per week. Prerequisites: 102 or equivalent.

A. Authors from the first half of the 19th century. Romantic poetry and drama. Balzac, Stendhal and the novel. Michelet and the emergence of history.

B. Authors from the second half of the 19th century. The various poetic movements: Le Parnasse and Symbolism. Development of the novel, realism, and naturalism. (F,SP)

120A-120B. Twentieth-Century Literature. (4;4) One course may be repeated once for credit. Prerequisites: 102 or equivalent. A maximum of 8 units, with a different topic and consent of the undergraduate adviser. Three hours of lecture per week. Prerequisites: 102 or equivalent.

A. The modern novel, the avant-garde, cubist poetry, Dada and Surrealism, the theatre before the Second World War.

B. Development of the novel, poetry, and theatre since the Second World War. Sartre and existentialism, theatre of the absurd, nouveau roman. (F,SP)

121A-121B. Literary Themes, Genres, and Structures. (4;4) Course may be repeated once for different topics. Three hours of lecture per week. Prerequisites: 102 or equivalent. Topics vary from year to year. Past topics have included “literature fantastique,” science fiction, autobiography, French lyric poetry. (F,SP)

122A-122B. Literary Criticism. (4;4) Course may be repeated once for credit, for a maximum of 8 units, if topic varies. Three hours of lecture per week. Prerequisites: 102 or equivalent. The course will focus on literary criticism and will discuss the various options proposed as well as the relationship between criticism and fiction or philosophy in a given writer’s work. (F,SP)

123. Prose Fiction. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Studies in the French novel. (F,SP)

124A-124B. Modern Theatre. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Studies in 20th-century theatre. (F,SP)

125A-125B. Poetics and Poetry. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Studies in French poetry. (F,SP)

126. Senior Seminar. (4) Course may be repeated once for credit, for a maximum of 8 units, if topic varies. Three hours of lecture per week. Prerequisites: 102 or equivalent. Intensive study of a major author. (F,SP)

130. Writing in French. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Advanced language and grammar exercises intended to enhance vocabulary and increase ability with French through examples. Illustrations and close study of short literary excerpts. In-depth corrections of compositions, and occasional debates. (F,SP)

131A-131B. Translation and Debate. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent, or consent of instructor. In-depth knowledge of the French language and grammar. Critical discussion of literary works is the goal of this course. A textbook and systematic exercises will be used to assist in the demanding task of translating, both from English to French and from French to English. (F,SP)

136. Scientific French. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 102 or equivalent. Introduction to the languages of science, technology, and research in contemporary France. Through a reading of both historical texts and recent journal articles available only in French, we will analyze the principle categories and characteristics of French technological and scientific discourse. Discussion topics include the scientific method, approaches to research, and the interplay between science and society with a particular focus on medicine and engineering. Emphasis on technical vocabulary, reading strategies, and listening comprehension. (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 correspondence), translations, training in oral expression. Conducted entirely in French. (F,SP) Sorgen

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 related to careers. This course 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

139. Creative Writing in French. (4) Course may be repeated for credit with a different topic, for Creative writing minors only. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Students are expected to use their French in language teaching related to careers. This course 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

140A-140D. French Literature in English Translation. (4;4;4;4) Three hours of lecture per week. Major texts of French literature. Readings and writing assignments in English for non-majors, in French for French majors and minors. Class discussions in English.

A. The Middle Ages.
B. The Ancien Régime.
C. The 19th Century.
D. Modern Literature. (F,SP)

145. History of the French Language. (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)

146A-146B. Introduction to French Linguistics. (4;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)

147. Special Topics in French Linguistics. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 102; 146; or consent of instructor. Formerly 133. Topics vary from year to year. (F,SP)

148. French Dialectology. (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) Course may be repeated once for credit as topic varies. Three hours of lecture per week. Prerequisites: 102 or equivalent. A study of Francophone literature: traditional and French influences, structure, relationship between language and message. (F,SP)

152. Quebecois Culture and Literature. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. A study of Quebecois culture and civilization: novels, films, society. (F,SP)

160A-160B. French Historical Writing. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. The development of concepts of history in French writing. The Chroniqueurs, the humanists. Bossuet. Michelet are examples of the authors who may be studied. Topics vary from year to year. (F,SP)

161A-161B. A Year in French History. (4;4) One course from 161A-161B may be repeated once for credit with a different topic and with consent of the undergraduate adviser. Three hours of lecture per week. Prerequisites: 102 or equivalent. The study of a year in French history from many points of view—political, sociological, intellectual, and artistic, as well as literary. (F,SP)

162A-162B. Perspectives on History. (4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. This course will study both past and present topics with historic and/or theoretical topics. Topics vary from year to year. (F,SP)

165. Modern Notions of Utopia. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent. The idea of social and sexual utopia in Charles Fourier, and its relevance to 20th-century political and literary theories of utopia in France. (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)

171A-171B. A Concept in 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-172B. Psychoanalytic Theory and Literature. (4;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, LaTourmente, Rimbaud, and Proust. (F,SP)

173. Linguistics and Literature. (4) Three hours of lecture per week. Prerequisites: 102 or equivalent; 146 or equivalent; or consent of instructor. The impact of

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)
linguistics on the theory of literature and the practice of literary criticism in recent years. (F,SP)

174. Music and Literature. (4) Three hours of lecture per week. This course may be repeated for a maximum of 8 units. 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 poetry. (F,SP)

175A-175B. Literature and the Visual Arts. (4,4) Three hours of lecture per week. Prerequisites: 102 or equivalent. Using various works from the arts and the human sciences, this course will investigate the relations between images and written texts. (F,SP)

177A-177B. History and Criticism of Film. (4,4) Four hours of lecture and two hours of studio per week. Prerequisites: 102 or equivalent; 170 or equivalent. The development of French cinema. Discussions, oral and written reports will be based on the 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)

180A-180D. French Civilization. (4;4;4;4) Three hours of lecture per week. Prerequisites: 102 or equivalent. A survey of the history of France from the Middle Ages to the end of the 19th century. (F,SP)

181A-181B. 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 esthetic and social history. (F,SP)

184A-184B. French Literature in Its Cultural Context. (4) Three hours of lecture/discussion per week. Prerequisites: 102 or equivalent. A survey of French literature from the Middle Ages to the end of the 18th century, in which we will study the greatest masterpieces of French literature prior to the Revolution. (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, exotisme, neo-colonialism, the reaction of European countries to the discovery of Africa. (F,SP)

191SA-191SB. Honors Sequence. (2,2) Credit and grade will be awarded on completion of sequence. Prerequisites: Open to seniors majoring in French who meet the GPA requirements, with the consent of major advisor. 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 pass/no pass 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 on a topic in French literature or culture under the supervision of the Department of French. Discussions, oral and written reports will be based on the viewing of films from the work of major French film directors. (F,SP)

200. Proseminar. (1) One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This course is designed to give all 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 a maximum of 8 units. Formerly 251A-251B. A survey 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) with some historical grammar (phonology, morphology, syntax, orthography) introduced through textual readings from the various historical periods. Sociolinguistic emphasis, focusing on the emergence of a standard language and its relationship to other varieties of French. (F,SP)

203. Oral and Written Discourse in French. (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. A survey of the development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, examining historical grammar and external history. Also listed as Spanish C202 and Italian C201. Staff

204. Listening Comprehension in French. (1) Three hours of lecture per week. Prerequisites: Consent of instructor. Designed to improve students' listening comprehension in French, with an emphasis on understanding vocabulary and idiomatic usages. Students will be required to engage in exploration of restricted field, involving

205. French Civilization. (4,4) 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. A survey of the development of the major Romance languages (French, Italian, and Spanish) from the common Latin origin. Comparative perspective, examining historical grammar and external history. Also listed as Spanish C202 and Italian C201. Staff

206. French Syntax. (4;4) Three hours of lecture per week. Prerequisites: Consent of instructor. An introduction to the syntax of French. (F,SP)

212A-212B. Old Provençal Literature. (4;4) Three hours of seminar per week. Offerings vary from year to year. Staff

214A-214B. Medieval French Literature. (4,4) Three hours of seminar per week. Offerings may vary from year to year. Staff

217A-217B. Nineteenth-Century Poetry. (4) Three hours of seminar per week. Offerings may vary from year to year. Staff

218A-218B. Nineteenth-Century Fiction. (4) Three hours of seminar per week. Offerings may vary from year to year. Staff

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 may vary from year to year. See the Department's Course Description for current topic.

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 may 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 the Caribbean. Lyric, drama and novels; the presence of oral tradition in written forms, narrative techniques borrowed from storytelling tradition, the definition of traditional metaphors and ideology; idealization of lost worlds; the conflict of traditional culture and modernism; the search for political identity and independence.

252. Nineteenth-Century Fiction. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings may vary from year to year. See the Department's Course Description for current topic.

254A-254B. Nineteenth-Century Poetry. (4,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings may vary from year to year. See the Department's Course Description for current topic.

254A-254B. Nineteenth-Century Poetry. (4,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Offerings may vary from year to year. See the Department's Course Description for current topic.

255. French Civilization. (4,4) Three hours of seminar per week. Staff

256. French Syntax. (4,4) Three hours of seminar per week. Staff

257. Linguistics and Literature. (4) Three hours of lecture per week. The impact of linguistics on the theory of literature and the practice of literary criticism in recent years. The application of concepts and methodology of a pragmatically-based text linguistics to the study of French literary texts—narrative fiction and drama. (F,SP) Sorgen

258. Cognitive Aspects of Foreign Language Reading and Writing Development. (4) Three hours of seminar per week. Examination of the underpinnings of development of reading and writing skills within foreign language study. Emphasis on complex nature, and their problematic manifestations among student populations. Exploration of the intellectual mechanisms involved when people learn to read or write, and of the pedagogical aspects of teaching these skills in a foreign language, and in general. (F,SP) Kern, Schutz

260A-260B. Studies in Medieval Literature. (4,4) 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.

261A-261B. Reading and Interpretation of Old French Texts. (4,4) 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.

262A-262B. Old Provençal Literature. (4,4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Reading and analysis of 12th and 13th century texts written in the langue d’oc with special emphasis on troubadour lyric poetry.

263. Studies in Middle and Early Modern French. (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.

264. Studies in the printing press. (4,4) Three hours of seminar per week. Interdisciplinary, team-taught course offered through sponsorship of the Townsend Center for the Humanities. It will engage students in exploration of a restricted field, involving

265. French Art Criticism and Literature: Late 19th Century. (4) Only graduate students may repeat course. Three hours of seminar per week. Study of the ways in which texts and images figure painting in the second half of the nineteenth century. Emphasis on Delacroix, Courbet, Manet, Degas, the Impressionists, Van Gogh, Gaugin and Cezanne; reading from reviews, monographs, treatises, novels, diaries and letters of the period.

266. Special Study. (1-4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. Designed to give all 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)
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the writing of a report. May not be substituted for avail-
able graduate courses. (F,SP)

299. Individual Research. (4-12) Course may be re-
peated for credit. Individual conferences. Reserved for
students directly engaged in writing the doctoral thesis. (F,SP)

601. Special Study for Graduate Students. (1-8)
May not be used to satisfy units or residence re-
quirements. Individual conferences. Must be taken on
a satisfactory/un satisfactory basis. Individual study for
the comprehensive exam in consultation with the field
adviser. (F,SP)

602. Individual Study. (1-8) May not be used to sat-
isfy units or residence requirements. Individual con-
ferences. Must be taken on a satisfactory/un satisfactory
basis. Prerequisites: M.A. or completion of at least
16 units beyond B.A. Individual study with an adviser,
intended to provide an opportunity for qualified stu-
dents to prepare for the various examinations required
of candidates for the Ph.D. (F,SP)

Professional Courses

301. Teaching French in College: First Year. (3)
Three hours of lecture and attendance at demonstra-
tion class for five hours per week. Must be taken on a
satisfactory/un satisfactory basis. Prerequisites: For
graduate students taking class at college level. Required
for all new T.A.s. Bi-weekly lectures on methodology,
grading, and classroom teaching. Additional seminars and
discussion sections on methodology. Required of all
Graduate and Graduate Student Instructors teaching
French 1 for the first time. (F,SP)

302. Teaching French in College: Advanced First
Year. (3) Three hours of lecture and attendance at
demonstration class for five hours per week. Must be
taken on a satisfactory/un satisfactory basis. Bi-weekly
lectures on methodology, grading and testing in French
2. Demonstration class with required attendance five
times per week; laboratory observations; supervised classroom
practice. Additional seminars and discussion sections on method-
ology. Required of all Graduate and Graduate Student Instructors
required attendance at five times per week; language laboratory
observations; supervised classroom practice. Additional seminars and discus-
sion sections on methodology. Required for all Grad-
uate Student Instructors teaching French 2 for the first
time. (F,SP)

303. Teaching French in College: Second Year. (3)
Course may be repeated for credit. Three hours of lecture
and one hour of laboratory per week. Must be taken on a
satisfactory/un satisfactory basis. Prerequisites: 301, 302, 303 or equivalents.
Lec-
tures and discussion on the methodologies used in teaching sec-
ond-year French, grading and testing; occasional at-
tendance at demonstration classes; language labo-
ratory observations; supervised classroom teaching.
Required of all instructors teaching French 3 or 4.

304. Teaching French in College: Advanced Sec-
cond Year. (3) Course may be repeated for credit. Three
hours of lecture and one hour of laboratory per week. Must be taken on a
satisfactory/un satisfactory basis. Prerequisites: 301, 302, 303 or equivalents.
Lec-
tures and discussion on the methodologies used in teaching sec-
ond-year French, grading and testing; occasional at-
tendance at demonstration classes; language labo-
ratory observations; supervised classroom teaching.
Required of all instructors teaching French 3 or 4.

335. Teaching French in College: Practical Pho-
etics and Aural Comprehension. (2) Three hours of lecture
and one hour of laboratory per week. Must be taken on a satisfactory/un satisfactory
basis. Prerequisites: Required of all GSIs teaching French 35 for the first
three hours of lecture and two hours per week; language laboratory observations; supervised classroom practice. (F,SP) Sorgen

Geography

(College of Letters and Science)

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Professors

William E. Dietrich, Ph.D. University of Washington. Hillslope
and fluvial geomorphology.
Louisa F. Fortmann, Ph.D. Cornell University. Property,
poverty, gender, community natural resource management
Gillian Hart, Ph.D. Cornell University. Development theory,
agrarian and regional studies, labor, gender
Allan Pred, Ph.D. University of Chicago. Social theory, local
and regional transformation, culture and power
Harley Sifakis, B.A. Wayne State University. Skill formation,
training, work organization and global production
Bart W. 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. University of Toronto.
Climatology, pure and applied
David Hooson (Emeritus), Ph.D. London School of
Economics, Former Soviet Union, history of geography
Theodore M. Obarber (Emeritus), Ph.D. Syracuse
University. Geomorphology, and lands
Hilgard O’R. Sternberg, Ph.D. Louisiana State University. Environmental topics, Brazil
David Stoddart (Emeritus), Ph.D. Cambridge University.
Coastal geomorphology, ecology of tropical islands and
reefs

Associate Professors

Roger Byrne, Ph.D. University of Wisconsin. Biogeography,
palaeoclimatology, pollen analysis.
Paul E. Groth, Ph.D. University of California, Berkeley.
Cultural landscape studies, architectural history, the
United States
You-lien Hsing, Ph.D. University of California, Berkeley.
Economic restructure, Taiwan, China
tional development, Asia
B. Lynen Pflug, M. Sc. Palaeoecology, marine geochemistry, stratigraphy and geochronology,
geoarchaeology, palaeoecology
Michael John, Ph.D. Johns Hopkins University. Latin
America, development
G. Mathias Kondolf, Ph.D. Johns Hopkins University. Glacial
geomorphology, river management and restoration
Bobatz Marz, Ph.D. State University of New York. Latin
America, human geography
Robert R. Hood (Emeritus), Ph.D. University of California, Berkeley. Cultural geography, comparative urbanism,
southeast Asia

Assistant Professors

John C.H. Chang, Ph.D. Columbia University. Tropical
ocean-atmosphere interactions, application of climate
studies to environment and society
Kurt Cuffey, Ph.D. University of Washington. Paleoclimatology, glaciations, glacier flow mechanics, and
the fluvial environment
Ruth Wilson Gilmore, Ph.D. Rutgers University. Race and
gender, labor and social movements, politics and culture,
the U.S., the African Diaspora
Robert C. Rhew, Ph.D. University of California, San Diego. Terrestrial-atmosphere exchange of trace gases,
atmospheric chemistry, stratospheric ozone-depletion issues

Affiliated Faculty

Peng Gong, Ph.D. University of Waterloo. GIS theory,
techniques and applications; image processing,
analysis, and application
Patrick Kitch, Ph.D. Yale University. Environmental
archaeology, prehistory, Pacific Islands
Jean Laue, Ph.D. Harvard University. Cultural geography,
social practice theory, situated politics of science and
everyday life
John Radke, Ph.D. University of British Columbia.
(Landscape Architecture) Geographical information systems in landscape analysis and environmental
planning

Major Adviser: Carol Page, Student Affairs Officer.
Graduate Adviser: Gillian Hart.

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 hu-
man sciences and an integrative link among the
social sciences and humanities through its con-
cern with space and spatial relations. As geo-
graphic theory and methods have expanded their
horizons over the past quarter century, three re-
search foci have emerged to define geography at
Berkeley:

(1) Global Environmental Change is concerned
with long- and short-term alterations of the physical
world inhabited by humankind and human impacts
on interlocking systems of the natural environment
(climate, landforms, biota). 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 environ-
mental reconstruction, paleoclimatology, glacial and
riverine environments, Quaternary stratigraphy,
geography, climatology, coastal morphology, and
ocean and coastal change.

(2) Development and Environment is concerned
with the social origins of natural resource use and
abuse and the relation of economic growth to en-
vironmental quality around the world. Research
and teaching in Development and Environment
draw upon political ecology and social theory to ex-
ploration the relations between natural and social sys-
tems, emphasizing patterns of access to and con-
trol over resources, property and management
regimes, and systems of cultural meaning. Special
emphasis is given to geographies of resistance, indi-
igenous rights, religious signification, and the history
of environmental thought.

(3) Local and Global Relations is concerned with
the intersection of global processes and locally situ-
ated 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 ad-
dress global economic forces, 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 professional experience 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 students often use
one or more of faculty in equal measure (including
faculty affiliates and members from other depart-
ments) 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 three pairs: 30 or C32, 50AC or 70AC. 4 or 20. (Transfer stu-
dents should consult with the undergraduate ad-
viser to avoid repeating lower division work.)

Upper Division. Majors take at least eight upper division courses, five of which must be in one spe-
cialty group. The remaining three courses must in-
clude one from each of the other specialty groups
and one from the methods group. Everyone choos-
ing option 1 must take Geography 130; everyone
choosing option 2 must take Geography 110; ev-
eryone choosing option 3 must take Geography 140A.

I. The Development-Environment Option:
Geography 103, 104, 110, 111, 115, 130, 133*, 134,
138, C152, 153, 154, 156, 158, 161, 162, 163, 164,
165, 167, 168, 169, 170, 175*, 177.

II. The Local-Global Option: Geography 104, 107, 108, 109, 110, 111, 112, 121, 122, 150, 151, C152, 153, 156, C157, 158, 159AC,

III. The Physical-Environmental Change Option: Geography 64, 109, 134, 136A, 140A, 140B, 141, 143, 144, 145, 146, 147, 148, 149, 171, 175.

Methodology: 180-189.

*Course designation varies according to instructor and content. For more information, consult the under-graduate adviser.

The Minor

Students in the College of Letters and Science may complete one or more minors of their choice, nor-mally field both academically and administratively distinct from their major.

Required: A minimum of five upper division courses, all taken for a letter grade. Students must main-tain an overall grade-point average 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 the following three courses: three are general areas of Geography 103-170. Students may select courses in the range of 175-189, but several of those courses have limited en-rollment and require permission of the instructor. Geography 197, 198, and 199 cannot be used to sat-sify a minor program requirement. Students should plan to take two of the three courses during the Fall term 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. Information concerning the GRE test is available. Please go to http://geography.berkeley.edu/Grad/ProgramCourses/GradProgram/Grad.Broch.html.

The Doctoral Program

The College of Chemistry offers an individual ma-jor in chemical biology leading to a Bachelor of Sci-ence degree. The chemical biology major is in-tended to provide solid background in chemistry as it affects areas like biochemistry, molecular biology, bioengineering, structural biology, drug design, pharmacology, and medicine. Students who are in-terested in the individual major in chemical biology may obtain additional information in the Under-graduate Majors Office.

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 sem-inars) before taking the qualifying exam and ad-vancing 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 for submission to an academic or scientific journal. The paper must be handed in and approved by the major advisor no later than 3 months before the qualifying exam.

The qualifying exam (the "oral") must be taken by the end of the third year, although it is recom-mended that students enter with a master’s de-gree and take the qualifying exam early in their course of study. 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 have a dissertation prospectus meeting—dur-ing which the student discusses a written research proposal—with at least two members of the Exam Committee. The Ph.D. dissertation is written under the supervision of a committee of three University faculty members, one of whom must be from out-side the Geography Department and a member of the Berkeley physics, chemistry, or biology faculty. Upon final accep-tance of the dissertation, the degree of Ph.D. is awarded. Students are expected to complete the Ph.D. by the end of their sixth year in the program.

Students who do not hand in satisfactory papers can be terminated from the program and awarded terminal M.A. degrees.

*Students who do not pass the qualifying exam can be terminated from the program and awarded terminal M.A. degrees.

Lower Division Courses

1. Global Environments. (4) Three hours of lecture and two hours of discussion per week. The global pat-tern of climate, landforms, vegetation, and soils. The relative importance of natural and human-induced change, global warning, forest clearance, accelerated soil erosion, glacial/postglacial climate change and its consequences.

2. World Peoples and Cultural Environments. (4) Three hours of lecture and one hour of laboratory per week. Historical and contemporary cultural-environmen-tal patterns. The development and spread of cul-tural adaptations, human use of resources, transforma-tion and creation of cultural environments.

3. World Regions, Peoples, and States. (4) Three hours of lecture and one hour of discussion per week. This course will provide a framework for recognizing and analyzing the major distinctive regions of the world in comparative perspective. The most important interac-tions between environment, economy, ethnicity, and the national identity and viability of states will be ex-plored.

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 un-derstanding of gender inequality and racial discrimi-nation in a globalizing world? The course examines (a) how supposedly “natural” differences are actually pro-duced 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 Women’s Studies C15.

20. Globalization. (4) Three hours of lecture and one hour of discussion per week. How and why are geo-graphical patterns of employment, production, and con-sumption changing in the contemporary world? What are the consequences of NAFTA, an expanded Eu-ropean Community, and post-colonial migration flows? How is global restructuring culturally reworked locally and nationally?

24. Freshman Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Sections 1-3 to be graded on a letter-grade basis. Sections 4-6 to be graded on a pass/fail basis. The Fresh-man Seminar Program has been designed to provide new students with the opportunity to explore an intel-lectual 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 geographies 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 envi-ronments. New frontiers in ocean sciences, including the technologies used to probe the ocean depths: including subca, submersibles, and satellites. Also listed as Earth and Planetary Science C30.

C32. 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 entered in this course are familiar with the relevant theory in political econ-omy of development and underdevelopment. The course will be structured around three critical concepts: land, labor, and work. Also listed as Development Studies C10. (F)

35. Global Ecology and Development. (4) Three hours of lecture per week. Problems of Third World poverty and development have come to be seen as inseparable from environmental degradation. The course explores the global and interconnected character of environment and development in the less developed world. Drawing on case studies of the en-vironmental problems of the newly industrializing states, food problems, and environmental security in Africa, and the global consequences of tropical de-forestation in Amazonia and carbon dioxide emissions in China, this course explores how growth and stagnation are linked to problems of environmental sus-tainability.

39. Freshman Seminar. Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. Intensive reading and discussion seminar for first-time students.

40. Global Environmental Change. (4) Three hours of lecture and two hours of laboratory per week. An overview of the interactive processes that result in the mosaic of environments on the earth and the controls on the distribution of ecosystems. Environmental change is explored on a variety of time and spatial scales so as to enhance our capability to distinguish between natural and human-induced climatic, biotic, and physical changes.

50A. California and the Pacific Rim. (4) Three hours of lecture and one hour of discussion per week. Formerly 150AC. California, land of contrasts, land of diversity: economic, human, physical. The extraordinar-y achievements of the state’s industry, agriculture, and culture. The surprising contours of its cities, coun-try and landscapes. The history of California, its human and physical environments. Its long connection to the Pacific Rim. This course satisfies the American cultures requirement.

C55. Introduction to Central Asia. (3) Three hours of lecture per week. Formerly 55. This course will intro-duce the student not only to ancient and modern Cen-tral Asia, but also to the role played by the region in the shaping of the history of neighboring regions and regimes. The course will outline the history, languages, ethnicities, religions, and archaeology of the region and will acquaint the student with some of the political, social and economic chal-lenges for contemporary post-Soviet Central Asian re-publics. Also listed as Near Eastern Studies C26. (F)

70AC. The Urban Experience. (4) Three hours of lec-ture and one hour of mandatory discussion section per week. We will track the historical evolution of the Amer-ican city. We’ll look at the economics of city life, at the geography of metropolitan regions and at the aesthetics of the urban scene—indeed how the course content reflects the American urban experience and the consequences. Our approach is to focus on major
themes in urban life and to show how various groups have had different kinds of experiences in these urban realms. This course satisfies the American cultures requirement.

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/failed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students pursue a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate.

90. Seminars for Lower Division Students. (3) Three hours of seminar and one hour of consultation per week. A reading and research seminar for freshmen.

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 pass/not passed basis. Lectures and small group discussion focusing on topics of interest that vary from semester to semester.

Upper Division Courses

103. History of Environmental Thought. (3) Three hours of lecture and one hour of fieldwork per week. This course traces the roots of the changing practices, theories, and representations shaping and shaped by environmental thought.

104. The City in the Third World. (4) Three hours of lecture per week. This course reviews major themes concerning the origins and cultural roles of non-Western cities; the genesis and impact of colonial urbanism; the contemporary city in the Third World.

106. Geography and War. (4) Three hours of lecture per week. Geographical and geopolitical patterns of war. Centered on issues of territory and resources, topics include: the nature and transformation of war; geopolitical explanations; antecedents, participants, technologies, strategies, tools, goals, and consequences of conventional, unconventional, and hi-tech warfare conducted under the complex conditions of a modern world.

107. Geography of Religions. (4) Three hours of lecture per week. Formerly 107. Impact of belief systems on landscapes and environments; distribution of religious sacred spaces, places, and pilgrimage sites; religious influences on political, economic, social, and cultural developments; the role of religion and political geography. Also listed as Religious Studies C183.

108. Political Geography. (4) Three hours of lecture per week. Reviews the nature and viability of nation-states; regional blocs and spheres of influence; European imperialism and the “new nations”; sensitive frontiers; ingredient culture, capitals, core-areas, and centrifugal forces. A comparative evaluation of world political systems.


111. Local and Regional Transformation. (4) Three hours of lecture per week. The simultaneous transformation of localized activities, power relations, and identity. This course reviews spatial patterns 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 Underdevelopment. (4) Three hours of lecture and one hour of discussion per week. This course looks at the role of the development of world economic systems and the impact of these developments on less advanced countries. Course objective is to provide a background for students who wish to understand and assess theoretical interpretations of development and underdevelopment. Also listed as Development Studies C100.

120. The Cultures of Cities. (4) Three hours of lecture per week. We will look at a number of cities that are—economic units and cultural centers played in the development of capitalism in the 19th century. A series of case studies, including Paris, Vienna, London, New York, and Chicago, will ground discussions about industry, finance, architecture and literature, and consciousness and cultural identity. From here we will proceed thematically, to cover the major post-war issues of the automobile and suburban; race relations, public housing, and the ghetto; and downtown redevelopment and gentrification.

121. The Automobile and American Society. (3) Three hours of lecture per week. This course uses the development and diffusion of the automobile to examine a number of central forces shaping American society in the 20th century: mass production, mass consumption, global restructuring, and the emergence of new kinds of urban and suburban spaces.

122. Carceral Geographies: Globalization and Social Justice. (4) Three hours of lecture per week. How does the study of contemporary prison expansion clarify our understanding of globalization, economic re-structuring, rural-urban bifurcation, state form, privatization, race, gender, and power? Why have prisons proliferated along with gated communities and shopping malls? In this course, we will organize our inquiry in terms of geographical scale and undertake a joint fieldwork case study of a post-1980 California prison town.

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? What are the role of natural resources in the world economy, national development and human welfare focusing on the Third World. The origins of scarcity and abundance, population growth, and migration, hunger, and poverty.

133. Islands and Oceans. (4) Three hours of lecture per week. Physical and human geography of the sea ocean, and island environments, society, and culture; voyages and settlement of islands; cultural adaptations by seafarers; marine resources and environmental issues.

134. Natural Hazards and Problems. (4) Three hours of lecture per week. An ecological approach to the study of interactions between the natural events and human use systems; perceptions of and adaptations to natural hazards such as floods, droughts, earthquakes, tornadoes, and volcanic eruptions.


138. Political Ecology of the Third World. (4) Three hours of lecture per week. Political factors affecting ecological conditions in the Third World. Topics include environmental degradation, biodiversity, deforestation, agricultural production, role of international aid, divergence in standards of living, political power, participation and decision making, access to resources, wildlife management, environmental policies and treaties, political strife and war.

140A. Physical Landscapes: Process and Form. (4) Four and one-half hours of lecture per week. Prerequisites: 1, 40, or equivalent. Formerly 140. Understanding the physical characteristics of the Earth’s surface, and the processes active on it, is essential for maintaining the long-term health of the environment, and for appreciating the unique, defining qualities of geographic regions. In this course, we build an understanding of global tectonics, rivers, hillslopes, and coastlines and discover how these act in concert or independently to produce the magnificent landscapes of our planet. Through our review of formative processes, we learn how physical landscapes change and are susceptible to human modifications, which are often unintentional.

140B. Physiography and Geomorphical Ex- tremes. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 140A (formerly 140), or Geology 117, or equivalent. In this course we review the physical landscapes and surface processes in extreme environments: hot arid regions, glacial and periglacial landscapes, and karst terrain. Using this knowledge, plus an understanding of tectonic and temperate watersheds (gained from prerequisite courses), we explore how unique combinations of geomorphic processes acting on tectonic and structural provinces have created the spectacular landscapes of North America. Regions to be explored include the Colorado Plateau, Sierra Nevada, North Cascades, Northern and Southern Rockies, Great Plains, and the Maliautian Highlands and, where relevant, the Colorado Plateau.

C141. Paleoecology. (4) Three hours of lecture and two hours of discussion per week. Earth’s climatic changes have been substantial throughout geologic history, and these changes constitute fascinating natural experiments that reveal much about the earth’s climate systems and their capacity for change. In this course we will review important methods for climate reconstruction and also current knowledge of past climate changes throughout earth’s history, with an emphasis on those of the Quaternary. Methods to be explored include analyses of physical, geochemical, and paleontological characteristics of marine sediments, coral reefs, coastal sediments, lake sediments, tree rings, and ice cores. Also listed as Earth and Planetary Science C141.


144. Principles of Meteorology. (3) Three hours of lecture and one hour of discussion per week. Weather development in relation to different scales of atmospheric circulation and forecasting with examples from the Northeast Pacific-Western North American area.

145. Geologic 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 deep-sea sediments. The course will cover sources and composition of marine sediments, sea-level change, ocean circulation, paleoenvironmental reconstruction using fossils, imprint of climatic zonation on marine sediments, marine stratigraphy, and ocean floor resources. Also listed as Earth and Planetary Science C146.

146. Applied Physical Climatology. (4) Three hours of lecture 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 deep-sea sediments. The course will cover sources and composition of marine sediments, sea-level change, ocean circulation, paleoenvironmental reconstruction using fossils, imprint of climatic zonation on marine sediments, marine stratigraphy, and ocean floor resources. Also listed as Earth and Planetary Science C146.
ability, human activities, etc., in regional and hemi-
spheric climate anomalies.

148. Biogeography. (4) Three hours of lecture per
week. Types of coral reefs and islands and their
geological development; biogeography of reef or-
ganisms; functioning of marine and terrestrial reef
ecosystems; environmental variability (oceanographic,
climatic) and its effects; human settlement and use of
ecosystems; environmental variability (oceanographic,
Island biogeography.

149. Coral Reefs and Islands. (3) Three hours of lec-
ture per week. Types of coral reefs and islands and their
geological development; biogeography of reef or-
ganisms; functioning of marine and terrestrial reef
ecosystems; environmental variability (oceanographic,
climatic) and its effects; human settlement and use of
reels; human impact on reefs; conservation and man-
agement of reefs.

C152. Multicultural Europe. (4) Three hours of lec-
ture per week. This course will trace some of the sub-
stantive changes and transformations taking place in con-
temporary 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 national cul-
tures react to the increasing multiculturalization of Eu-
rope. The goal of the course is, first of all, to familiar-
ze with the multiplicity of national, social, and politi-
Cal innovations that are accompanying the formation of
multicultural Europe. This involves (1) an examination of
the transnational movements of people and citizen-
ship, and (2) a study of the Europeanization of culture.
Also listed as History C176, Interdisciplinary 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 de-
tail limitations on the standard topographic map series pub-
lished by the U.S. Geological Survey.

155. Building the Digital Earth. (3) Three hours of
lecture per week. This course is a survey of the role of various geographic in-
formation technologies in building digital representa-
tions of the earth and in supporting the development of
graphic information science. Through a series of guest lectures, faculty from several departments will
derict the use of digital technologies such as ge-
o-graphic information systems (GIS), global positioning
systems, and remote sensing to capture information about various natural and human phenomena which
are distributed across the earth’s surface and to un-
derstand the processes affecting them.

167. The New Europes. (4) Three hours of lecture per
week. The idea of Europe; processes of integration and disintegration; the reordering of the
formation of nations and states; environmental problems;
national identity; “Europe of regions”; transformation, con-
clict, and anxiety in the New Europes.

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; it is usually more restricted
than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental an-
ouncements.

171. Special Topics in Physical Geography. (3) Course
may be repeated for credit as topic varies. Three hours of lecture per week. This course is de-
signed to provide a vehicle for instructors to address a topic with which they are especially concerned; it is usually more restricted than the subject matter of a regular lecture course. Topics will vary with instructor. See departmental announcements.

175. Undergraduate Seminars. (4) Course may be
repeated for credit with different seminar instructor. Three hours of seminar per week. A read-
ing and research seminar for undergraduate students.
Topics will vary with instructor.

177. Conservation Geography. (4) Three hours of
lecture per week. The course examines the distribu-
tion, interdependence, and conservation of biological
and cultural diversity. Analysis of the strategies and
methods used by local communities, indigenous peo-
ples, national governments, and international organi-
zations to protect natural and cultural resources and
environments. Case studies will focus on current condi-
tions and environments, including coral reef, island, coastal
rain forest, wetland, and mountain peoples and envi-
ronments. Consideration of new methods and ap-
proaches to conservation.

180. Field Methods for Physical Geography. (5)
Two hours of lecture per week and six weekend field
trips. Prerequisites: 1 or equivalent, and consent of in-
tstructor. Field introduction to geomorphology, bio-
ography, and California landforms. Students conduct
field experiments and mapping exercises. Results of
field projects are analyzed and presented as a tech-
nical report. Oral field reports are required for some
trips.

181. Urban Field Study. (4) One hour of lecture and
nine hours (one day) of fieldwork per week. Prereq-
quisites: Consent of instructor. Introduction to the
metropolitan Bay Area; its history, economy, social
makeup. Evolution of urban landscapes and spatial pat-
tterns. Social justice and conflict in the city. Business
and industry location, real estate and housing, pro-
ducing and consuming in the city. Regional charac-
teristics of class, race, gender and politics.

183. Cartographic Representation. (4) Two hours of
lecture and six hours of laboratory per week. Problems in
the representation of quantitative and qualitative data on thematic maps.

184. Topographic Map Analysis. (4) Four hours of
seminar per week. Prerequisites: 140 or equivalent.
Formerly 141. The analysis of landforms portrayed by
contours on the standard topographic map series pub-
lished by the U.S. Geological Survey.

185. Advanced Cartographic Methods. (3) Two
hours of lecture and two hours of laboratory per week.
Prerequisites: 183 or 186 strongly recommended.
Some background using personal computers. Ad-
vanced cartographic methodology, particularly on
data acquisition, manipulation and analysis. Quantiti-
tative and qualitative data will be acquired from a va-
nety of sources—ranging from survey to internet. It will
then be mapped using graphic presentation and desk-
top GIS software. Map design for the web will also be covered. Some local fieldwork will be required.

218. Geographic Information Systems. (4) Two hours of lecture and three hours of laboratory per week. Prerequisites: Some computer experience. Formerly C188X. This course introduces the student to the rapidly expanding field of Geo-

graphic 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, inte-
grated, interpreted, and manipulated. It emphasizes a conceptual appreciation of GIS and offers an oppor-
tunity to apply some of those concepts to contemporary
geographical and planning issues. Also listed as Landscape Architecture C188. (F, Radke)

199. History of Geographical Thought. (4) Three hours of lecture per week. Recurring themes, prob-
lems, approaches, and controversies in the evolution of geography from ancient times, but with most em-
phasis on the 19th and 20th centuries. Its place in knowledge, relations with other disciplines, and its im-
age and role in various countries.

H195A-H195B. Honors Course. (1-4) Course may be repeated for credit. Hours to be arranged. Pre-

requisites: Consent of Instructor. Requires Honors in Geography. Students will write a thesis. One or two semesters; credit to be awarded upon com-
pletion of the sequence. (F,SP)

197. Field Study in Geography. (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. Su-

pervised 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. (4) Course may be re-
peted for credit. One hour of lecture and three to six hours of laboratory per week. Must be taken on a passed/not passed basis. Prerequisites: Senior stand-
ing. Overall GPA in major of 3.00. (F,SP)

Graduate Courses

200A-200B. The Geographical Point of View. (4;4) Three hours of seminar per week. Prerequisites: Re-

quired of all first year graduate students. The class has several goals: to give students a sound basis upon which to judge arguments. A second is to help students see, think, and write geographically—that is, to interpret the making and meaning of our physical and human landscapes. A third goal is to introduce stu-
dents to the tremendous range of geographical inquiry and what may be considered the major strength of geography as a form of thought: to wit, making links across space, among peoples, and between humans and the earth. Sequence begins in the fall.

201. Philosophical and Methodological Issues in Human and Cultural Geography. (4) Three hour dis-
cussion/semester and one hour consultation per week. An introduction to the relations between geographi-
cal theory and wider issues in the social sciences. Em-
phasis on the work of recent human/cultural geogra-
phers and related work in social theory and philosophy.

202. Philosophical and Methodological Issues in Physical Geography. (4) Course may be repeated for credit. Three hours of seminar per week. This reading seminar will discuss alternative modes of scientific ex-
planation in physical geography. It will consider the philosophical and methodological issues raised by al-
ternative approaches, in the context both of practice in geography as a whole and of that in the natural sci-
ces in general. Attention will be paid to the rela-
tionship between physical and human geography, the prospects for a unitary discipline, the implications of environmental change (both natural and man-
induced).

203. Nature and Culture: Social Theory, Social Practice, and the Environment. (4) Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly C214. This course examines how concepts and theories of “de-
velopment” have been produced, maintained, used, and challenged in different regions of the world economy. It will offer a framework for analyzing how changing and contending models of development both reflect and shape social processes and practices.

204. Geographic Research Methods and Theories. (4) Three hours of seminar per week. Prerequisites: Graduate standing. Analysis of geographic research methods and theories. Use of field research and historical development or field-based studies in ge-
ography and related disciplines. Consideration of ap-
proaches and assumptions involved in various field re-
search methods and theories. Research ethics, proposals and equipment. Weekly projects, assign-
ments and discussion.

205. History of Geography. (4) Course may be re-
peated for credit. Three hours of seminar and one hour of consultation per week. A review of the develop-
ment of geographical scholarship and its various ap-
proaches in selected countries, in their historical con-
texts. Biographical histories of individuals and the formation of schools and “circles.” Recurring arenas of controversy and the principal protagonists.

214. Development Theories and Practices. (4) Three hours of lecture and one hour of consultation per week. This course examines how concepts and theories of “de-
velopment” have been produced, maintained, used,
and challenged in different regions of the world econ-
omy. It will offer a framework for analyzing how chang-
ing and contending models of development both reflect and shape social processes and practices. Hart

C214. Development Theories and Practices. (3) Three hours of lecture/per week. This course examines how concepts and theories of “de-
velopment” have been produced, maintained, used,
and challenged in different regions of the world econ-
omy. It will offer a framework for analyzing how chang-
ing and contending models of development both reflect and shape social processes and practices. Also listed as City and Regional Planning C203.

215. Seminar in Comparative and International De-
velopment. (4) Three hours of seminar and one hour of consultation per week. This seminar is designed for students intending to do research on topics of com-
parative development, the organization of work, and access to resources in different regions of the world econ-
y. Participants in the seminar will be expected to write a research proposal and participate actively in reading and responding to each other’s work. Hart, Hsing

240. Advanced Landforms Analysis. (4) Three hours of seminar per week. Prerequisites: 140 or equivalent. Problems and methods of geomorphic analysis.

C241. Glaciology. (4) Three hours of lecture and one hour of consultation per week. Prerequisites: Calculus. A review of the mechanisms of glacial systems, includ-
ing formation of ice masses, glacial 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 ge-
omorphic agents and as participants in climate change. Also listed as Earth and Planetary Science C242.

242. Earth Systems Science. (4) Course may be repeated for credit with consent of instructor. Three hours of seminar per week. One hour of consultation per week. To develop an advanced understanding of

global environmental problems, it is necessary to adopt the approach of Earth systems science (the modern physical geography). Earth is considered a complete, systemic entity and analyzed as an interacting set of physical, chemical, and biological systems that pro-
duces the characteristics and dynamics of the global environ-
ment. This course is a semester-long intro-
ductive overview of the major components of Earth systems science. We will read and discuss one complete graduate-level Earth systems science text, with supplementary readings from the current research lit-
erature. Student evaluation is based primarily on par-
ticipation in discussion and quality of supplementary lit-

erature reviews of selected topics. Chiang, Cuffey

243. Advances in Studies of Environmental Change. (4) Course may be repeated for credit. Three hours of seminar plus 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 ad-

dances that are either (1) concerned with spatial phe-

nomena, whether at a watershed scale or planetary scale, or (2) integrative in nature (meaning they tie to-
gether disparate elements to form a coherent view of the operation of the earth systems).

C244. Ecological and Social Dimensions of Global Change. (2) One and one-half hours of discussion and and a non-student seminar presentation. Must be taken on a satisfactorily/unsatisfactory basis. Prerequisites: Consent of instructor. Maximum enrollment 25. This sem-

inar will explore the possible social and ecological im-

pacts of global change, focusing on ecological and economic tradeoffs associated with the following hu-

man responses to global change: adaptation, pre-
vention. Emphasis is on developing predictive models of how the Earth System (including humans) will respond to global change. Also listed as Energy and Resources Group C291 and En-
viron Sci, Policy, and Management C212.

C250. Seminar in Sociology of Forest and Wildland Resources. (3) Three hours of lecture per week. Pre-

requisites: Consent of instructor. Formerly 250. Indi-

dividual projects and group discussions concerning so-
cial constraints to, and effects of, natural resource planning and management. Analysis of sociological theo-
yres to problems of managing wildland ecosys-
tems. Students will examine topics of individual inter-
est related to the management of wildland uses. En-
rollment limited. Also listed as Environ Sci, Policy, and Management C255.

251. Topics in Cultural 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 cultural geography.

252. Topics in Economic Geography. (4) Course may be repeated for credit. Three hours of seminar per week. Research seminar on selected topics in eco-
nomic geography.

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.

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.

256. Topics in Historical Geography. (4) Course may be repeated for credit. Three hours of seminar and one hour of consultation per week. Research seminar on selected topics in historical geography.

257. Topics in Climatology. (4) Course may be re-
peated for credit. Two hours of seminar and one hour of consultation per week. Research seminar on se-
lected topics in climatology.

259. Topics in Social 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 social geography.

260. 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.

261. Field and Laboratory Techniques in Quaternary Paleoecology. (4) Three hours of seminar/laboratory per week, plus outside field work. Formerly Interdepartmental Studies 260. Recovery of sediment cores from lakes and marshes. Field work usually in California or Mexico. Non-destructive methods of core analysis: magnetic susceptibility, x-radiography, photomicroscopy, charcoal scanning. Statistical analysis and graphical presentation of data.

262. Topics in Latin America. (4) Course may be repeated for credit. Two hours of seminar and one hour of consultation per week. Research seminar on selected topics in the geography of Latin America.

263. Emerging Regions and Peoples of the Former Soviet Union. (4) Two hours of seminar and one hour of consultation per week. This seminar will analyze, evaluate, and speculate about the geographical changes of recent years, especially the connections between ethology, economics, and ecology, and the crystalization of meaningful regions in historical context.

264. Nationalism, Identity, and Territoriality in Europe. (4) Course may be repeated for credit. Integration and disintegration; homelands and territoriality; identities—primordial or "imagined"; malignant or beneficent nationalisms; "Europe of regions," transformations and anxiety in the 1990s.

265. Oceans and Coasts. (4) Course may be repeated for credit. Three hours of seminar and one hour of consultation per week. Research seminar on selected topics in marine geography.

266. Directed Dissertation Research. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis.

267. Seminar on the Teaching of Geography. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: All graduate students in the department are expected to enroll. The aims and methods of teaching geography at the college and university levels. Open to all graduate students in the department.

268. Seminar in Graduate Research. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. An informal seminar for the presentation and discussion of student and faculty research in the physical earth sciences.

269. Departmental Research Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Prerequisites: Open to all graduate students not yet advanced to candidacy. Invited lectures on current research and field work. (F,SP)

270. Directed Dissertation Research, (1-12) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Open to all graduate students not yet advanced to candidacy. Invited lectures on current research and field work. (F,SP)

271. Directed Field Studies. (1-6) Course may be repeated for credit. Must be taken on a satisfactory/un satisfactory basis. Prerequisites: Open to all graduate students not yet advanced to candidacy. Invited lectures on current research and field work. (F,SP)

272. Directed Study for Graduate Students. (1-6) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for master's degree. Individual study for comprehensive or language requirements. May be repeated for credit. (F,SP)

273. Field Work in Geography. (1-12) Course may be repeated for credit. Individual research for graduate students in consultation with staff member. (F,SP)

274. Individual Study for Master's Students. (1-12) Course may be repeated for credit. Course does not satisfy credit for master's degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for master's degree. Individual study for comprehensive or language requirements in consultation with the field adviser. (F,SP)

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 advanced courses in German style. Upper division courses cover German literary phases from the earliest times to the present, as well as the linguistic study of Germany.

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 of Dutch Studies focuses upon the language, literature, and culture of The Netherlands and Flanders.

The Major

Lower Division. German 1, 2, 3, 4, or their 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 assistant 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 assistant.

Honors Program. A grade-point average 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: Any course in the 195 series and an honors thesis (H196). 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 descriptions that follow or the departmental booklet for current information). One affiliated course from another department or a course in Dutch 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 the program in literature and culture option or the linguistics option.
For more detailed information on the M.A. program in literature and linguistics, students should consult the German Department’s "Information Sheet for Graduate Students."

The Ph.D. Program: The German Department offers a Ph.D. in German linguistics and in German literature and culture. The program aims at a comprehensive historical knowledge of German literature and culture and its grammar and the facility to speak, read, and write the language, skills normally acquired during the second year of language instruction. (F,SP) Staff

24. Freshman Seminar.(1) Course may be repeated for credit as topic varies. One hour of lecture per week. Sections 1-2 to be graded on a pass/not pass basis. Sections 3-4 to be graded on a pass/credit basis. These seminar sections have been designed to provide new students with the opportunity to develop critical approaches to the language and culture. (F,SP) Staff

39. Freshman Seminar. Course may be repeated for credit. Three hours of lecture/discussion per week. No knowledge of German required. (F,SP) Staff

40. German Conversation. (2) Course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisites: 4 or equivalent. Formerly 102A-102B-102C. Not open to native speakers. (F,SP) Staff

45. Intensive Grammar Review. (3) Three hours of lecture per week. Prerequisite: 1 or equivalent. The course focuses solely on review and deepening understanding of the grammar presented in the first three semesters of German instruction. In one semester, it covers a textbook for German grammar, not normally covered in a two-semester intermediate course. Additional activities, such as analysis of authentic texts for usage and conventions (e.g. pronouns, verb conjugations, poetry), round out the program. Intended as a supplement—not substitute—to the second- or third-year program. Does not substitute for German 4. (F,SP) Staff

50. Multicultural Germany. (4) Three hours of seminar per week. This course will engage students to engage critically with concepts such as citizenship, identity, difference, hybridity, authenticity, minorities, migration, assimilation, transnational connections, community, territory, space, place, Heimat, diaspora and rhetorical strategies of "speaking back." We shall focus on a number of exemplary texts, events and debates from the German context, but also include comparisons with other minorities' experiences. The course will explore both historical and recent examples of "minority writing," analyze how these texts are located in the cultural field and how ethnic identities are perceived, constructed, packaged, and marketed. (F,SP) Gokturk

60. Knights, Violence, and Romance: Contemporary Medievalism and Its Sources. (3) Three hours of lecture/discussion per week. Medieval images and themes pervade 20th-century pop culture in America and Europe. In examining various forms of reception, we will try to uncover the strategies and ideological patterns behind these appropriations of medieval culture. In order to understand what has been transformed in 19th- and 20th-century medievalism, we will also investigate its sources in the High Middle Ages (courtly romances, the Nibelungen saga). By comparing the older and more recent groups of narratives, we expect to broaden our general understanding of the medieval world and its continuing significance for our own. (F,SP) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/not pass basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars may be taken for students considering a major in the sponsoring department. They are small, interactive courses in which students encounter a topic of shared interest and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they elect to be the major until the time they graduate. (F,SP) Staff

99. Supervised Independent Study. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a pass/credit basis. Prerequisites: Open only to freshmen and sophomores.
100. Introduction to Reading Culture, (3) Three hours of lecture/discussion per week. 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 German majors. (F,SP) Staff

101. Language and Text I, (3) Three hours of lecture/discussion per week. Prerequisites: 4 or equivalent. Systematic study of elements of style and discourse structures in spoken and written texts. Intensive written practice and critical reading of texts. No midterm or final examinations. Required of all German majors. (F,SP) Staff

102. Language and Text II, (3) Three hours of lecture/discussion per week. Prerequisites: 101 or equivalent. Open to native speakers. This advanced language/culture course focuses on the most common genres of German business as well as current economic, political, and cultural issues relevant to conducting business in the German-speaking world. German-language news media, video, and Internet resources keep us abreast of contemporary developments in the business scenes of the German-speaking countries and the rest of Europe. Language skills practiced include business writing, presentations, and negotiation. (F,SP) Staff

103. German for Business: Language and Culture, (3) Three hours of lecture/discussion per week. Prerequisites: 102 or equivalent. Systematic study of elements of style and discourse structures in spoken and written texts. Intensive written practice and critical reading of texts. No midterm or final examinations. Required of all German majors. (F,SP) Staff

104. Senior Colloquium, (3) Three hours of lecture per week. Prerequisites: 104 or equivalent. Staff

105. Middle High German for Undergraduates, (3) Open to graduate students when 203 is not offered. Required of all German majors. (F,SP) Hillen

106. Literary 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 psychological issues, literacy and discourse, schema theory, and reading research. Literary issues: stylistics and critical reading, reader response, structure of narratives. Educational issues: the literary text in the social context of its production and reception by intended and non-intended readers. Also listed as Education C145. Kramsch

108. Literary Translation, (3) Three hours of lecture per week. Prerequisites: Two upper division courses in German literature. This course introduces students to the problems of literary translation from German. (SP) Staff

109. Language and Power, (3) Three hours of lecture/discussion per week. Formerly 109. Multidisciplinary explorations into the origins, nature, and exercise of language as social symbolic power, drawing on readings taken from philosophy, sociology, and cultural theory, and critical discourse analysis. Topics include: language and myth, the meaning of meaning, the economy of verbal exchanges, perspective and ideology in language, institutional discourses, gender and discourse, and linguistic imperialism. Also listed as Education C144. Kramsch

110. The Literature of the Middle Ages, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of Middle High German required. The major works from the 15th through the 17th centuries and their relation to the tradition of medieval German or English translation to major literary monuments of the Hohenstaufen period. Intended for undergraduates with no knowledge of Middle High German. (F,SP) Tennant, Large

111. Western Mysticism: Religion, Art, and Literature, (4) Three hours of lecture and one hour of discussion per week. This course will focus on the literary and artistic creation of the Middle Ages, with particular emphasis on the expression of Christian and Jewish mysticism. The course is intended for students to develop an understanding of the basic concepts of Middle Ages and the Middle Ages of the Middle Ages. Required of all German majors. (F,SP) Staff

112. Enlightenment and Sturm Und Drang, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. The period that gave rise to modern German literature. Dramas (especially Lessing), novels, poetry, and philosophical and political texts in their historical settings. (SP) Weisinger

113. Lessing, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. A study of his contribution as playwright, theorist, and philosopher. An introduction to 18th-century trends in philosophy and literary theory will precede the analyses of selected texts. Staff

114. Dramas of the Family, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. Middle-class tragedy of the 18th and 19th centuries and its theory in terms of the relationships between literature and society: patriarchal, class ideology, political significance. Staff

115. From 1800 to the Present, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. A study of German drama in the 18th and 19th centuries and its theory in terms of the relationship between literature and society: patriarchal, class ideology, political significance. Staff

116. Classicism, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. A study of the major works of the period. Staff

117. Goethe, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. An introduction to Goethe's prose, drama, and poetry. Staff

118. Schiller, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. A study of Schiller's major dramas. Some attention given to the role of the theatre in the period. Staff

119. Romanticism, (3) Three hours of lecture/discussion per week. Literature, philosophy, and aesthetics of the Romantic period. Staff

120. German Literature and the French Revolution, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. The literature of the period. Staff

121. German Literature of the 1970s, (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. The literature of the period. Staff

122. Major Trends in German Literature Since 1945, (3) Three hours of lecture/discussion per week. The post-war novel. German history, social criticism, and existential concerns as reflected in the novels of H. Nossack, H. Boell, G. Grass, M. Frisch, and M. Walser. Staff

123. German Literature of the 1970s, (3) Three hours of lecture/discussion per week. A discussion of the literary, political, and cultural concerns in the period from 1970 to 1980. Staff

124. Kafka and Modernism, (3) Three hours of lecture/discussion per week. A study of Kafka's writing that will consider the historical, cultural, and social contexts and focus on a number of significantly different interpretive approaches to his work. Staff

125. Brecht, (3) Three hours of lecture/discussion per week. An introduction to Brecht's work. Staff

Consent of instructor. Independent study and research by arrangement with faculty. (F,SP) Staff
157. German Intellectual History in a European Context: Historical Figures and Contemporary Reflections. Three hours of lecture per week and one hour of discussion per week. (F,SP) 

157A. Luther, Kant, Hegel. (4) Introduction to the intellectual history of Germany from the age of the Reformation to the period of idealism. We will focus on three major themes: martin luther, immanuel kant, and g.w.f. hegel—on key issues in their thought, and on the reception and discussion of some of these issues in 20th-century philosophy. Lectures and readings in English. (F,SP) Staff

157B. Marx, Nietzsche, Freud. (4) Formerly 157. The aim of the course is to explore the central philosophical and intellectual influences of the most influential thinkers in the German-speaking world and to examine in detail several works in which problems of history, ideology, values, and methodology are considered. Lecture and readings in English. (F,SP) Staff

157C. Heidegger, Benjamin, Habermas. (4) Introduction to the thought of Martin Heidegger, Walter Benjamin, and Jürgen Habermas, and to key issues in European intellectual history. Texts and discussions in English. (F,SP) Staff

159. Marx and the Marxist Tradition. (3) Three hours of lecture/discussion per week. This course will focus on 1) the works of Karl Marx, Friedrich Engels, and Engels's close collaborator, Johann Most; 2) the ideas of Karl Marx and his followers that developed in the latter part of the 19th century, with migration to cosmopolitan areas where other modes of life and other cultures predominated; and 3) transformations that took place when Yiddish-speaking Jews emigrated to the “new world” and, while assimilating, attempted to continue their cultural pursuits. Staff

170. History of the German Language. (3) Three hours of lecture/discussion per week. Designed for undergraduates and graduate students interested in the history of the language of the newly united Germany, which transverses a rich linguistic legacy from the Lay of Hildebrand, through Luther 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 interchange over time with closely and remotely related languages such as English and Russian. (F,SP) Rauch

171. German Language Change and Societal Change. (3) Three hours of lecture/discussion per week. Designed for undergraduates and graduates, this course studies the mechanisms of language change and growth as evident in present and past German language data. Causality of change, in particular catalysts such as the media, demographics/social networks, commerce, government/politics, the law, the arts, education, theology, science/technology, travel. (F,SP) Rauch

181. Viennese Literature and Culture at the Turn of the Century. (3) Three hours of lecture/discussion per week. This course will focus on literature, psychology, and philosophy of the turn of the century. Staff

162. Mastering the Past: Postwar Reflections. (3) Three hours of lecture/discussion per week. The objective of this course will be to examine various aspects of postwar German, both East and West, as it attempted to come to terms with its fascist legacy and the atrocities of National Socialism. The assignments are in English. M. Holub

163. “Väterliteratur”: The Quest for Identity. (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. This course will examine the history and memory of national identity, with emphasis on literary texts written around 1980 in which sons are on the verge of paternity and question their father’s involvement in the Third Reich. Texts and discussions in German. (SP) Seeba

165. Women’s Writing and Enlightenment. (3) Three hours of lecture/discussion per week. Prerequisites: 1, 2, 3, 4, or equivalent. Concentrating on German literature in English translation from the Enlightenment, Romanticism, and East Germany, this course examines women’s attitudes toward an enlightenment tradition that seeks its emancipation in principle, but which in practice gains their loyalty while not living up to its promise. Staff

166. Feminist Perspectives in Literature. (3) Course may be repeated for credit. Three hours of lecture/discussion per week. For specific topic contact German department. (F,SP) Staff

167. Cultural Criticism. (3) Three hours of lecture/discussion per week. Prerequisites: Knowledge of German required. The cultural criticism of Friedrich Nietzsche, Sigmund Freud, and Hannah Arendt will be examined. The implicit criticism in works by some authors as Thomas Mann, Franz Kafka, Else Lasker-Schuler, and Thomas Bernhard will be considered. Notions of the subconscious, identity formation, and societal responses will be in particular attention. Texts and discussion in German. (F) Kudszus

168. Yiddish Literature and Culture. (3) Three hours of lecture/discussion per week. Through the evaluation of a variety of 19th- and 20th-century Yiddish texts written in Eastern Europe, this course will focus on 1) the culture of the Eastern European “shetl” (village) as represented in literary texts, film, and the fine arts; 2) a multicultural literature which develops in the latter part of the 19th century, with migration to cosmopolitan areas where other modes of life and other cultures predominated; and 3) transformations that took place when Yiddish-speaking Jews emigrated to the “new world” and, while assimilating, attempted to continue their cultural pursuits. Staff

175. Undergraduate Seminars. (3) Three hours of lecture/discussion per week. Course may be repeated for credit. Three hours of film screening per week. A comparative and interdisciplinary approach to the history of early German film between 1920 and 1933, designed to introduce the student to the analytical study of film in general. We will closely analyze the major films of the period and relate them to Weimar culture and society. Films have English subtitles. Kaes

181. Films of the Third Reich. (4) Three hours of lecture and two hours of film screening per week. A study of the function of propaganda in the films made under Hitler. Using fiction and documentary films, we will try to develop some understanding of the semiotics of fascist film art. We will also examine the social context of film art in the Third Reich and analyze how German postwar films have depicted the Hitler period. Films have English subtitles. Kaes

182. German Cinema in Exile. (4) The course will deal with the topic from various perspectives. Introductory discussion will focus on the pre-War emigration of American filmmakers from Nazi Germany to Great Britain, France, Spain, Portugal, Iran, and the United States; and on the working conditions in Hollywood pertaining to the topic. Films have English subtitles. (SP) Kaes

183. New German Cinema: German Film After 1962. (4) Three hours of lecture and one hour of film screening per week. This course will examine films by Straub, Herzog, Fassbinder, Wenders, Syberberg, Schönöndorf, and lesser-known filmmakers in terms of their distinct visual styles, narrative principles, and thematic preoccupations. Discussions of modernism and post-modernism will help place these films in larger contexts. Films have English subtitles. Kaes

185. Representations and Memory of the Holocaust in Film. (4) Three hours of lecture per week and three hours of film screening per week. Because of its enormity, the Holocaust has often been viewed as an event that defies representation, yet it continuously has been the topic of films in the postwar era. Focusing primarily on films produced in the United States, we will examine films from the 1940s to the 1980s for their representational strategies and their dealings with memory and commemoration. (F,SP) Holub

186. Transnational Cinemas. (3) Three hours of lecture/discussion per week, plus weekly film screenings. This course will explore how experience of exilic, diasporic, or exile is visualized in cinema, and how processes of internationalization in film production and distribution intersect with the projection of a transnational global imagery. Some examples of transnational cinematic connections will be analyzed in historical perspective as well as contemporary examples of “migrant cinema.” We will investigate how these films engage with debates about multiculturalism and assimilation/segregation of minorities, as scenarios of the identity and mobility are often intertwined with representations of ethnicity and gender. (F,SP) Gokturk

187. Comedy and Crew. (3) Three hours of seminar per week, plus weekly film screenings. Prerequisites: Knowledge of German is recommended. Three hours of lecture/discussion per week. Three hours of film screening per week. Perquisites: Knowledge of German may be required depending on topic. Topics will vary from semester to semester. See departmental announcement for offerings. Attendance and screening time may be required for film topics. (F,SP) Staff

188. From Expressionism to Social Realism: German Cinema of the ‘20s. (4) Three hours of lecture and two hours of film screening per week. A comparative and interdisciplinary approach to the history of early German film between 1920 and 1933, designed to introduce the student to the analytical study of film in general. We will closely analyze the major films of the period and relate them to Weimar culture and society. Films have English subtitles. Kaes
195. Research Seminar for Undergraduates. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Knowledge of German required. One course offered under this topic is required of all students participating in the departmental Honor Program. For specific topic contact departmental office. (F) Staff

196. Honors Studies in German. (2-4) Prerequisites: One of the 195 courses. Supervised independent study and research course for honor students who are writing a thesis or preparing for theses for completion of the requirements for the Honors Program. (F,SP) Staff

198. Directed Group Study. (2-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Group study of selected topics which will vary from year to year. (F,SP) Staff

199. Supervised Independent Study and Research. (2-4) Individual course. Must be taken on a passed/not passed basis. Open to students who have completed at least 15 units of upper division German with an average no less than B. Supervised independent study and research. (F,SP) Staff

Graduate Courses in Literature

Introductory

200. Proseminar in German Literature. (4) Two hours of seminar and one hour of tutorial per week. The seminar 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 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 monumens of the Hohenstaufen period but also includes representative works from the later 12th, 13th, 14th and 15th centuries. Intended for M.A. candidates but open to all students with a working knowledge of Middle High German. Tennant, Lagergren

201B. 16th and 17th Century. (4) Recommended for M.A. candidates. (F) Tanner, Lagergren

201C. 18th Century. (4) An introduction to major works of literature of the 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 in Expressionism, Dada, Fascism and the major literary and theoretical currents of the modern period. Intended for M.A. candidates but open to all students with a working knowledge of High German. Tennant, Lagergren

210. Age of Enlightenment. (4) Formerly 211A. Literary texts will be studied as historical documents illumining changes in literary theory and religious and philosophical thought during the Enlightenment. Texts by Lessing, Herder, and Lenz, and some Storm and Stress play. (F) Staff

210C. Storm and Stress and Literary Jacobinism. (4) A comparison of the two literary movements in the late 19th century will be discussed in the wider context of oppositionality 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

212B. Germany and the French Revolution. (4) The French revolution as the defining series of historical events for the seminal period of Weimar Classicism (Goethe, Schiller), philosophical Idealism (Kant, Fichte), and early Romanticism (Schlegel, Tieck, Wackenroder). Cultural texts will be read in the context of journalistic responses to the Revolution and travel reports of German visitors to France. Wilson

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. Staff

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

234C. Goethe and the Powerless. (4) An examination of Goethe's depiction and role in marginalized groups: the lower classes, women, Jews, and oppositional intellectuals. Fiction as well as official and autobiographical writings will be read. Wilson

238. Holgerding. (4) Two hours of seminar per week. Kudszus

241. Heinrich Heine. (4) Three hours of seminar per week. A study of Heine's works in their political and social contexts. (SP) Holub

249. Franz Kafka. (3) Three hours of seminar per week. Kudszus

252. Nietzsche. (4) Two hours of seminar per week. The aim of the course is to explore a few of Nietzsche's most important texts and to examine the variety of ways he has been read, especially during the past two decades or so. Holub

Theory

253. Seminar in Criticism and Theory. (2) Seven hours of seminar for four weeks. Topics vary semester to semester. Contact the German Department for further information. (F,SP) Staff

253A. Principles in Language Learning and Teaching. (2-4) Two hours of seminar/discussion per week. Formerly 254. The purpose of this seminar is to give teachers a theoretical understanding of the linguistic, psychological, and socio-cultural processes involved in learning a foreign language and to make them aware of the options that teachers have to influence these processes. 1) Theories and methods. 2) Socialization and literacy in a second language. 3) Review of currently suggested practices for teaching the four skills and teaching to all language teachers regardless of foreign language taught. In English with examples taken from the languages of the participants. Also listed as Education C246C. Kramsch

255. Interpretation and Criticism of Poetry. (4) Three hours of seminar per week. (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 theme department's "Course Descriptions" booklet. Staff

257. The Future of the Past: The Role of History in Cultural Poetics. (4) Course may be repeated for credit. Two hours of seminar and one hour of tutorial per week. Dealing with concepts of representation both historically and theoretically, the course is designed to introduce graduate students to the notions of "his- toricity" of aesthetic discourse and of "aesthetizability" of historical discourse in the context of German intellec- tual history, with special emphasis on the narrative of the past and the projection of the future. (F,SP) Seeba

258. Language Teaching as Social Interaction. (4) Three hours of lecture per week. Application of insights from psycholinguistics, sociolinguistics, discourse analysis and cultural studies to understanding the pro- cesses of work in the acquisition of a foreign language in instructional settings. Readings on relevant re- search. Observation and analysis of natural and instruc- tional L2 discourse. Kramsch

261. Myth and Metaphor: Patterns of Imagistic Thought. (4) Two hours of seminar and one hour of tutorial per week. Discussion of theories of myth and metaphor from Friedrich Schlegel to Hans Blumenberg and of the role of mythological patterns (e.g., Odyssey, Oedipus, Kassandra, Medea, Siegfried, Hermann, Wilhelm Tell, Rudolf von Habsburg) in Ger- man literary and intellectual history. Staff

263. Studies in Language. Three hours of seminar per week.

263A. The Process of Translating. (4) Questions of inter- pretation, writing and intertextuality will be explored in connection with translating a 20th century literary text. Kudszus

264. Psychoanalytic Readings. (4) Three hours of seminar per week. The seminar will explore both works by psychoanalysts such as S. Freud and a variety of psychoanalytic approaches to literature. (F,SP) Kudszus

265. Film Theory: Historical and Systematic Per- spectives. (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 lit- erary theory required. (SP) Kaes

266. Aspects of Literary and Cultural History. (4) Three hours of seminar per week. A comparison of lit- erary and cultural developments in Germany and the United States. Emphasis is placed on individual re- search designed to develop teaching materials. Staff

Graduate Courses in Linguistics

271. Comparative Germanic. (4) Three hours of sem- inar per week. Advanced topics in Germanic phonol- ogy, morphology, syntax, semantics, pragmatics. The phonetic aspects of 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 syn- chronic construct are considered. (F) Rauch

276. Old High German. (4) Three hours of lecture per week. Reading of poetic and prose texts in Old High German. The synchronic and diachronic study of the dialects of the High German language from the eighth century to the eleventh century within the framework of current linguistic theory. Rauch

278. History of the Dutch Language. (4) Two hours of lecture and one hour of tutorial per week. The pre- history, emergence, development of Netherlands, 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 dialectal and prose texts in the Ingwaenoic languages (broadly con- strued) not covered elsewhere: Old Low Franconian, Middle Dutch, Old Frisian, Middle Low German. (F,SP) Shannon

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Courses in the Teaching of German

301. The Teaching of German in College: First Year. (3) Two hours of seminar per week. Prerequisites: Graduate standing. Required of all graduate student instructors, this course provides instruction on the theory and practice of foreign-language teaching and learning. (F) Newton

302. The Teaching German in College: Advanced First Year. (3) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Graduate standing. Required of all graduate student instructors. This course continues to provide instruction on the theory and practice of foreign-language teaching and acquisition. (SP) Newton

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. This 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,SP) Shanon

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

Lower Division Courses

Yiddish, (5) Five hours of lecture/discussion per week. This introductory Yiddish course focuses on the development of communication skills in reading, writing, and speaking. The linguistic material is presented in the context of Yiddish culture. (F) Katz

Yiddish, (5) Five hours of lecture/discussion per week. Prerequisites: 1 or equivalent. This course builds on the foundation established in 1, further developing communication skills in reading, writing, and speaking. More advanced linguistic material is presented in the context of Yiddish culture. (SP) Katz

Dutch

1. Elementary Dutch. (5) Five hours of lecture and one hour of laboratory per week. Beginner’s course. (F) Van Deussen-Scholl

2. Elementary Dutch. (5) Five hours of lecture and one hour of laboratory per week. Prerequisites: 1 or equivalent. (SP) Van Deussen-Scholl

Upper Division Courses

107. The Structure of Modern Dutch. (3) Three hours of lecture per week. Prerequisites: 2 or equivalent. Review of Dutch grammar, written exercises, and an introduction to Dutch literature. (F) Staff

125. Conversation and Composition. (3) Course may be repeated once for credit. Three hours of lecture per week. Prerequisites: 110 or consent of instructor. This course is designed to improve 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 (poetry, short story). The art of correspondence, both formal and informal, will be taught as well as the widely-varying spoken styles. (SP) Staff

140. Topics in Dutch Literature. (3) Course may be repeated for credit. Three hours of lecture/discussion per week. Study of the major contemporary Dutch and Flemish writers and their works. (F,SP) Staff

161. Masterpieces in Dutch and Flemish Literature in English Translation. (4) Three hours of lecture and one hour of consultation per week. In this course the most celebrated and critically acclaimed literary works from the Netherlands and Flanders will be studied in English translation. The works consist primarily of novels from the Middle Ages to the modern period, with special emphasis on the latter. (F,SP) Staff

162. The Modern Short Story in Holland and Flanders in English Translation. (4) Three hours of lecture plus one hour of consultation per week. In this course the modern short story will be studied in English, drawing from the work of writers between the 1950s and 1990s. Special emphasis will be placed on post-war Dutch literature. Staff

163. Women Writers in the Netherlands and Flanders in English Translation. (4) Three hours of lecture and one hour of consultation per week. The Netherlands has a long tradition of good women authors, many of whom have been on the vanguard of social change. In this course there will be equal emphasis on poetry and prose from 17th-century mystics to modern feminist writers. (F,SP) Staff

164. The Indonesian Connection: Dutch Literature about the Indies in English Translation. (4) Three hours of lecture and one hour of consultation per week. Perhaps the best Netherlandic literature is that dealing with the Indies, for centuries a Dutch colony. Beginning with Max Havelaar (by Multatuli), a large repertoire of 20th-century “Dutch/Indonesian” novels will be covered. (F,SP) Staff

166. Anne Frank and After: Dutch Literature of the Holocaust in English Translation. (4) Three hours of lecture and one hour of consultation per week. Post-War Dutch literature is replete with works dealing with the Holocaust, by both victims and survivors. The course will focus on literature as well as historical documents, examine the history of anti-Semitism in the Lowlands, and compare a number of literary genres from the Diary to e.g.:documents and fiction. (F,SP) Staff

170. Dutch Culture and Society. (3) Three hours of lecture/discussion per week. The course will focus on the culture of the Low Countries, including both the Netherlands and Belgium. Through biographical, sociological, and personal materials, the World Wide Web, guest lectures, and discussions, we will cover the major social, political, cultural, and religious aspects of modern Dutch society. The course is organized around five larger themes: water management and environmental issues; language and education; art, literature, and culture; politics, religion, and social welfare; and social issues. (SP) Van Deussen-Scholl

190. Senior Thesis. (4) One 2-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
Health and Medical Sciences

Graduate School of Public Health

Program Office: 570 University Hall, (510) 642-5479

Professor: W. Thomas Boyce, M.D.

Assist. Professors:
- W. Thomas Boyce, M.D.
- Ernest Hook, M.A., M.D.
- Micco Swartzberg, M.D.

Assistant Professor:
- Jodi Halpern, Ph.D.
- Micco Swartzberg, M.D.

Clinical Professors:
- Micco Swartzberg, M.D.
- Kent Olson, M.D.
- Anne Steffens, M.D.
- Michael Oates, M.D.
- Harvey Weinsten, M.D.

Associate Director and Clinical Professor:
- Micco Swartzberg, M.D.

Associate Clinical Professors:
- Howard Gruber, M.D.
- Barry Latner, M.D.
- Balaram Pugalia, M.D.

Assistant Clinical Professors:
- John Colello, M.D.
- John Compagna, M.D.
- Mario Corona, M.D.
- Bob Friedman, M.D.
- Larry Friedlander, M.D.
- Kenneth Gajamana, M.D.
- Jan Hoffman, M.D.
- Susan Ivey, M.D.

Academic Coordinators:
- Kevin Mack, M.D.
- Micco Swartzberg, Ph.D.

Lecturers:
- Hana Dan-Cohen, Ph.D.
- Erik Gamster, M.D.
- Sara Hanley, M.D.
- Hugh PitArchard, Ph.D.
- Karen Sako/Shefer, M.D.
- Bowen Wong, M.D.

Adjunct Professors:
- Paul Newachack, Dr. P.H.
- Eric Slower

Assistant Adjunct Professor:
- Jeffrey Burack, B.Phi., M.D., M.P.P.

Visiting Professor:
- Jennifer Brockwell, Ph.D.

Program Overview

UC Berkeley-UC San Francisco Joint Medical Program. A five-year program leading to the M.S. in Health and Medical Sciences from UC Berkeley and the M.D. from UC San Francisco. Berkeley grants the master’s degree upon the successful completion of the first three years of work and UC San Francisco awards the medical degree after satisfactory completion of the fourth and fifth years. The master’s program is interdisciplined with the required preclinical science courses during the first three years requiring at least 20 units of academic work and a thesis. Students are expected to acquire a scholarly expertise with a selected area of interest related to health and mastery of preclinical sciences. Students selected for this program must meet the rigorous academic requirements for entrance into medical school. The selection process screens for students who have a strong interest in health care beyond the purely medical and who prefer a small group process model for learning.

Admissions. Applicants to the Joint Medical Program must be eligible for admission to the University in graduate standing, with an undergraduate average of at least 3.0, along with a bachelor’s degree from an accredited college or university. They must have fulfilled the standard premedical requirements and have taken the Medical College Admissions Test. Admission is coordinated with the School of Medicine at UC San Francisco.

For more detailed information about the Joint Medical Program, call (510) 642-5671 or go to http://jmberkeley.edu.

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 3-5 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)

98. Directed Group Study. (1-3) Course may be repeated for credit. Three to nine hours of group study (or tutorial or fieldwork) 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, and topics vary from department to department and semester to semester. (F,SP)

Upper Division Courses

C133. Death, Dying, and Modern Medicine: Historical and Contemporary Perspectives. (4) Three hours of lecture and two hours of discussion per week. This course will study the interplay of death—with the help of the other is important in the perspective of medicine and history. It seeks to confront the humanist with the humanist 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 humanities. Also listed as Undergraduate Interdisciplinary Studies C133 and History C191. (SP) Swartzberg, Micco

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 begin, lectures will focus on: the changing 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 challenges that occur over time. This initial lecture 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 clients. Representatives 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 studies. By using case studies we will shift the focus from "the disease" to "the person." Speakers will discuss how they became interested in their respective professions and what opportunities/challenges await a new generation of professionals. (F) Cole, Micco

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 study relevant to health and medical sciences. Regular individual and/or 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 group study (or tutorial or fieldwork) per week. Must be taken on a passed/not passed basis. Organized group study on topics selected by Health and Medical Sciences Program graduate students under the sponsorship and direction of a member of the faculty. (SP) Steinbach, Swartzberg

Graduate Courses

200. Contextual Integrated Case-Based Curriculum. 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 contextual-integrated case-based format. The sequence includes curriculum in biochemistry, histology, microbiology, immunology, neuroanatomy, pathology, physiology, pharmacology, and clinical sciences. (F,SP) Swartzberg, Staff

202A. The Patient Encounter 1. (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. Formerly 202A. The first course in a six-semester sequence introducing first-year medical students to the skills necessary to obtain a complete medical history, the dynamics of the doctor-patient relationship, and interpersonal communication skills. (F) Swartzberg, Staff

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
202B. The Patient Encounter 2. (1) Three hours of lecture/laboratory offered alternate weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in Health and Medical Sciences Joint Medical Program. Formerly 205A. 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. (SP) Kushner

213A-213B. Human Biochemistry for Medical Students. (3) Three hours of lecture per week. Prerequisites: Enrollement in UCSF-UCSC Joint Medical Program; concurrent enrollment required in 213A. Two and one-half hours of lecture are devoted to the biochemistry of the enzymes and proteins of the human body; one-and-one-half hours of lecture are devoted to the principles of medical biochemistry, including the regulation of the metabolism of drugs and radioactive agents. (SP) Steinbach

247. Health Politics, Policy, and Policy Analysis. (4) Four hours of seminar per week. Prerequisites: Graduation standing in Health and Medical Sciences Program or consent of instructor. This seminar for future health practitioners presents a multidisciplinary analysis of health services organization, financing, and policy. Students will study policy questions related to health care problems regarding the social and political forces and institutions that affect health. (F) Newacheck

261. Thesis Seminar. (1) Two hours of seminar every other week. Prerequisites: Graduate standing in Health and Medical Sciences Joint Medical Program. A seminar to review and critique student progress in the UCSF-UCSF Joint Medical Program’s M.S. research and thesis development. The seminar will include presentation of research design and methods, and expectations for M.S. research in the Health and Medical Sciences Joint Medical Program. In the fall and spring semesters, conduct of the course will be by and for students in the program. The phases of development of the research plan, protocol design and implementation, and research findings will be reviewed at varying stages by students in each of the program’s three years. This course may be repeated in fall and spring semesters only. (F,SP) Boyce, Schlesser, Trask

265. Principles of General Pharmacology. (8) Fifteen hours of lecture per week. Prerequisites: Consent of instructor. Formerly Molecular and Cell Biology 265. A survey of pharmacology for graduate and medical students. Basic pharmacokinetics and pharmacodynamics and the effects of drugs at the molecular, cellular, organ, and organism levels will be discussed. Therapeutic applications will be considered. (F,SP) Wollin

266A-266D. Basic and Clinical Pharmacology. (1.5;1.5;1.5;1.5) One and one-half hours of lecture per week. Prerequisites: 213, 214 and 220; concurrent enrollment in 266A-266D. Medical pharmacology, including clinical pharmacology and pharmacokinetics. (F,SP) Wollin

271. Conceptual Dilemmas in Public Health and Medicine. (2) Two hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This course addresses a series of major conceptual dilemmas confronted by both public health and medicine in studying health and disease. While many of these dilemmas or problems form a largely unseen “background” in the health sciences, each is an integral part of the theoretical foundation brought to epidemiological studies. Readings are drawn from the epidemiological, biological, social, and historical/philosophical literatures. Topics include problems in assigning causation; definitions of disease and disorder; mind and body; evolutionary biology and the health sciences; how society manages the press in communicating health information; and the nature of suffering and the goals of public health and medicine. Also listed as Public Health C200B. (F) Boyce, Reingold
Health Services and Policy Analysis
(School of Public Health, Interdepartmental Graduate Groups)

Department Office: 411 Warren Hall, (510) 643-8571
Chair: Ralph Catalano, Ph.D.

Professors
Bob Anderson, Ph.D. (Economics)
Eugene Bardach, Ph.D. (Public Policy)
Joel Birnbaum, Ph.D. (Public Health)
Yale Braustein, Ph.D. (Information Management and Systems)
Ralph Catalano (Chair) Ph.D. (Public Health)
Kenneth Chay, Ph.D. (Economics)
Neil Eggleston, Ph.D. (Sociology)
Lee Friedman, Ph.D. (Public Health)
Paul Gertler, Ph.D. (Public Health)
Walter Haefele, Ph.D. (Public Health)
Teih-Hsi Hu, Ph.D. (Public Health)
Theodore Krieshok, Ph.D. (Economics)
Tad LaPorte, Ph.D. (Political Science)
Ron Lee, Ph.D. (Demography/Economics)
William Luecke, Ph.D. (Policy Science)
Kristin Luer, Ph.D. (Sociology)
James Robinson, Ph.D. (Public Health)
Thomas Rundall, Ph.D. (Public Health)
Richard Schaffert, Ph.D. (Public Health)
Stephen Shortell, Ph.D. (Public Health)
Lorin Snowdon, Ph.D. (Social Welfare)

Associate Professors
Judith Gruber, Ph.D. (Political Science)
Jonah Levy, Ph.D. (Political Science)
James Lincoln, Ph.D. (Business)
Frances Van Loo, Ph.D. (Business)
Terry Marsh, Ph.D. (Business)

Assistant Professors
Bettina Koszegi, Ph.D. (Economics)
Edward Miguel, Ph.D. (Economics)

Courses
470A-470B. First-Year Field Work Supervision. (1;1) One hour of supervision every other week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Concurrent enrollment in 470A or 470B. Biweekly individual clinical supervision in conjunction with 470. (F,SP) Goldstein

475. Supervised Field Work and Counseling in Human Genetics. (6-10) Field work. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing in HUMS Program or consent of instructor. Group study for graduate students. Intensive examination of health-related topics. (F,SP) Staff Professional Courses

480A-480B. Second-Year Field Work Supervision. (1;1) One hour of supervision every other week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Concurrent enrollment in 475 or 485. Biweekly individual clinical supervision in conjunction with 475 and 485. (F,SP) Well

485. Second-Year Field Placement for Genetic Counseling. (6-12) Course may be repeated for credit. One or two hours each week for 14 weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Limited to second-year genetic counseling students; concurrent enrollment in 291A-291B or consent of instructor. A series of guest lecturers will discuss topics and implications of health care from personal and professional perspectives and experience. Special topics are developed in consultation with students and include genetic counseling in the community, science and society, and similar fields. Field trips to community sites may be arranged. (F,SP) Boyce

290A-290B. Advanced Seminar in Genetic Counseling. (3) Three hours of lectures/supervision per week. Prerequisites: 291A-291B or consent of instructor. Ongoing case discussion and analysis of genetic counseling field experiences. Primarily designed for students preparing to work as genetic counselors. (F,SP) Welb

297A-297B. First-Year Field Placement for Genetic Counseling. (3-5-3) Minimum six units required for academic year. Variable. One unit for each four hours of placement per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Limited to first year Genetic Counseling students; concurrent enrollment in 291A required. Variety of field placements in health care settings. Field work moves from observation to work with clients. Weekly supervision provided by placement facilitator and option counseling course and counseling course instructor. (F,SP) Goldstein

History
(College of Letters and Science)

Department Office: 3229 Dwinelle Hall, (510) 642-1971

Professors
Richard M. Abrams, Ph.D. Columbia University. Recent U.S. political, economic, bureaucratic, and social trends. (Political Science)
Anthony Admatiwe, Ph.D. University of Leeds. Late modern international relations. (Political Science)
Margaret L. Anderson, Ph.D. Brown University. Late modern Europe. (Political Science)
Thomas G. Barnes, D.Phil. Oxford University. Britain since 1500. Tudor-Stuart, early Stuart, Commonwealth. (History)
Susanne I. Barrows, Ph.D. Yale University. Late modern Europe, France, social, cultural (History)
Andrew E. Barshay, Ph.D. University of California, Berkeley. East Asia, modern Japan. (History)
Robert M. Bentdik, Ph.D. University of Minnesota. German history (History)
N. E. Berry, Ph.D. Harvard University. Japan
Thomas A. Brady, Ph.D. University of Chicago. Early modern Europe, science, technology (History)
Gerard E. Caspary, Ph.D. Harvard University. Medieval Europe, intellectual history. (History)
Diane S. Clemens, Ph.D. University of California at Santa Barbara. Recent U.S. diplomatic history. (History)
Jan de Vries, Ph.D. Yale University. European economics. (History)
John Ehrman, Ph.D. Columbia University. Modern Jewish history. (History)
Susanna K. Elm, Ph.D. Oxford University. Late antiquity, early Christianity. (History)
Paula S. Fass, Ph.D. Columbia University. America since 1600, social and family immigration and education. (History)
Gerald D. Feldman, Ph.D. Harvard University. Late modern European history. (History)
Jon Gjøde, Ph.D. University of Minnesota. Nineteenth-century U.S. demographics. (History)
Ralph Catalano, Ph.D. (Economics)
Joel B. Grinn (Joelos Residential Professor), Ph.D. Harvard University. Ancient Greece and Rome. (History)
Roger Hahn, Ph.D. Cornell University. History of science, early modern Europe. (History)
Carla A. Hesse, Ph.D. Princeton University. Early modern Europe, social and political (History)
David J. Hollinger, Ph.D. University of California, Berkeley. U.S., intellectual (History)
Susanna K. Elm (International Professor), Ph.D. University of Chicago. South Asia, modern India (History)
Martin E. Jay, Ph.D. Harvard University. Late modern European intellectual history. (History)
David G. Johnsen, Ph.D. University of California, Berkeley. East Asia, pre-modern China (History)
Thomas W. Lilienthal, Ph.D. Princeton University. Britain, social, history of medicine (History)
John E. Leach, Ph.D. Princeton University. History of science, biology, life sciences (History)
Lionel Lioy, Ph.D. Columbia University. Latin America, Brazil, family (History)
T. H. Luecke (Morison Professor), Ph.D. University of California, Berkeley. Recent U.S. social, labor (History)
Walter M. Martindale, Ph.D. Columbia University. Berkeley. Recent U.S., black, cultural, intellectual (History)
Thomas H. Metcalf, Ph.D. Harvard University. South Asia, India, British imperialism (History)
Michael Nylan, Ph.D. Princeton University. East Asia, early China (History)
Leslie Peirce, Ph.D. Princeton University. Islamic 1250-1700 (History)
Mary P. Ryan, Ph.D. Columbia University at Santa Barbara. U.S. social, women, family (History)
Patrik Sahlin, Ph.D. Princeton University. Early modern Europe, France, Catalonia (History)
Irwin Scheiner, Ph.D. University of Michigan. Far East, Japan, social, intellectual (History)
Tun Su Hao, Ph.D. University of Texas, Austin. Late modern Europe, Russia (History)
Richard Caudle Smith, Ph.D. University of California, Los Angeles. U.S. cultural, intellectual, oral history theory and methods (History)
Randolph Starn, Ph.D. Harvard University. Early modern Europe, Renaissance (History)
Tyler Sowell, Ph.D. University of Wisconsin-Madison. Late modern Europe, modern France, urban, colonial and postcolonial, social and cultural (History)
William Taylor, Ph.D. University of Michigan. Latin America, East Asia, modern Japan (History)
Frederic E. Wakeman, Jr., Ph.D. University of California, Berkeley. China, intellectual (History)
Wenhsing Yeh, Ph.D. University of California, Berkeley. Modern China, social and cultural (History)
Reginald E. Zelnik, Ph.D. Stanford University. Late modern Europe, Russia, labor (History)
Gunter van den Bergh, Ph.D. (Emeritus)
William J. Bouwmeester, Ph.D. (Emeritus)
Seiler M. Brown, Ph.D. (Emeritus)
Gene A. Brucker, Ph.D. (Emeritus)
Samuel H. Hagop, Ph.D. (Emeritus)
Tulio Happer, Ph.D. (Emeritus)
John L. Habron, Ph.D. (The Class of 1936 Professor of History and History of Science Emeritus) (Emeritus)
Richard Larr, Ph.D. (Emeritus)
David N. Knechtly, Ph.D. (Emeritus)
Raymond K. Kent, Ph.D. (Emeritus)
Irma M. Lapidos, Ph.D. (Emeritus)
Lawrence W. Levine, Ph.D. (Byrne Professor Emeritus) (Emeritus)
Martin E. Malia, Ph.D. (Emeritus) (Emeritus)
Henry F. May, Ph.D. (Emeritus)
Robert L. Middelkauff, Ph.D. (Hatchick Professor Emeritus) (Emeritus)
Vladimir V. Raspopovych, D.Phil. (Sudin Hallman Ehman Professor Emeritus) (Emeritus)
Sheldon Rombout, Ph.D. (Emeritus) (Emeritus)
H. Franz Schurmann, Ph.D. (Emeritus) (Emeritus)
Raphael Sealey, M.A. (Emeritus)
Charles G. Barnes, Ph.D. (Emeritus)

*Recipient of Distinguished Teaching Award
The Major

The major in history consists of 11 courses, usually for a total of 45 units.

Four lower division courses in history are required for admission to the major. One course must be completed in each of the following areas:

I. Western Civilization to 1400: R1, 4A, 4B, 30A; Freshman and Sophomore Studies 44A, 44B; Undergraduate Interdisciplinary Studies 55A.

II. European History since the Renaissance: R1, 5, 15, 303A-31; Freshman and Sophomore Studies 44C, 44D; Undergraduate Interdisciplinary Studies 55B.

III. History of the United States: R1, 7A, 7B, 16, 17A, 17B.

IV. Latin America, Asia: R1, 8A, 8B, 9A, 9B, 9C, 9D, 10.

An approved freshman-sophomore seminar (History 39) may be substituted in one of the areas required for admission to the major.

In the upper division, history majors must complete at least 12 upper division history courses, including:

1. Four upper division lecture courses, chosen from at least two of the following: Ancient, Europe, Britain, United States, Latin America, Asia, Africa, History of Science. May include Economics 111A, 111B, 113, and 115.

2. Two upper division courses in two different fields of history of listed in 1 above (for purposes of this requirement, History 103 in European History pre-1400 and post-1400 may be counted as seminars in different fields).

3. History 101 (Seminar in Historical Research and Writing for History Majors) in one of the fields selected for History 103.

Upper Division Honors Program

The program is intended for senior majors of high ability in history who have the necessary grade-point averages (at least 3.5 in the major and 3.3 overall) and who will profit from individual work with a member of the faculty and discussions with students of similar interests. Interested students should notify the undergraduate adviser during their junior year.

All honors students must complete, in addition to major requirements:

1. History H102, Colloquium on Historical Thought.
2. An oral examination based on the student’s research and historical studies.
3. An honors research essay under the supervision of a member of the Department who has consented to direct it. For this purpose students will take either:
   a) History H195, Senior Honors. In some cases, the essay produced in History 195 may be a development from (but not a revision of) the paper produced in History 101.
   b) History 285, a graduate research seminar.

While the faculty supervisor will assign a grade for History 285, the Honors Committee will determine whether or not the essay is of honors quality. The Honors Committee will evaluate the candidate’s course work, performance in History 101, the oral examination, and the research essay. If the student’s work is of honors quality in the committee’s estimation, the committee will award Honors, High Honors, or Highest Honors as warranted by the overall performance.

Further information is available in the departmental office.

Higher Degrees

Students planning to work toward the degrees of M.A. and Ph.D. should address inquiries to Graduate Admissions, Department of History. Candidates will be admitted for the fall semester only.

Further Information

The Schedule of Classes is 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. (3) 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 humanistic 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 works of classical historians from different cultural traditions, contemporary historical debates, and an exploration of historical sources available at Berkeley. Satisfies half of the Reading and Composition requirement. (F,SP)

4. Origins of Western Civilization. Two hours of lecture and two hours of discussion per week. Introductory study of major historical events in the origins of western civilization. Emphasis on class discussions, readings in the sources, and writing of essays. (F,SP)

4A. Ancient. (4) 4B. Medieval. (4) (F,SP)

5. European Civilization from the Renaissance to the Present. (3) Two hours of lecture and two hours of discussion per week. A survey of Europe from the Renaissance to the present. (F,SP)

7. Introduction to the History of the United States. Two to three hours of lecture and two hours of discussion per week. (F,SP)

7A. From Colonial Settlement to the Civil War. (4) This course satisfies the American cultures requirement.

7B. From the Civil War to the Present. (4) This course satisfies the American cultures requirement. (F,SP)

8. Latin American History. Three hours of lecture and two hours of discussion per week. (F,SP)

8A. Latin America. (4) The colonial period.

8B. Latin America. (4) The national period. (F,SP)

9. Asian History. Three hours of lecture and two hours of discussion per week. An introductory survey of the history of Asia. (F,SP)

10. African History. (4) Three hours of lecture and two hours of discussion per week. An introductory survey of the history of Africa. (F,SP)

11. India. (4) Three hours of lecture and two hours of discussion per week. (F,SP)

12. The Middle East. (4) Three hours of lecture and two hours of discussion per week. (F,SP)

13. China. Three hours of lecture and two hours of discussion per week. (F,SP)

13A. History of China: Origins to the Mongol Conquest. (4) Formerly 9A. The history of China from its beginnings to the destruction of the Song Dynasty by the Mongols in the 13th century. Topics to be covered include the emergence of Chinese civilization, the Chinese language, early historic and philosophy, the creation of the first empire, law, Buddhism and religious Taoism, the socioeconomic revolution of the 10th to 12th centuries, identities (male and female, Chinese and barbarian), lyric poetry, and painting and calligraphy. Comparisons between China and Europe will be made at strategic points. (F,SP)

13B. Introduction to Chinese History from the Mongols to Mao. (4) Formerly 9B. This course is a brisk introduction to the nearly two millennia of recorded Japanese history. As a survey, the course gives attention to broad themes and problems in Japan’s political, social, and cultural/intellectual history. Topics include the dialectic of national and local identities in shaping Japanese politics, Japan’s interaction with the Asian continent and the Western world, and the relation of past to present in modern times. (F,SP)

14. Introduction to the History of Japan. (4) Three hours of lecture and two hours of discussion per week. (F,SP)

16AC. The Forging of the U.S.: Expansion and Interaction among American People. (4) Three hours of lecture and two hours of discussion per week. Formerly 16. Considers the culturally diverse Americans who reside within the geographical boundaries of today’s U.S. The history, societies, cultures, personal attitudes and laws of these peoples are the subject matter. Groups will be looked at chronologically in terms of the natural historical processes that brought them together during expansion westward and southward by the Anglo-American governmental units. These groups are: European, Native, African, Chicano Americans and Pacific Rim peoples. This course satisfies the American cultures requirement.

C17A. Cultural Identity in American History. (4) Four hours of lecture per week. This course will examine the major theories pertaining to identity in America—e.g., the melting pot, Anglo conformity, cultural
pluralism—as well as such newer theories as Afro-cen-
trism, Creolization, and multiculturalism. These for-
mulation may be evaluated through the reading of or-
damental documents, as well as the observation of films,
photos and paintings, and the listening to music, all fu-
cus on the experiences and thoughts of African Amer-
ica, American Indians, Chicano/Latino, and European Americans. Also listed as African American Studies C17AC. This course satisfies the American cultures requirement.

R20. Introduction to the Practice and Theory of History. (5) Three hours of lecture and two hours of discussion per week. In this course we are going to ex-
amine the writing of history from its modern intellectual roots in 19th century philosophy to recent experimental work with autobiography, film, and pop culture. Stu-
dents will learn to evaluate historical arguments, ac-
quire familiarity with the use of primary sources as di-
verse as published classics, landscapes, movies, and censuses; and gain a working knowledge of the his-
tory of historical practice. Satisfies half of the Reading and Composition requirement. (F,SP) Klein

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 op-
portunity to explore an intellectual topic with a faculty member in a small seminar setting. Freshman sem-
inars are offered in all campus departments and topics vary with department to semester and from semester to semester. Enrollment limited to fifteen freshmen.

30. Science and Society. Two hours of lecture and two hours of discussion per week. (F,SP)

30B. Science, Technology, and Society since Newton. (4) The development of science and its applications as a major force in modern society.

39. Freshman/Sophomore Seminar. Course may be repeated for credit with different instructor. Seminar Format. Prerequisites: Priority given to freshmen and sophomores. Freshman and sophomore seminars of-
ter 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 depart-
ment to department and from semester to semester.

39W. Ethno-Racial Mixture and Identity in Modern America. (4) This course satisfies the American cul-
tures requirement.

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-
grade basis. Sophomore seminars are designed for students considering a major in the sponsoring de-
partment. More complex and discussion-oriented courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

86. Directed Group Study for Lower Division Stu-
dents. (2) Course may be repeated for credit. Three hours of lecture/discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Lower di-
vision standing. Lectures and small group discussion focusing on topics of interest that vary from semester to semester. Grading based on discussion and written works.

Upper Division Courses

100. Special Topics. (4) Course may be repeated for credit with departmental approval per semester. Three hours

100A. Special Topics. (4) Four hours of lecture/discussion per week. Designed primarily to permit the in-
structors to deal with topics with which they are espe-
cially concerned, usually more restricted than the subject matter of a regular lecture course. A combi-
nation of informal lectures and discussions, term pa-
ers, and examinations. One hour of seminar per week. This course satisfies the American cultures requirement. (F,SP)

101. Seminar in Historical Research and Writing for History Majors. (3) Three hours of seminar per week. Individual research projects carried out in seminar sec-
tions in various historical fields resulting in a lengthy paper, with readings and discussions on general prob-
lems of historical inquiry. In addition to regular class meetings, individual consultations with the instructor, research, and preparation totaling ten to twelve hours per week are required. (F,SP)

H102. Colloquium on Historical Thought. (4) Two hours of seminar per week. Prerequisites: Completion of 101; either junior honors standing or senior non-hon-
ors standing. Consideration of the nature and function of historical thought as manifested in major historical classics and selected historical problems. Required of honors program juniors; open, by permission of in-
structor, to non-honors program seniors upon comple-
tion of 101. (F,SP)

103. Proseminar: Problems in Interpretation in the Several Fields of History. Course may be repeated for credit with different instructor. Three hours of seminar/discussion per week. Prerequisites: Consent of instructor. Designed primarily to give majors in his-
tory elementary training in historical criticism and re-
search. Emphasis will be placed on writing and dis-
ussion. For precise schedule of offerings, see depart-
ment catalog during pre-enrollment week each semester. (F,SP)

103A. Ancient. (4) (F,SP)

103B. Europe. (4) (F,SP)

103C. England. (4) (F,SP)

103D. United States. (4) (F,SP)

103E. Latin America. (4) (F,SP)

103F. Asia. (4) (F,SP)

103H. Africa. (4) (F,SP)

103N. Canada. (4)

103R. (4) This course will resemble the traditional His-
tory 103s but will emphasize training in research more than historical criticism. The goal is to prepare students for History 101, the thesis-writing seminar, while at the same time engaging with a topic of historical or his-
torical philosophical significance. Writing assignments will vary but should include a research paper relevant to is-
sues raised in the seminar, and will also include a brief thesis pre-prospectus. The students whose main field is the same as the field of the 103R. In the history major, 103R will replace the 103 requirement in the main field. (F,SP)

103S. History of Science. (4) (F,SP)

103U. Studies in Comparative History. (4) (F,SP)

105. Ancient Greece. Three hours of lecture and one hour of discussion per week. (F,SP)

105A. Bronze Age and Archaic. (4) Until ca. 500 B.C. The beginnings of organized activity in Greek cities. A combi-
nation of informal lectures and discussions, term pa-
ers, and examinations. One hour of seminar per week. This course satisfies the American cultures requirement. (F,SP)

105B. Classical. (4) From ca. 500 until the time of Philip II of Macedon. More complex relations between Greek cities. (F,SP)

105C. Hellenistic Age. (4) From Alexander the Great to Cleopatra. This course explores the achievements of Alex-
ander, the struggle for power among his suc-
cessors, the social, political and economic history of the new Hellenistic states and the expansion of Greek culture into the Near East. (F,SP)

106. Ancient Rome. Three hours of lecture and one hour of discussion per week. (F,SP)

106A. The Roman Republic. (4) A history of Rome from the foundation of the city to the dictatorship of Caesar. Sections 3-4 to be graded on a letter-
grade basis. Sections 3-4 to be graded on a letter-
grade basis. The course examines the rise of Re-
publican government, the growth of Roman imperial-
ism, and the internal disruptions of the age of the Grac-
chi, Sulla, and Caesar.

106B. The Roman Empire. (4) A history of Rome from Augustus to Constantine. The course surveys the struggles between the Roman emperors and the sen-
tatorial class, the relationship between the military and government, the emergence of Christianity, and Ro-
man literature as a reflection of social and intellectual life.

107. Topics in Ancient History. Three hours of lec-
ture and one hour of discussion per week.

107D. Roman Law. (4) This course will pay attention to sources of law, forms, and procedure. It will con-
centrate on matters of private law, especially the fam-
ily, acquisition of particular things, inheritance, and con-
tracts. The development of the constitution and of the criminal courts in the Late Republic will be noted.

108. Byzantium. (4) Three hours of lecture and one hour of discussion per week. The social, cultural, and military history of the Byzantine Empire. In addition to regular class meetings, individual consultations with the instructor, research, and preparation totaling ten to twelve hours per week are required. (F,SP)

108A. The Rise of Islamic Civilization, 600-1200. (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 emer-
gence 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 intel-
lectual debates it engendered; contact with Europe and Asia through trade, the Crusades, and nomadic con-
tacts; the contributions of non-Muslims, women, slaves. (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: Seljuk, Mongol, Ottoman, and Safavid.

109C. The Middle East From the 18th Century to the Present. (4) Three hours of lecture and one hour of discussion per week. The breaking of pre-modern empires and the formation of the modern nation-states of the Arab world, Turkey, Iran, and Islam and nationalism.

111. Topics in the History of Southeast Asia. Three hours of lecture and one hour of voluntary discussion per week. (F,SP)

111A. Southeast Asia to the 18th Century. (4) The rise of the region’s most important pre-modern empires and early mod-
ern states; long-term economic, social, and religious trends. (F,SP)

111B. Modern Southeast Asia. (4) Major themes in modern Southeast Asian history with an emphasis on cross-country comparisons involving the region’s largest and most populous countries: Thailand, Burma, Vietnam, Indonesia, and the Philippines. (F,SP)

111C. Political and Cultural History of Vietnam. (4) This course provides an introduction to the main issues in Vietnamese history from the mid-20th and architec-
tural origins of the modern nation-state to the end of the Second Indochina War in 1975. Special emphasis will be placed on "modern" developments from the late 18th century. In addition to history texts, readings will be taken from novels, short stories, poetry, and mem-
ors. (F,SP)

112. Africa. Three hours of lecture and one hour of discussion per week.

112A. Modern Africa. (4)

113A. Traditional Korean History. (4) Three hours of lecture and one hour of discussion per week. This
course surveys major issues in Korean history from the origins of the Korean people to the 19th century.

113B. Modern Korean History. (4) Three hours of lecture and one hour of discussion per week. This course surveys major social, economic, and political developments on the Korean peninsula from the middle of the 19th century.

114. India. Three hours of lecture and one hour of discussion per week.

114A. Medieval and Early Modern India to the Coming of the British. (4)

114B. Modern South Asia. (4)

116. China. Three hours of lecture and one hour of discussion per week.

116B. The Middle Period. (4)

116C. Modern China. (4)

118. Japan. Three hours of lecture and one hour of discussion per week.

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.

118B. 1800-1900. (4) Emphasis on the social and intellectual history of Japan's pre-war reconstruction.

118C. Late Nineteenth Century to the Present. (4) Japan's experience of the twentieth century, beginning with the development of capitalism and the acquisition of an empire; tracing the achievements and tragedy that came with Japan's emergence as a world power.

120. American Environmental and Cultural History. (4) Three hours of lecture and one and one-half hours of discussion per week. 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 resource 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 Management C160. This course satisfies the American cultures requirement. (F) Merchant

121. The Colonial Period and American Revolution. Three hours of lecture and one hour of discussion per week.

121A. The Colonial Period. (4)

121B. The American Revolution. (4)

122AC. Antebellum America: The Advent of Mass Society. (4) Three hours of lecture and one hour of discussion per week. This course examines half a century of life in the United States (roughly from the War of 1812 until the secession of the Southern states), focusing on race relations, westward expansion, class formation, immigration, religion, sexuality, popular culture, and everyday life. Assigned readings will consist largely of first-person narratives in which women and men of a range of ethnic and cultural backgrounds construct distinctive visions of life in the new nation. This course satisfies the American cultures requirement. (F,SP)

132B. Intellectual History of the United States. (4) Three hours of lecture and one hour of discussion per week. The history of ideas in the United States. (F,SP) Students will receive no credit for C132B after taking C132B.

132AC. Intellectual History of the United States. (4) Three hours of lecture and one hour of discussion per week. The history of ideas in the United States.

132A-132B. Intellectual History of the United States. (4) Three hours of lecture and one hour of discussion per week.

132A. Three hours of lecture and one hour of discussion per week. The history of ideas in the United States.
mentary sources. No prior computing experience is necessary. Also listed as Demography 145AC. This course explores social and economic aspects of migration, and focuses on migration in the United States, Europe, and Latin America. An introduction to the study of migration will be provided, with emphasis on the economic and social consequences of migration.

3. Early Modern Europe (1450-1789): The Emergence of Modern Societies. This course focuses on the development of modern societies in Europe, including the rise of nation-states, the decline of the feudal system, and the emergence of industrial society. An introduction to the study of modern societies will be provided, with emphasis on the economic and social consequences of industrialization.

4. The Modern World (1789-1945): The Transformation of the Global Economy. This course focuses on the development of the modern world economy, including the rise of capitalism, the Industrial Revolution, and the development of global trade. An introduction to the study of the modern world economy will be provided, with emphasis on the economic and social consequences of globalization.
170. The Netherlands. (4)

172. Topics in Russian History. (4)

173. History of Eastern Europe. Three hours of lecture and one hour of discussion per week.

174A-174B. Jewish History. (4; 3)

175. Topics in the History of Eastern Europe. Three hours of lecture and one hour of voluntary discussion per week. (F, SP)

175A. A History of Poland-Lithuania. (4) The course will focus on the current state of the identification of the culture of life that is shifting borders of Polish-Lithuanian and Polish states. Among the topics: competing definitions—ethnic, confessional, linguistic, political—or 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 the Cold War in Eastern Europe. (F, SP)

C175A. Jewish Civilization: Middle Ages. (4) Three hours of lecture and one hour of discussion per week. This is the third course in a four-course sequence in the history of Jewish culture and civilization. It covers the middle ages and the early modern period, including kabbalah, medieval poetry, halakhic, ethical literature, Jewish philosophy, and the Italian Jewish renaissance. Also listed as Undergrad Interdisciplinary Studies C154 and Religious Studies C134. Staff

C175B. 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 history from 1750 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 breakdown of traditional society, enlightenment and 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 Undergrad Interdisciplinary Studies C155 and Religious Studies C135. Staff

C176. Multicultural Europe. (4) Three hours of lectures and one hour of discussion 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, including issues of culture, society, and politics. In particular, we will look at the effects of mass 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 Geography C152, Interdisciplinary Studies C145, and Undergrad Interdisciplinary Studies C145.

177. Armenia. Three hours of lecture and one hour of discussion per week. (F, SP)

177A. Armenia from Ethnogenesis to the Dark Ages. (4) This course will cover close to three millennia of Armenian history, from the process of ethnogenesis in the almost complete destruction of the Armenian “feudal” system by the end of the 15th century. This course is based on the 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 survey course will cover the period from the incorporation of most of the Armenian plateau into the Ottoman Empire to the present day. (F, SP)

180. Topics in the History of Biology. (4; 3)

181A. Modern Physics: From The Atom to Big Science. (4) Modern Physics: From The Atom to Big Science. (4) Establishment of the ideas and institutions of modern physics. Unifying the classical world picture: radioactivity, Einstein, quantum mechanics, philosophical disputes. The evolving structure of the discipline, links with industry and government, World War II and the atomic bomb, the concept of consilience and the emergence of big science. (F, SP)

183. Topics in the History of Medicine. (4)

185A. Beginnings to ca. 1250. (4) (F, SP)

185B. To the Present. (4)

190. Society and the Sexes in Europe and the US, 1750 to the Present. (4) Three hours of lecture and one hour of discussion per week. Sex roles, sexuality and gender systems in social, political, economic and cultural life. This is a comparative course: specific societ-ies (at least two) and periods to be covered will vary by semester. It will focus on specific historical events, issues, and periods in which gender was an especially significant factor. (F, SP)

C191. Death, Dying, and Modern Medicine: Historical and Contemporary Perspectives. (4) Three hours of lecture and two hours 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 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 humanities. Also listed as Undergrad Interdisciplinary Studies C133 and Health and Medical Sciences C133. (SP) Laquer, Mico

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.

C196W. Special Field Research. (10.5) Course may be repeated for credit. May be taken for a maximum of 12 units. 240-300 hours work per semester plus regular meetings with the faculty supervisor. Prerequisites: Consent of instructor. Formerly C196W. Students to work in selected intern-ship programs approved in advance by the faculty coordi-nator and for which written contracts have been es-thablished 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 produce a final pa-per for the course consisting of no fewer than 35 pages. Other restrictions apply; see faculty adviser. Also listed as History of Art C196W, Undergrad Inter-disciplinary Studies C196W, Honors Studies C196W, Mass Communications C196W, Political Science C196W, Political Economy of Industrial Societies C196W, and Sociology C196W.

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Pre-requisites: 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, discussion, and 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.

275. Core Courses in the Literature of the Several Fields of History. 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. (F, SP)

275A. Ancient. (4)

275B. Europe. (4)

275C. England. (4)

275D. United States. (4)

275E. Latin America. (4)
Industrial Engineering and Operations Research

Department Overview

Industrial engineering and operations research are closely related fields that deal with the design, analysis, and control of complex systems which include people, machines, material, and information, and the interactions of such systems with their environment. Formal models, often computer-based, are extensively used in systems analysis, while systems design, as in other fields of engineering, requires well-developed integrative skills and creativity. The theoretical foundations of optimization, stochastic systems, reliability, and engineering economics often form the basis for operations research studies. Industrial engineering frequently uses knowledge of production, human/machine systems, incentives, organizational behavior, and automation in the design and improvement of goal-seeking systems. These methods may be applied to a great variety of human activities in both public and private sectors, including manufacturing, banking, health care, communications, waste management, transportation, and logistics.

Undergraduates in 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 and control. A unified 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, 111 Market Place, Suite 1050, Baltimore, MD, 21202-4012, (410) 347-7700.

Curriculum for the Bachelor's Degree

A total of 120 units is required, including:

Lower Division Requirements. Mathematics 1A-1B, 53, 54; Engineering 77; Physics 7A-7B; Chemistry 1A, 1B; and Statistics 134. All students must complete six courses of at least 3 units each in humanities and social studies selected from an approved list of courses. Eleven units of engineering breadth courses are required. 6 units of which must be chosen from an approved list. For details, see the Announcement of the College of Engineering.

Upper Division Requirements. Engineering 120 and 190 and the following courses in Industrial Engineering and Operations Research: 131, 160, 161, 162, 165, and 180. Also required are six courses chosen from the following categories, including a minimum of three courses in Category A and a minimum of two courses in category B. Category A—IEOR 115, 140, 120, 151, 152, 160; Category B—IEOR 115, 140, 170; Category C—IEOR 171 or an additional course from A or B.

*Students not completing IEOR 140 must take one of the following courses: CS 9C, 9F, or 9G or present evidence of equivalent course work. Such students must still complete two courses in Category B.

Industrial Engineering and Operations Research

(Computer of Engineering)

Department Office: 4135 Etcheverry Hall #1777, (510) 643-5484, http://www.ieor.berkeley.edu/
Chair: Lee W. Schruben, Ph.D.

Professors
Ian Adlar, Ph.D. Stanford University. Mathematical programming
Kenneth Y. Goldberg, Ph.D. Carnegie-Mellon University. Robotics and control
Dott B. Hochbaum, Ph.D. University of Pennsylvania. Combinatorial optimization, management information systems
Robert C. Leshman, Ph.D. University of California, Berkeley. Manufacturing management
Sheldon S. Oren, Ph.D. Stanford University. Economic systems theory and modeling
S. Shmoys, Ph.D. Stanford University. Operations research
Richard E. Barlow, Ph.D. (Emeritus) Stanford University. Quality control
Stuart E. Deck, Ph.D. (Emeritus) Stanford University. Stochastic processes
David Gage, Ph.D. (Emeritus) Stanford University. Probability and statistics
Ronald W. Wolfe, Ph.D. (Emeritus) Stanford University. Operations research

Assistant Professors
Hyun-Soo Ahn, Ph.D. University of Michigan. Production and operations management
Anup Alam, Ph.D. Georgia Institute of Technology. Operations research
Jong-Seok Lim, Ph.D. National University of Singapore. Statistics

Andrew E.B. Lim, Ph.D. Australian National University. Production and operations management

Andrew R. Grassi, M.S. Stanford University. Production and operations management

Andrew S. Dreyfus, Ph.D. Stanford University. Production and operations management

Andrew C. Glassey, Ph.D. Stanford University. Production and operations management

Andrew M. Glassman, Ph.D. (Emeritus) Stanford University. Production and operations management

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Andrew N. Glassman, Ph.D. (Emeritus) Stanford University. Production and operations management
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, broaden their perspective of the theory, develop, 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 world problems.

Undergraduates from scientific disciplines other than engineering may be accepted into these programs. A master's degree may be earned by the thesis or by examination.

Applications on semiconductor manufacturing or other industrial settings. (SP) Leachman

140. Introduction to Mobile Industrial Robots. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Engineering 77 or equivalent skill. Introductory course in the hardware and software design of autonomous vehicles. Basic concepts of sensors, actuators, feedback control, and communications, and programming for real-time control. Laboratory project teams will design, build, program, and test self-driving vehicles for material handling systems and other applications. (F,SP) Goldberg

150. Production Systems Analysis. (3) Three hours of lecture per week. Prerequisites: Engineering 160, 161, 162, 165, and Engineering 120, or senior standing in manufacturing engineering. Quantitative models for operational and tactical decision making in production systems, including production planning, inventory control, forecasting, and scheduling. (F) Yano

151. Service Operations Design and Analysis. (3) Three hours of lecture per week. Prerequisites: 161, 162, and a course in statistics. This course is concerned with improving processes and designing facilities for service businesses such as banks, healthcare organizations, telecommunications, restaurants, and transportation providers. Major topics in the course include design of service processes, layout and location of service facilities, demand forecasting, demand management, employee 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 management, and the relationship of the supply chain, strategic partnerships, and product design for logistics will be considered through discussions and cases. (F) Kaminsky

160. Operations Research I. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 33 and 54. Deterministic methods and models in operations research. Unconstrained and constrained optimization. Equations, inequality, and integer constraints. Sequential decisions; dynamic programming. Resource allocation, equipment replacement, inventory control, production planning. (F) Atamturk

161. Operations Research II. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Statistics 134. Probability review. Conditional expectation. The exponential distribution and poisson process. Markovian Queueing Systems. Component reliability systems. Applications to replacement, repair, transportation, and inventory models. (SP) Ross, Shanthikumar

162. Linear Programming. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Mathematics 53 and 54. Formulation to linear models. Optimal allocation and control problems in industry and environmental studies. Convex sets; properties of optimal solutions. The simplex method: duality; complementary slackness. Problems of post-optimization. Special structures; network problems. (F) Staff

165. Engineering Statistics, Quality Control, and Forcasting. (3) Three hours of lecture per week. Prerequisites: Statistics 134 or an equivalent course in probability theory. This course will introduce students to basic statistical methods parameter estimation, hypothesis testing, regression analysis, analysis of variance, design of experiments, and non-parametric statistics. Some topics rely on these statistical techniques to data analysis problems in engineering and manufacturing systems will be the main focal of this course. Special topics in forecasting and quality control 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, control chart, and range charts will be discussed. (SP) Shanthikumar

166. Decision Analysis. (3) Three hours of lecture per week. Prerequisites: Statistics 134. Introductory course on the theory and applications of decision analysis. Effective 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 and operations research and systems analysis. Includes formulation of risk problems and probabilistic risk assessments. Graphical methods and computer software using event trees, decision trees, and influence diagrams that focus on model design. (SP) Oren

170. Experience and Interface Design for Engineers. (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: Computer Science 9C, upper division standing. This course surveys topics related to the design of a broad range of interactive systems from powerpoint presentations, web pages, games and homes, to electronic consumer products such as cell phones and palm computers. Each of these systems creates an "experience" for its users. Design of such systems requires an understanding of human factors, such as the perception of color, sounds, and language, as well as contemporary ideas from the fields of human computer interface and usability. (SP) Goldberg

171. Introduction to Design of Human Work Systems and Organizations. (3) Students cannot receive credit for both 171 and Business Administration 150. Three hours of lecture per week. Prerequisites: Upper division standing. Qualitative management principles and techniques used to maximize productivity, maintain employee satisfaction, and organizational performance in work settings. Topics covered include job attitudes, personality typing, leadership, organizational culture, technology and information management, communication, groups and teams, decision-making, and power and influence. (F) Staff

180. Senior Project. (4) One hour of lecture, one hour of company visitation per week. Prerequisites: 131, 160, 161, 162, 165, Engineering 120, 190, and three other Industrial Engineering and Operations Research electives. Application of systems analysis and industrial engineering to the analysis, planning, and/or design of industrial, service, and government systems. Consideration of technical and economic aspects of equipment and process design. Students work in teams under faculty supervision. Topics vary yearly. (F,SP) Staff

197. Undergraduate Field Research in Industrial Engineering. (1-12) Course may be repeated for credit. Forty-five hours of academic work per unit per term. Must be taken on a pass/no pass basis. Prerequisites: Completion of two semesters of coursework. Students work on a field project under the supervision of a faculty member. Course does not satisfy unit or residence requirements for bachelor's degree. (F,SP) Staff

198. Directed Group Studies for Advanced Undergraduates. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass basis. Prerequisites: Computer Science 9C, upper division standing. Group studies of selected topics. Semester course unit value and contact hours will have a one-to-one ratio. (F,SP) Staff

199. Supervised Independent Study. (1-4) Course may be repeated for a maximum of four units per semester. Individual conferences. Must be taken on a pass/no pass basis. Prerequisites: Completion of two semesters of coursework. Instructor and major adviser. Supervised independent study. Enrollment restrictions apply. (F,SP) Staff

Graduate Courses

215. Analysis and Design of Databases. (3) Two hours of lecture and one hour of laboratory/project per week. Prerequisites: Graduate standing. Advanced topics in information management, focusing on design
220. Economics and Dynamics of Production. (3) Three hours of lecture per week. Prerequisites: 262A (may be taken concurrently). Mathematics 104 recommended. Development of analytical tools for improving efficiency, customer service, and profitability of engineering environments. Design and development of effective industrial production planning systems. Modelling principles are illustrated by reviewing actual large-scale planning systems successfully implemented for naval ship overhaul and for semiconductor manufacturing. (F) Leachman

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 on 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 other 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

251. Facilities Design and Logistics. (3) Three hours of lecture per week. Prerequisites: 262A and Statistics 134. Design and analysis of models and algorithms for facility location, vehicle routing, and facility layout problems. Emphasis will be placed on both the use of computers and the theoretical analysis of models and algorithms. (SP) Kaminsky

254. Production and Inventory Systems. (3) Three hours of lecture per week. Prerequisites: 262A and 150; 263A or 161 recommended. Mathematical and computer methods for design, planning, scheduling, and control in manufacturing and distribution systems. (SP) Staff

261. Experimenting with Simulated Systems. (3) Three hours of lecture per week. Prerequisites: 263A and an upper division statistics course. This course will introduce graduates and upper division undergraduate students to the design and analysis of 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 remainder 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 110. Basic graduate course in linear programming and introduction to network flows and non-linear programming. Formulation and model building. The simplex method and its variants. Duality theory. Sensitivity analysis, parametric programming, convergence (theoretical and practical), Polynomial time algorithms. Introduction to network flows 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 non-linear programs. Formulation and model building. Theory of optimization for constrained and unconstrained problems. Study of algorithms for non-linear and linear 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: Statistics 134 or Statistics 200A. Conditional Expectation, Markov chains, Renewal reward processes with application to inventory, congestion, and replacement models. Discrete and continuous time Markov chains; with applications to various stochastic systems such as exponential queueing 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 converting the theory of optimization into effective computational techniques. Course topics include an introduction to polyhedral theory, cutting plane methods, relaxation, decomposition and heuristic approaches for large-scale optimization problems. (SP) Atamurk


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. Brief introduction to decision making under risk and uncertainty. (F) 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 combinatorial algorithms and its drawbacks; solving a system of linear integer equations and inequalities; strongly polynomial algorithms, network flow problems (including matching and branching); polyhedral optimization models and branch and bound techniques. (SP) 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 operations research 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

290K. Advanced Topics in Robot Algorithms. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Graduate standing. We study a variety of geometric methods and algorithms for robotics and manufacturing. Such algorithms are used as input to a CAD model of the environment and return as output a set of solutions such as a robot motion plan. Topics to vary from semester to semester. Goldberg

290L. Logistics Modeling. (3) Three hours of lecture per week. Prerequisites: 262A, 263A. Advanced course covering in the area of modeling and analysis of logistics systems. Initial topics include analytical techniques such as worst-case analysis. Later topics include the application of these techniques to routing, inventory, and integrated distribution models and algorithms. Kaminsky

290P. Pricing Policies. (2) Two hours of lecture per week. Prerequisites: 262A, Economics 201A or consent of instructor. Examination of pricing related issues from economic systems and market perspectives. Analysis and optimal design of pricing policies for different industries. Discussion of market conditions compatible with various pricing policies and their implications for consumers and producers. Emphasis on mathematical analysis. Students will participate in presentations and prepare a term paper. Oren

290Y. The Production-Quality Interface. (2) Two hours of lecture per week. Prerequisites: 150, Statistics 134 and 135. Quantitative models for decision making in manufacturing systems in which quality and/or yields are key competitive factors. Yano

297. Graduate Field Research in Industrial Engineering. (1-12) Course may be repeated for credit. Forty-five hours of academic work per unit per term. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Completion of one semester of graduate coursework. Students work on a field project under the supervision of a faculty member. 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. (1-4) 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. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive in consultation with the field adviser. Units may not be used to meet either unit or residence requirements for a master’s degree. (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. 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. (1-12) 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 application. Examination of 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

301. Teaching Assistant Training. (1-4) Course may be repeated for credit. One meeting per week with faculty member. Must be taken on a satisfactory/unsatisfactory basis. One meeting weekly with faculty member discussing teaching methods including: text selection, clarity of oral delivery; use of visual aids, media resources; discussion hours. (F,SP) Staff

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
Infectious Diseases and Immunity

(School of Public Health, Interdepartmental Graduate Groups)

Office: 233 Warren Hall, (510) 642-2613
Chair: Richard Stephens, Ph.D.

Professors
James Alkon, Ph.D. (Molecular and Cell Biology)
Robert S. Laskin, Ph.D. (Environmental Science, Policy, and Management)
Terry McIntyre, Ph.D. (Molecular and Cell Biology)
Edward Pehnoot, Ph.D. (Public Health)
Daniel Remley, Ph.D. (Public Health/Molecular and Cell Biology)
Arthur Reingold, M.D. (Public Health)
Lee W. Riley, M.D. (Public Health)
George Sansabau, D.C.nlm (Public Health)
Nidaam Shastri, Ph.D. (Molecular and Cell Biology)
Richard Stephen, Ph.D. (Public Health)
John Taylor, Ph.D. (Plant and Microbial Biology)

Associate Professors
Gertrude Bushing, Ph.D. (Public Health)
Suzanne Friesz, O.D., Ph.D. (Optometry)
Fengyu Liu, Ph.D. (Public Health)
Ellen Rohy, Ph.D. (Molecular and Cell Biology)
Qiang Zhou, Ph.D. (Molecular and Cell Biology)

Assistant Professor
Eva Harris, Ph.D. (Public Health)

Graduate Adviser: Mr. Stephens.

Program Overview

The Graduate Group in Infectious Diseases and Immunity provides opportunity for 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. Important areas of inquiry include the biology of host-pathogen interactions, molecular and cellular aspects of pathogenesis, the ecology and evolution of disease agents, environmental factors in transmission, intermediate hosts and vectors, the biology of surveillance and epidemiological analysis, vaccine and drug development, and public health practices for disease prevention and control. 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 http://www.sims.berkeley.edu.

Information Management and Systems

(School of Information Management and Systems)

Office: 102 South Hall, (510) 642-1464
http://www.sims.berkeley.edu
Dean: Hal R. Varian, Ph.D.

Professors
Robert Banning (Law Librarian), J.D. Legal information
Yale M. Braunstein, Ph.D. Economics of information and communication
Michael K. Buckland, Ph.D. Library management, information retrieval, and history of information management
Peter Lyman, Ph.D. Ethnographic study of communication and social formation in digital and networked environments
Pamela Samuelson, J.D. Intellectual property law
AnnaLee Saxenian, Ph.D. Information technology and economic development
D. Douglas Tygar, Ph.D. Electronic commerce, cryptography, security, and privacy
Katherine van der Zee, Ph.D. Information activity, user needs, digital libraries
Hal R. Varian (Dean and Professor; Class of 1944), Ph.D. Economics of information

Associate Professors
Robert Wilensky, Ph.D. Digital information systems, user interfaces, artificial intelligence, natural language processing, common sense reasoning and knowledge representation (Computer Science)

Michael D. Cooper (Emeritus) Ph.D. Design of information systems, economics of information

Associate Professors
Marli Heard, Ph.D. Human computer interaction, information visualization, empirical computational linguistics, information access systems
Ray R. Larson, Ph.D. Information retrieval system design and evaluation

Programs

The information revolution has created the need for a new kind of professional: someone who is skilled in locating, organizing, manipulating, filtering, and presenting information. The mission of the School of Information Management and Systems (SIMS) is to educate such information managers.

Information managers must be familiar with the technology used to store, organize, and retrieve information in business, government, libraries, and academic settings. However, technical expertise alone is not sufficient for success. SIMS graduates are expected to not only manage technology but to manage information and people as well, and they need to acquire the necessary skills to do this effectively.

Today’s information managers need to understand how to organize information and design front ends for information systems that allow for efficient and effective user interaction. They need management skills to direct the development and deployment of software systems, and they must be able to assure the quality of information and its value to those who will use it for decision making. Most importantly, they need to understand the economic and social environment in which their organization functions and be familiar with the relevant issues in law, economics, ethics, and management.

This profession is inherently interdisciplinary, requiring aspects of computer science, cognitive science, business, law, library/information studies, and communications. Graduates of SIMS find employment in major corporations, government offices, the media industry, libraries, and academic institutions—anywhere information is created and managed.

The Master’s Degree in Information Management and Systems

The Master of Information Management and Systems program is a 42-unit, two-year program designed to train students in the skills needed to succeed as information professionals.

The first year of the program consists of a core curriculum with course work in information organization and retrieval, distributed computing, user interfaces and information policy, and management skills. The second year involves additional electives, with the expectation that the student will specialize in particular aspects of information management and systems. During the summer between the two years, students are encouraged to work as interns in order to use their newly acquired skills in real-world settings. Internships can be acquired in corporate, government, and nonprofit institutions.

The 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 research of those fields to pass written and oral examinations, and completes original research culminating in the written dissertation. The degree of Doctor of Philosophy is conferred in recognition of the student’s achievement in a broad field of learning and distinguished accomplishment in that field through the contribution of an original piece of research revealing high critical ability and powers of imagination and synthesis.

Fields of Study. The following are the fields for the Ph.D. qualifying examination. Periodic changes to the list of fields and revisions to the descriptions can be expected and will be announced to all students.

- Information users and society
- Organization and representation of information
- Management of information organizations and services
- Economics of information
- Information retrieval
- Information technology
- Systems analysis, design, and implementation
- Information policy
- Law and information management

Degree Requirements

In the first years of course work, students gain a broad background in Information Management and Systems (IMS), then acquire an in-depth understanding of one major and two minor specific disciplines or research areas, and complete a preliminary project paper. In order to gain this broad foundation in IMS as well as detailed background knowledge sufficient to do research, each student should:

- Enroll in required core INFOSYS courses;
- Take the Doctoral Colloquium, INFOSYS 295, at least once, and attend one of the continuing research seminars in the school closest to your research interests;
- Work with your Advisory Committee to identify and take a set of advanced courses tailored to your interests from SIMS and other departments on campus.

As a capstone to the course work, students will submit preliminary project papers to their Advisory Committees. Once the Advisory Committees have unanimously approved the preliminary project papers, students may continue to prepare their dissertation proposals and take the qualifying examination.

Advancement to candidacy, which takes place on the recommendation of the school to the Graduate Council, requires these steps:

- Satisfactorily completing the preliminary project paper overseen by the student’s Advisory Committee;
- Passing an oral qualifying examination administered by a committee appointed by the Graduate Council;
- Approval of a dissertation proposal by an ad hoc committee of the faculty.

After advancement to candidacy, candidates must complete a dissertation under the guidance of a committee appointed by the Graduate Council. The committee consists of three members, one of whom must be from a department other than Information Management and Systems. Before taking final action on the dissertation, the committee, if deems necessary, may require the candidate to defend the dissertation in a formal oral examination.

Lower Division Courses

24. Freshman Seminar. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. S-1 and S-2, and completes original research culminating in the written dissertation. The degree of Doctor of Philosophy is conferred in recognition of the student’s achievement in a broad field of learning and distinguished accomplishment in that field through the contribution of an original piece of research revealing high critical ability and powers of imagination and synthesis. 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
39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Freshman and sophomore seminars offer lower division students the opportunity to think critically with a faculty member and a group of peers in a small-seminar setting. These seminars are offered in all campus departments; they vary from department to department and from semester to semester. (F,SP) Staff

101. Introduction to Information Systems. (3) Three hours of lecture per week. Introduction to Information and Information Systems: Concepts (information, data, documents, knowledge, inquiry, retrieval, use); social context (demand, provision, control, influence on social values). Retrieval based information services such as archives, databases, libraries, information centers, MIS. (F,SP) Buckland

C106. Introduction to Networked Applications and Computing. (3) Three hours of lecture per week. Pre-requisite: Undergraduate 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 the course. Introduction to applications of networked computers, especially social, educational, and information management. Understanding of the networking, computing, and software infrastructure enabling and constraining these networked applications, with the goal of empowereing the student to use these technologies effectively in their personal and professional life. Related policy, legal, economic, and industry issues will be covered. Also listed as Engineering C111. (F,SP) Messerschmitt

138. Introduction to Database Management. (3) Three hours of lecture per week. Introduction to principles of information design and to the use of database management systems. Design considerations and evaluation; data modeling and implementation planning. Characteristics and evaluation of general and specialized database management systems. Design, implementation, and evaluation of a database using commercial database management software. (F) Staff

142AC. Access to American Cultural Heritages. (3) Three hours of lecture per week. Formerly 142. An introduction to issues in the preservation, description, and use of tangible forms of cultural heritage. Documentation, ownership, and control of access to cultural heritage resources in the U.S. Cultural heritage groups, cultural identity, cultural policies, and cultural institutions (libraries, museum, museums, schools, historic sites, etc.). This course satisfies the American cultures requirement. (F) Buckland

182AC. Print, Literacy, and Power in America to 1900. (3) Three hours of lecture per week. Formerly 182. 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 assess the dominant print culture on oral cultures. Image in woodcut and engraving as information and as propaganda. The role of education in American lives for African American press in the 19th century, tied to growing political support from the abolitionist press, is in evident contrast to the nearly invisible Native American voice confined to the reservation. San Francisco is a case 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. Printing technology tends toward centralization, standardization, and few participants, an environment that inhibits the voices of a multicultural, multilingual population. This course satisfies the American cultures requirement. (SP) Duggan

190. Special Topics in Information Management and Systems. (3) Course may be repeated for credit.

Three hours of seminar per week. Prerequisites: Consent of instructor. A seminar focusing on topics of current interest. Topics and reading paper will be required. Open to students from other departments. (F,SP) Staff

198. Directed Group Study for Advanced Under-graduates. (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 pass/credit basis. Prerequisites: Consent of instructor. (F,SP) Staff

Graduate Courses


204. Information Users and Society. (3) Three hours of lecture per week. The impact of information and information evaluation of a project. (SP) Braunstein, Lyman

210. Cognitive Approaches to Information. (3) Three hours of lecture per week. Prerequisites: 202 or consent of instructor. The role of information in decision-making; assessing user needs, involving users in system design, and understanding human-computer interaction and computer-mediated work and collaboration. (F) Chuang, Tygat

214. Needs and Usability Assessment. (3) Three hours of lecture per week. Prerequisites: 204 or consent of instructor. Concepts and usability assessment. Understanding users’ needs and practices and translating them into design decisions. Topics include methods of identifying and describing user needs and requirements; user-centered design; user and task analysis; contextual design; heuristic evaluation; surveys, interviews, and focus groups; usability testing; naturalistic data; managing usability in organizations; universal usability. (SP) Van House

216. Distributed Computing Applications and In-formation Infrastructure. (4) Three hours of lecture per week. Technical skills and knowledge, including concepts of security, privacy, concurrency, protocols, networking, and middleware. Application examples including collaboration, electronic commerce, and access to information. Categorization, presentation, and access to information. Economics and policy considerations. (F) Chuang, Tygat

219. Privacy, Security, and Cryptography. (3) Three hours of lecture per week. Prerequisites: 204 or consent of instructor. Policy and technical issues related to insuring the accuracy and privacy of information. Encoding 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) Tygat

221. Information Policy. (3) Three hours of lecture per week. An examination of the role of government, the organization and dissemination of information, the tension between privacy and freedom of access to information. Issues of potential conflicts in values, roles, and priorities. (SP) Braunstein

222. Marketing Information Products and Services. (3) Three hours of lecture per week. Prerequisites: 208 or consent of instructor. Approaches to the marketing of information products and services, including analysis of user needs, market structure, pricing, market behavior, and distribution. (SP) Van House

231. Economics of Information. (3) Three hours of lecture per week. The measurement and analysis of information flows and user needs. Strategic uses of information in organizations. Design, maintenance, and evaluation of information services and products. (SP) Staff

242. Marketing Information Products and Services. (3) Three hours of lecture per week. Prerequisites: 231 or consent of instructor. Concepts and methods of marketing information products and services. (SP) Staff

248. Information Policy. (3) Three hours of lecture per week. An examination of the role of government, the organization and dissemination of information, the tension between privacy and freedom of access to information. Issues of potential conflicts in values, roles, and priorities. (SP) Braunstein

256. Systems Planning and Analysis. (3) Three hours of lecture per week. The measurement and analysis of the role information plays in the economy and of the resources devoted to production, distribution, and consumption of information. Economic analysis of the information industry. Microeconomics of information and information organizations. Financial management. (SP) Braunstein

257. Legal Issues in Information Management. (3) Three hours of lecture per week. Information law and its role in the information industry. Intellectual property rights. (SP) Staff

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property, trans-boundary data flow, privacy, libel, and con-stitutional rights. (SP) Samueison

237. Intellectual Property. (3) Three hours of lecture per week. Intellectual, legal, historical, and eco-nomic analysis of the need for and uses of laws pro-tection intellectual property. Topics include types of in-tellectual property (copyright, patent, trade secrecy), the protection in information management and systems. Approaches (including compulsory licensing), and the relationship between intellectual property and com-parability standards. (SP) Samueison


245. Organization of Information in Collections. (3) Three hours of lecture per week. Prerequisites: 202 or consent of instructor. Standards and practices for or-ganization and description of bibliographic, textual, and non textual resources. Design, selection, maintenance, and evaluation of cataloging, classification, in-dexing, 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, 204, or consent of instructor. Concepts and methods of design, man-agement, creation, and evaluation of multimedia in-formation systems. Theory and practice of digital me-dia production, reception, organization, retrieval, and reuse. Review of applicable digital technology with special emphasis on digital video. Course will involve group projects in the design and development of dig-ital media systems and applications. (SP) Davis

247. Information Visualization and Presentation. (3) Three hours of lecture per week. Prerequisites: 213; Computer Science 160, or consent of instructor. The design and presentation of digital information. Use of graphics, animation, sound, visualization, and hypermedia in presenting information to the user. Methods of presenting complex information to enhance comprehension and analysis. Incorporation of visual-ization techniques into human-computer interfaces. (SP) Hearst

248. Preservation and Conservation of Information Resources. (3) Three hours of lecture per week. Man-agement, acquisition, organization, and description of resources including issues of authenticity, integrity, version control, legacy control, storage, personal pri-acy, and rights of access. Conservation of paper, film, magnetic, and optical media. Conversion of information from one medium to another including data format con-version, thesaurus development, and standards regarding custody of physical materials and digital surrogates. (F) Staff

250. Computer-Based Communications Systems and Networks. (3) Three hours of lecture per week. Prerequisites: 202 or equivalent. Communications con-cepts, network architectures, data communication soft-ware and hardware, networks (e.g., LAN, wide), net-work protocols (e.g., TCP/IP), network management, distributed systems, and systems management. (SP) Staff

255. Foundations of Software Design. (4) Three hours of lecture per week. Must be taken on a satisfac-toory/unsatisfactory basis. Prerequisites: A logical intro-ductory programming course in a high-level pro-gramming language such as C, Java, C++ or consent of instructor. Introduction to programming paradigms, in-cluding object-oriented design. Introduction to design and analysis of algorithms, including algorithms for sorting and searching. The analysis, use, and imple-mentation of structures important for information processing systems, including arrays, lists, strings, b-trees, and hash tables. Introduction to formal lan-guages including regular expressions and context-free grammars. Staff

257. Database Management. (3) Three hours of lecture per week. Introduction to relational, hierarchical, network, and object-oriented database management systems. Database design concepts, query languages for database applications (such as SQL), concurrency control, recovery techniques, database security, issues in the management of databases. Use of report writers, application generators, high-level interface generators. (SP) Larson

265. Use of Database Management Systems. (3) Three hours of lecture per week. Prerequisites: 208, 257, or consent of instructor. Group development of database applications using a commercial database management system. Includes developing functional specifications, data model, database design, interface design, system implementation, documentation. (SP) Staff

267. Systems Implementation: Use Programming Languages. (3) Three hours of lecture per week. Pre-requisites: 208, 250, 255 or consent of instructor. Group development of software package using a pro-gramming language such as C++, or JAVA as a ba-sis. Includes developing functional specifications, de-sign, interface design, system implementation, documentation, (SP) Larson

268. Systems Implementation: Authoring Tools. (3) Three hours of lecture per week. Prerequisites: 202, 204, 208. Development of informational or instructional resources of public interest using tools. Develop-ment of specifications based on user needs. System design, implementation, evaluation, and testing. De-velopment of documentation. (SP) Staff

271. Quantitative Research Methods for Informa-tion Systems. (3) Three hours of lecture per week. Prerequisites: 202, 204, 208. Development of informational or instructional resources of public interest using tools. Development of specifications based on user needs. System design, implementation, evaluation, and testing. Development of documentation. (SP) Staff

272. Qualitative Research Methods for Informa-tion Systems. (3) Three hours of lecture per week. Prerequisites: 202, 204, 208. Qualitative methods for data col-lection and analysis. Research design. Conceptualization, operationalization, measurement. Modes of data collection, including experiments, survey re-search, observation. Sampling, basics of data analy-sis. (SP) Staff

274. Geographic Information System. (3) Three hours of lecture per week. Prerequisites: 202 or consent of instructor. Spatial and geographical information: georeferencing, projections, gazeteers, mapping and overlays of socio-economic, environmental and political data. Spatial database operations. Codes, formats and standards for data representation and transfer. (F) Larson


290. Special Topics in Information Management and Systems. (1-3) Course may be repeated for credit as topic varies. Two to six hours of lecture per week for one or two one-half weeks, or one or three hours of lec-ture per week for 15 weeks. Prerequisites: Consent of instructor. Specific topics, hours, and credit may vary from section to section. (F,SP) Staff

295. Doctoral Colloquium. (1) One hour of lecture per week. May be taken on a satisfactory/unsatisfactory basis. Prerequisites: Ph.D. standing in SIMS. Colloquia, discussion and readings designed to intro-duce students to the range of interests of the school. (F) Staff

296A-296B. Seminar. (2-4-2-4) Course may be re-peated for credit as topic varies. Two to four hours of seminar per week. Prerequisites: Consent of instruc-tor. Topics in information management and systems and related fields. Specific topics vary from year to year. May be offered as a two-semester sequence. (F,SP) Staff

297. Field Study in Information Management and Systems. (1-4) Course may be repeated for credit with consent of instructor. Regular consultation with faculty supervisor. Prerequisites: Must be enrolled in the School of Information Management and Systems and consent of instructor. Individual or group study of specific problems in information management systems with emphasis on field projects and studies. (F,SP) Staff

298. Directed Group Study. (1-3) Course may be re-peated for credit as topic varies. Weekly group meet-ings. Consent of instructor. Group pro-jects on special topics in information management and systems. (F,SP) Staff

299. Individual Study. (1-2) Course may be re-peated for credit as topic varies. Format varies. Pre-requisites: Consent of instructor. Individual study of topics in information management and systems under faculty supervision. (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: Consent of instructor. Individual study in consultation with the major field adviser, 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

Department Office: 3060 Valley Life Sciences Building, (510) 642-3281
Graduate Student Services: (510) 643-7204, (510) 642-5130
Graduate Executive Office: (510) 643-7330
Chair: David R. Lindberg, Ph.D.

Professors
George A. Brooks, Ph.D. University of Michigan. Exercise physiology and metabolism
Roy L. Caldwell, Ph.D. University of Iowa. Invertebrate paleontology and evolution
Carla Hickman, Ph.D. Stanford University. Evolutionary paleontology, morphology
Robert Dudley, Ph.D. University of Cambridge. Biomechanics and comparative physiology
John M. Enders, Ph.D. University of Michigan. Comparative immunology
Robert F. Gans, Ph.D. Stanford University. Evolutionary paleontology, morphology
†Stephen E. Glickman, Ph.D. McGill University. Animal behavior, physiological substrates of behavior
Barbara. Population and community ecology
Carole Hickman, Ph.D. Stanford University. Comparative biochemistry, physiology and functional morphology
†Terrence E. Erckman, Ph.D. McGill University. Animal behavior, physiological substrates of behavior
Barbara. Population and community ecology
†John M. Enders, Ph.D. University of Michigan. Comparative immunology
Robert F. Gans, Ph.D. Stanford University. Evolutionary paleontology, morphology
W. A. R. Kijlstra, Ph.D. Duke University. Invertebrate functional morphology and biomechanics
Paul Licht, Ph.D. University of Michigan. Comparative embryology
David K. Lindberg, Ph.D. University of California at Santa Cruz. Evolutionary biology, ecology
Jens H. Lepo, Ph.D. University of California at Los Angeles. Paleobiology of marine environment
David L. Lilly, Ph.D. Harvard University. Biology, systematics, and evolutionary biology
Craig G. M_lot, Ph.D. Australian National University. Molecular evolution, conservation biology
Kevin Padan, Ph.D. Yale University. Paleontology, evolution biology
Nipam Patel, Ph.D. Stanford University
Thomas M. Powell, Ph.D. University of California, Berkeley. Paleontology, systematics, and evolutionary biology
Cruz. Evolutionary biology, ecology
Barbara. Population and community ecology
Evolutionary theory
Wayne P. Sousa, Ph.D. University of California at Santa Barbara. Population and community ecology
boundaries, sharing information and knowledge. Experience in laboratory and/or field, technological and independent study will bring about an understanding of scientific logic based on both experimental and historical patterns and processes. The faculty has special strengths in the disciplines of morphology, organismal physiology, animal behavior, biomechanics, and systematics. The program also integrates systematics, 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 allied careers in human biology (e.g., psychology, sociobiology, demography, political science, environmental and resource management, law, etc.) for those interested in biology of organisms and wish to pursue graduate studies in various subdivisions, such as marine biology, ecology, behavior, palaeontology, and evolution.

Lower Division. The foundation for this major includes a basic one-year course in biology: general chemistry, organic chemistry, physics, and mathematics. Courses in geology, physical sciences, statistics, and foreign languages and additional mathematics courses are required as part of a course in computer literacy are recommended.

Upper Division. In consultation with an adviser, students must complete at least three integrative biology courses designated as primary to the paths described under "The Major" below. In addition, students must complete a course in genetics as well as two lecture/laboratory and/or field courses to provide experience and methodologies for study of both living and extinct organisms. Additional courses should be completed reflecting the students' interests and academic goals. This curriculum is designed to provide the intellectual tools and techniques necessary to conduct multidisciplinary work in the areas of organismal biology.

Courses for Nonmajors. 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. Several offerings also cover areas different from the major courses listed below, providing a useful introduction to students considering a major in integrative biology. Each year, a variety of seminars are available for freshmen (IB 24) 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 (4), 1B (4); Chemistry 1A (4), 3A (5), 3B (4); Mathematics 16A (3); Physics 8A (4), 8B (4). With approval of an adviser, more advanced courses may be substituted for those listed above. Recommended: additional courses in mathematics, statistics, geology, physical chemistry, biochemistry, history of biology, computer literacy and foreign language.

Upper Division. At least three integrative biology courses—one primary emphasis course from each of the following paths, to be selected in consultation with an adviser:

1. Ecology/evolution/behavior
2. Physiology/structure/biochemistry
3. Human biology/health science

At least one genetics course selected from the following: MCB 140, MCB 142 (same course as IB 163), IB 161, IB 164, IB 141; and at least two lecture/laboratory or lecture/laboratory field courses.

Students should take additional upper division courses reflecting their areas of interest and goals in consultation with an adviser. The minimum total upper division units required to complete the major is 26.

A brochure providing additional information about the curriculum is available in the Undergraduate Student Affairs Office, 2033 Valley Life Sciences Building (VLSB). Use this brochure to help you determine the most appropriate courses for your interests and goals.

Juniors and seniors are encouraged to pursue independent study research (IB 199) under the sponsorship of a faculty member. Interested students should have completed at least 60 units of credit and be in good academic standing. An application and faculty research guide can be obtained from the student services unit, 2033 VLSB.

Note: Transfer students with 56-70 units must have completed general chemistry and general biology. Completion of organic chemistry before transfer to Berkeley is strongly recommended.

Honors Program. Students with a GPA of at least 3.3 overall and in the major should consider participating in the honors program. They must find a faculty sponsor appropriate for their research project they wish to do and enroll in two semesters (6 units) of the honors course (H196A-H196B). They are encouraged to enroll in a graduate seminar course in the area of their research project and must present the results of that work in the form of a written report. To graduate with honors, students must maintain a minimum 3.3 grade-point average or higher 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, and, under special circumstances, an M.A. program. Students may obtain the M.A. degree by thesis or independent study research (IB 199) under the supervision of a major in a biological science, although students must maintain a 3.3 overall and in the major should consider participating in the honors program. They must find a faculty sponsor appropriate for their research project they wish to do and enroll in two semesters (6 units) of the honors course (H196A-H196B). They are encouraged to enroll in a graduate seminar course in the area of their research project and must present the results of that work in the form of a written report. To graduate with honors, students must maintain a minimum 3.3 grade-point average or higher overall and in the major. Students may obtain the M.A. degree by thesis or independent study research (IB 199) under the supervision of a major in a biological science, although students must maintain a 3.3 overall and in the major should consider participating in the honors program. They must find a faculty sponsor appropriate for their research project they wish to do and enroll in two semesters (6 units) of the honors course (H196A-H196B). They are encouraged to enroll in a graduate seminar course in the area of their research project and must present the results of that work in the form of a written report. To graduate with honors, students must maintain a minimum 3.3 grade-point average or higher 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, and, under special circumstances, an M.A. program. Students may obtain the M.A. degree by thesis or independent study research (IB 199) under the supervision of a major in a biological science, although students must maintain a 3.3 overall and in the major should consider participating in the honors program. They must find a faculty sponsor appropriate for their research project they wish to do and enroll in two semesters (6 units) of the honors course (H196A-H196B). They are encouraged to enroll in a graduate seminar course in the area of their research project and must present the results of that work in the form of a written report. To graduate with honors, students must maintain a minimum 3.3 grade-point average or higher overall and in the major.

Graduate Program in Integrative Biology

The Botanical Garden located in Strawberry Canyon, provides opportunities for research with living plants, supplies teaching material for classes on campus, and serves as an outdoor laboratory for students. Independent study and internship opportunities are available in horticulture, plant conservation, and ecological, evolutionary, and populational biology of plants. The campus is geographically characterized primarily by geographic region: California, South America, Mesoamerica, South Africa, Australia, Mediterranean, eastern North America, and Asia. Specialized collections include succulents and...
The University of California Natural Reserve System (NRS) was founded in 1965 to establish and maintain a network of research facilities that provide a range of opportunities for research on diverse aquatic and terrestrial ecosystems for university-level teaching, research, and public service. The 33 reserves are distributed across the state and are organized into 4 levels: state, university, academic, and botanical gardens. Each reserve has its own unique characteristics, making possible a wide variety of research approaches. For more information on the NRS, contact the UC Office of the President at (510) 987-0150 or go to http://nrs.ucop.edu. For specific information regarding the four reserves administered by the Berkeley campus, contact faculty reserve manager Mary Powers at (510) 643-7776 or mpowers@scorates.berkeley.edu. The Berkeley campus administers these four reserves:

The Angelo Coast Reserve in Mendocino County is one of the most diverse marine reserves, with terrestrial and four aquatic habitat types. Located along a belt of highly deformed, well-defined coastal ridges cut by the South Fork of the Eel River, the reserve contains the largest virgin Douglas fir community left in the state, as well as four undisturbed watersheds. It is part of the UNESCO California Coast Ranges Biosphere Reserve. For more information, contact Peter Steel at (707) 984-6653 or psteel@nature.berkeley.edu.

The Chickering American River Reserve in Placer County is located in the middle of the 160-mile American River, a freshwater basin of the North Fork of the American River. The reserve has diverse topography, soil, and moisture regimes on sedimentary, igneous, and metamorphic substrates. It supports approximately 1,000 plant species, unusual red fir and mixed-conifer old-growth forest communities, and a variety of large mammals. Long-term research continues on the endangered wolverine. For more information, contact James Kirchner at (510) 643-8559 or kirchner@geomorph.berkeley.edu.

The Hans Jenny Pygmy Forest Reserve in Mendocino County supports elfin forests of endemic pygmy cypress, bishop pine, and unusual evergreen shrub species on highly podzolized, old marine terraces. This reserve is administered by the Nature Conservancy. For more information, contact Ronald G. Amundson at (510) 643-7890 or earthy@nature.berkeley.edu.

The Hastings Natural History Reserve in Monterey County contains a representative sample of California’s interior Coast Range ecosystem, with annual and perennial grasslands, oak woodlands, chaparral, and running streams. The reserve has 620 vascular plant species and 166 bird species. While noted for its 50-year research history on vertebrate ecology and oak woodland birds, the reserve is also conducting important research on native grassland restoration. For more information, contact Mark Stromberg at (831) 659-2664 or stromber@scorates.berkeley.edu.

Lower Division Courses

15. Natural History of Plants and Fungi. (2) Two hours of lecture per week. Prerequisites: Open to all students and designed for those not specializing in the biological sciences. Focus is on the natural history of the major groups of plants (including algae and seaweeds) and fungi, especially as they relate to California. Aspects of natural history include structure, function, ecology (including plant communities, pollination, and dispersal), and use by humans. (F,SP)

24. Freshman Seminars. (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. The Berkeley Seminar Program has been designed to provide a small-seminar setting for a wide variety of topics. Instructors will 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
31. Animal Biology: A Behavioral View. (3) Students will receive no credit for 31 after taking 144, 145, In-
dergraduate study. (F,SP) Staff

32. Biomotion. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Open to all stu-
dents. The goal of the course, Biomotion, is to involve students in a multidisciplinary vision of biology, engi-
eering, design, and computer science by learning the principles of how animals move in their environment.

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 discus-
sion 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 department secretary for each semester’s offerings. (F,SP) Staff

41. Marine Mammals. (2) Two hours of lecture per week. Prerequisites: Designed for those not special-
zizing in Marine Biology. A survey of marine mam-
imal evolution, behavior, ecology, and politics with a concentration on those species found in the North Pacific. Formerly Zoology 10. (F,SP) Staff

60. Evolutionary Biology—An Introduction for Non-
Biological Majors. (3) Two hours of lecture and one hour of discussion per week. This course assumes no background in science. It will cover the history of evo-
lutionary theory and more modern ge-
netical theories of evolution and the major features of the fossil record. Particular attention will be paid to re-
cent controversies in evolutionary biology.

C62. Introduction to Oceans. (2) Two hours of lec-
ture per week. Prerequisites: One of the following courses at high school level: physics, chemistry, or bi-
ology is recommended. Formerly 82. The geology, phys-
ics, 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 Earth and Planetary Science C62. (F,SP) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-
grade basis. These seminars are designed for students considering a major in the sponsoring de-
partment. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP) Staff

95. Special Research Project in Biology 1B. (1) Four hours of special field research per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor; selected by interview. Students enrolled in Biology 1B can participate in special field research in addition to attending regular laboratory sec-
tions. Prerequisites: Instructor permission and major supervision. Students will learn how to develop a project, collect and record data, and conduct and analyze experiments in biology. A written report may be required. Project may require traveling to off-campus sites. Stu-
dents are required to attend at least three department seminars and write a short critique of each. (F,SP) Staff

96. Directed Group Study. (1-4) One hour of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Freshmen and sopho-
more only. Lectures and small group discussions fo-
cusing on topics of interest, varying from semester to semester. (F,SP) Staff

99. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: GPA of 3.4 or greater. Formerly Botany 99. Physi-
ology 99, Anatomy 99. Lower division independent study and research intended for the academically su-
perior student. Enrollment only with prior approval of faculty adviser directing the research. (F,SP) Staff

100A. Physiology, Structure, and Biomechanics. (3) Three hours of lecture and one hour of discussion per week, plus some assigned open computer laboratories. Prerequisites: One of the following: Biology 1A-1B; must be taken concurrently with 100. Formerly 100C. Course reveals principles of how organisms work in their environment. Skeletal support, muscular, neural, sensory, endocrine, circulatory, digestive, osmotic, and reproductive systems examined. Principles illustrated by an exciting diversity of or-
ganisms, including humans. Relevance to ecology, evolution, and medicine presented. (F,SP) Staff

100B. Principles of Biodiversity. (3) Three hours of lecture and one hour of discussion per week, plus some assigned open computer laboratories. Prereq-
usites: Biology 1A-1B or 102. Formerly Zoology 121. Bi-
havioral, political, and biological principles and the major functional groups of marine organisms are followed by interdisciplinary discus-
sions of open-ocean pelagic forms, the deep-sea, coastal oceans, estuaries, and intertidal envi-
ronments. Grade is based on short written assign-
ments and participation in in-class discussions.

106A. Physical and Chemical Environment of the Ocean. (4) Three hours of lecture and one hour of dis-
cussion per week. Prerequisites: Biology 1B, Chem-
istry 1A or 4A, Mathematics 1A or 16A, Physics 7A or 6A. Formerly Zoology 106. The biological implications of marine physics and chemistry. History and properties of seawater. Geophysical fluids. Currents and circu-
lations. Deep sea. Waves, tides, and bottom boundary layers. The coastal ocean; estuaries. Air/sea interac-
tion. Mixing. Formation of water masses. Modeling bi-
ological and geochemical processes. Ocean and cli-
matic change.

106L. Laboratory in Biological Oceanography. (2) Three hours of scheduled laboratory plus three hours of unscheduled laboratory per week, one-day intertidal sam-
ping trip. Prerequisites: Biology 1A-1B, 103, 103L, Plant Biology 120 and 120L recommended. Must be taken concurrently with 106. Three hours will allow students to see and work with important functional groups of marine organisms and to learn and use stan-
dard oceanographic methods and equipment. Enroll-
ment limit is 16 per laboratory section.

107. Laboratory in the Diversity of Plants and Fungi. (2) Four hours of laboratory per week and two six-
hour field trips. Prerequisites: Biology 1A-1B. Must be taken concurrently with 101. Laboratory for C102. Also listed as Plant Biology C107L. (F,SP) Staff

107L. Laboratory for Principles of Plant Mor-
phology. (2) Six hours of laboratory per week. Pre-
requisites: Biology 1A-1B; must be taken concurrently with 107. Formerly 100L. Laboratory designed to ac-
company C107, Principles of Plant Morphology. Also listed as Plant Biology C107L. (F,SP) Staff

108. Principles of Paleontology. (3) Three hours of lecture and one hour of discussion per week. Prereq-
usites: A course in paleontology or in a related sci-
cence. An introduction to principles and methods in pa-
elontology and paleoecology. The course gives a gen-
eral overview of the information content of the fossil record. We will examine the nature of fossil species, popula-
tions, and communities; functional morphology, pa-
eloecology, systematics, and macroevolution. Discussion sections are designed to help students read and eval-
uate the scientific literature and to develop critical thinking and writing skills. (SP) Hickman

98. Directed Group Study. (1-4) One hour of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Freshmen and sopho-
more only. Lectures and small group discussions fo-
cusing on topics of interest, varying from semester to semester. (F,SP) Staff

99. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Must be taken on a passed/not passed basis. Prerequisites: GPA of 3.4 or greater. Formerly Botany 99. Physi-
ology 99, Anatomy 99. Lower division independent study and research intended for the academically su-
perior student. Enrollment only with prior approval of faculty adviser directing the research. (F,SP) Staff

Upper Division Courses

100A. Physiology, Structure, and Biomechanics. (3) Three hours of lecture and one hour of discussion per week, plus some assigned open computer laboratories. Prerequisites: One of the following: Biology 1A-1B; must be taken concurrently with 100. Formerly 100C. Course reveals principles of how organisms work in their environment. Skeletal support, muscular, neural, sensory, endocrine, circulatory, digestive, osmotic, and reproductive systems examined. Principles illustrated by an exciting diversity of organisms, including humans. Relevance to ecology, evolution, and medicine presented. (F,SP) Staff

100B. Principles of Biodiversity. (3) Three hours of lecture and one hour of discussion per week, plus some assigned open computer laboratories. Prerequisites: Biology 1A-1B or 102. Formerly Zoology 121. Biological principles and the major functional groups of marine organisms are followed by interdisciplinary discussions of open-ocean pelagic forms, the deep sea, coastal oceans, estuaries, and intertidal environments. Grade is based on short written assignments and participation in in-class discussions.


106L. Laboratory in Biological Oceanography. (2) Three hours of scheduled laboratory plus three hours of unscheduled laboratory per week, one-day intertidal sampling trip. Prerequisites: Biology 1A-1B, 103, 103L, Plant Biology 120 and 120L recommended. Must be taken concurrently with 106. Three hours will allow students to see and work with important functional groups of marine organisms and to learn and use standard oceanographic methods and equipment. Enrollment limit is 16 per laboratory section.

107. Laboratory in the Diversity of Plants and Fungi. (2) Four hours of laboratory per week and two six-hour field trips. Prerequisites: Biology 1A-1B. Must be taken concurrently with 101. Laboratory for C102. Also listed as Plant Biology C107L. (F,SP) Staff

107L. Laboratory for Principles of Plant Morphology. (2) Six hours of laboratory per week. Prerequisites: Biology 1A-1B; must be taken concurrently with 107. Formerly 100L. Laboratory designed to accompany C107, Principles of Plant Morphology. Also listed as Plant Biology C107L. (F,SP) Staff

108. Principles of Paleontology. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: A course in paleontology or in a related science. An introduction to principles and methods in paleontology and paleoecology. The course gives a general overview of the information content of the fossil record. We will examine the nature of fossil species, populations, and communities; functional morphology, paleoecology, systematics, and macroevolution. Discussion sections are designed to help students read and evaluate the scientific literature and to develop critical thinking and writing skills. (SP) Hickman
112L. Horticultural Methods in the Botanical Garden. (1) Three hours of laboratory/discussion per week. Prerequisites: consent of instructor. Formerly 122L. An introduction to horticultural techniques utilizing the diverse collections of the University Botanical Garden. (FSP) Staff

117. Medical Ethnobotany. (2) Two hours of lecture per week. Biological diversity and ethno-linguistic diversity sustain traditional botanical medicine systems of the world. Students will learn common names, scientific names, plant families, field identification techniques, and ethnobotanical uses of medicinal plants. How the medicinal plant is prepared, administered, and used as a phytotherapy will be discussed. There will be reference to the phylogenetic relationships of the plants. All plant species represented by the medicinal plants. (F) Carlson

117L. Medical Ethnobotany Laboratory. (2) Six hours of laboratory per week. Laboratory will focus on studying medicinal plants from the major ecosystems and geographical regions of the world. Students will learn common names, scientific names, plant families, identification techniques, and ethnobotanical uses of medicinal plants. How the medicinal plant is prepared, administered, and used as a phytotherapy will be discussed. There will be reference to the phylogenetic relationships of the plants. All plant species represented by the medicinal plants. (F) Carlson

119. Evaluating Scientific Evidence in Medicine. (3) Students will receive no credit for 119 after taking Public Health 64. Two hours of lecture per week. Two hours per week in computer laboratory, and one discussion per week. Prerequisites: An introductory biology course. A course in critical analysis of medical reports and studies using recent controversial topics in medicine. Course will focus on information gathering, hypothesis testing, evaluating study design, methodological problems, mechanisms of bias, interpretation of results, statistics, and attribution of causation.

121. Muscle Biology and Plasticity. (2) Two hours of lecture per week. Prerequisites: Integrative Biology 131 and 131L or equivalent, Molecular and Cell Biology 32, and 32L, and Physics 8A. Formerly Human Biodynamics 101. The course provides a basic understanding of skeletal muscle structure and function. The changes of muscle during the processes of development and aging are discussed, as are the adaptations to physical activities characterized by different re- cruitment patterns and biomechanical loading character- istics, and to injury and regeneration. The importance of these topics to generate and sustain human movement is developed.

121L. Muscle Biology and Plasticity Laboratory. (1) Three hours of laboratory per week. Prerequisites: 121L. This course provides a basic understanding of skele- tal muscle structure and function through laboratory exercises. The course examines skeletal muscle morphol- ogy and the mechanisms by which the muscle fibers generate force and power. The importance of muscle properties to generate and sustain human movement is developed.

122L. Biomechanics Laboratory. (2) One hour of lecture and three hours of laboratory per week. Prerequisites: 122L. Students will learn and apply principles of physics and physiology to analyze the structures and movements of animals through integrated lecture-laboratory ses- sions. Topics to be covered include muscle function, kinematics, forces, locomotion, energetics, and control. This course is designed for students in the Department of Integrative Biology and other departments in the biological sciences, es- pecially those interested in allied health professions, physical anthropology, and vertebrate form and func- tion. Bioengineering majors. Enrollment limit: 64

123A. Exercise Physiology. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: 121L. Topics to be covered include the control mechanisms involved in the regulation of human body temperature, cardiovascular and respiratory functions, and fatigue. Additional topics include factors affecting performance, energy systems, and metabolic changes during exercise.

123AL. Laboratory Experiments and Demonstrations. Exercise Physiology and Metabolism. (1) Three hours of laboratory per week. Prerequisites: 123A and 123L. Three hours of laboratory per week. Prerequisites: 123A and 123L. Obtain practical experience in the measurement of physiological parameters and to be able to compile, compare, contrast, and interpret physiological data related to exercise and environmental stresses. Laboratory demonstrations and exercises will explain by example, the lecture content. (F) Brooks

123B. Exercise Physiology. (3) Three hours of lec- ture per week. Prerequisites: 123A, 123AL. Formerly Human Biodynamics 105B. Discussions of the effect of exercise on skeletal muscle; exercise and cardio- vascular disease; exercise in the heat, under water, and at altitude; nutrition and performance; effects of drugs on performance; blood doping; sex differ- ences and performance.

123BL. Laboratory Experiments and Demonstrations in Environmental and Exercise Physiology. (1) Three hours of laboratory per week. Prerequisites: 123A, 123BL. Formerly Human Biodynamics 105B. Discussions of the effect of exercise on skeletal muscle; exercise and cardio- vascular disease; exercise in the heat, under water, and at altitude; nutrition and performance; effects of drugs on performance; blood doping; sex differ- ences and performance.

124. Musculoskeletal Biomechanics. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Physics 7A or 7B, and C119, and formerly Human Biodynamics 103. Quantitative analysis of the force, torque, mechanical energy, power, impulse, and mo- mentum associated with human movement. The me- chanical properties of the elements of the muscu- loskeletal system, including muscles, tendons, ligaments, cartilage, and bone, and their interaction will be developed. Synthesis of knowledge from the level of a single cell to that of the whole body is emphasized in developing an understanding of the linkage between the design of the musculoskeletal system and human movement.

125. Locomotion Biomechanics. (2) Two hours of lecture per week. Prerequisites: 124, 124L. Formerly Human Biodynamics 104. This course provides a quantitative and integrative analysis of human locomotion. Topics progress from a review of anatomical structures to the muscle activity patterns, quantification of movements (kinematics), forces and torques (ki- netics), mechanical and metabolic energy involved in normal human walking and running. Additional topics include the evolution and locomotion of quadrupeds and other vertebrate animals, and legged robots.

125L. Locomotion Biomechanics Laboratory. (1) Three hours of laboratory per week. Prerequisites: Must be taken concurrently with 125. This course pro- vides a quantitative and integrative analysis of human locomotion. Topics progress from a review of anatomical structures to the muscle activity patterns, quantification of movements (kinematics), forces and torques (kinetics), mechanical and metabolic energy in- volved in normal human walking and running. Addi- tional topics include the evolution and locomotion of quadrupeds and other vertebrate animals, human pathologic gait, and legged robots.

126. Neuronomuscular Fatigue. (3) Three hours of lec- ture per week. Prerequisites: 123A, 123AL. Formerly Human Biodynamics 108. Analysis of mechanisms of nerve and muscle excitation and muscle contraction, and changes occurring during fatigue and recovery.

127. Motor Control. (2) Two hours of lecture per week. Prerequisites: 131 or equivalent: a course in physiology (132, Molecular and Cell Biology 32, or equivalent), 121 and 124L are recommended. Must be taken concurrently with 127L. We will develop a basic understanding of modern theories of information and control, then apply those theories to study the elements of motor control systems; muscles, sensory transducers and motor systems of the brain. We will use and compare, contrast, and interpret physiological data related to exercise and environmental stresses. Laboratory demonstrations and exercises will explain by example, the lecture content.

127L. Motor Control Laboratory. (1) Two hours of laboratory per week. Prerequisites: 131 or equivalent: a course in physiology (132 or equivalent, Molecular and Cell Biology 32), 121 and 124L are recommended. Must be taken concurrently with 127. We will develop a basic understanding of modern theories of information and control through examples and simulations. Laboratories will also explore sensory pathways, mus- cle mechanics, and sensori-motor integration in intact humans. (F) Lehman

128. Sports Medicine. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Back- ground in anatomy, physiology, or exercise physiology recommended. Formerly Human Biodynamics 107. Analysis of the causes and situations of injuries in physical activities; strategies in the prevention, recog- nition, evaluation, management, and rehabilitation of sports-related injuries. (SPF) McLaglin

C129. Human Physiological Assessment. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 120A, 120AL (may be taken con- currently). Principles and theories of human physio- logical assessment in relation to physical activity and conditioning. Performance of laboratory procedures in the measurement and interpretation of physiological fitness (cardiorespiratory endurance, body composi- tion, musculoskeletal fitness). Also listed as Physical Education 1426. (SPF) Johannessen

130. Evolutionary and Functional Vertebrate Morphology. (2) Six hours of laboratory per week. Prerequisites: Biology 1A-1B, 100A, or consent of instructor; concurrent enrollment in 130. The structure and function of vertebrates; analy- sis of patterns of evolution of vertebrates using mor- phological data and the comparative method. (SPF) Staff

130L. Laboratory in Evolutionary and Functional Vertebrate Morphology. (2) Six hours of laboratory per week. Prerequisites: Biology 1A-1B or Chemistry 1A. Formerly Anatomy 108. The functional anatomy of the human body as revealed by gross and microscopic observation. Designed to be taken con- currently 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/drop 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: Bi- ology 1A-1B or Chemistry 1A. (May be taken con- currently with 131 or following 131 required). Formerly Anatomy 108L. Prepared human dissections, models and microscopic slides. (F) Diamond

132. Survey of Human Physiology. (3) Students will receive credit for 132 after taking Physiology 100 or 101 or Molecular and Cell Biology 32, 136. Three hours of lecture and one hour of discussion/laboratory per week. Prerequisites: 131. Mechanisms of human life processes; study of function of cells, tissues, and organ systems. (SPF) Staff

132D. Discussion Sections on Human Physiology. One hour of discussion per week. Must be taken on a pass/drop basis. Prerequisites: 132 (may be taken con-currently with 132). Material covered in lec- tures in 132 will be discussed and clarified as needed. Unannounced quizzes will be given throughout the semester.
132L. Mammalian Physiology Laboratory. (2) Students will receive no credit for 132L after taking Molecular and Cell Biology 32L or 136L, or if given for credit in enrolled in similar courses. Three hours of laboratory per week. Prerequisites: Previous or concurrent enrollment in 131A or consent of Instructor. Students will conduct exercises that demonstrate physiological principles involving cardiovascular, respiratory, renal, neuromuscular, and other functions. Students will also be expected to be proficient in the laboratory equipment and the physiological principles that the equipment is designed to measure. In addition, students will be expected to work 10 to 12 hours per week of open laboratory to work on experimental design, data analysis, and preparation for oral presentation of the results of their individual research projects under the guidance of the course staff. They will also receive instruction in the developing of hypotheses and in designing experiments to test those hypotheses. (SP) Staff

133. Anatomy Enrichment Program. (2) Course may be repeated for credit. Fieldwork—minimum 14 hours per week according. Must be taken on a pass/no pass basis. Prerequisites: A or B grade in 131. Formerly Anatomy 157 The purpose of the course is for University students to teach human anatomy to grades K-7 in the public schools. The UCB staff will meet with each group of 5-20 students once or twice a week to plan the teaching of the systems of the body and then enter the school rooms to teach what they have learned in 131. (SP) Diamond

134. Principles of Integrative Morphology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100B, Biology 1A-1B; upper division standing. Concepts, issues, and practical approaches to analyzing the living and fossil organisms. This course examines the fundamental questions and techniques of eight approaches to the study of the structure of diverse forms. Comparative morphology, developmental morphology, functional morphology, constructional morphology, theoretical morphology, ecologic morphology, and evolutionary morphology. Examples from model systems and strong emphasis on the need for a pluralistic science of form integrating the disparate sub-disciplines. (SP) Hickman

135. The Mechanics of Organisms. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Senior standing, Biology 1A-1B, and consent of instructor. Functional morphology in terms of mechanical design principles; basics of fluid and solid mechanics with examples of their biological implications; the dependence of metabolic behavior on the structure of molecules, tissues, structural elements, whole organisms, and habitats.

137. General Endocrinology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: General Biology 1A-1B, human physiology 132 or consent of instructor. The course will address the role of hormones in physiology with a focus on humans. Regulation of hormone secretion and mechanisms of hormones following will be discussed. Physiological processes to be addressed include reproduction, metabolism, water balance, growth, fetal development. Experimental and clinical aspects will be addressed. (F) Hayes

140. Biology and Sociobiology of Human Reproduction. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: A course in physics (e.g., 132, Molecular and Cell Biology 32, or consent of instructor). Evaluation of human reproduction, social problems and demographics, anatomy and biochemistry of reproductive organs, endocrinology of the menstrual cycle; puberty, psycho-physiology of copulation and orgasm; fertilization and implantation in fertilization of the ovum; potential, or consent of instructor; contraception; pregnancy and abortion; birth and lactation; sexual differentiation of brain and reproductive organs; homosexuality and transsexualism. (SP) Staff

142. Introduction to Human Osteology. (6) Six hours of lecture and eight hours of laboratory per week. Prerequisites: Anthropology 1, Biology 1B. An intensive study of the human skeleton, reconstruction of human stature, the nature of bone disease, characterization and interpretation of patterns of variation in skeletal remains, and the nature of human skeletal remains. This course is designed to provide a basic understanding of paleoanthropological and human osteological techniques. Techniques, emphasis on osteological method and analysis of human populations from archaeological contexts; introduction to use of statistics in osteological analysis. Also listed as Anthropology 143.

143A. 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: Psychology 110 or A/OS in living and fossil animals. A consideration of the biological clocks that define daily, lunar, seasonal and annual rhythms in various animals including humans. Emphasis on neuroendocrine structures, development, and adaptive significance of these processes, feeding rhythms, sleep-wakefulness cycles, reproduction and hibernation cycles, body weight and migratory cycles. Also listed as Psychology C113.

143B. 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 recommended. Neural and endocrine mechanisms underlying behavior, especially reproduction, of non-human mammals. Process of sexual differentiation of the neuroendocrine system will be emphasized. Hormonal influences on feeding, birhythms and aggressive behavior. Also listed as Psychology C113.

144. Animal Behavior. (4) Students will receive no credit for C144 after taking 144. Three hours of lecture, one hour of discussion, and one hour of demonstration per week. Prerequisites: Biology 1A-1B or Environment Science, Policy, and Management 140, Molecular and Cell Biology 140 or 142, 160 recommended. Formerly Psychology 115B. An introduction to comparative animal behavior and behavioral physiology in an evolutionary context, including but not limited to analysis of behavior, genetics and development, learning, aggression, reproduction, and parental care, and physiological and structural substrates. Two midterm exams and a laboratory term paper. Also listed as Psychology C115B. (F) Staff

146. Behavioral Ecology. (3) Students will receive no credit for 144 after taking 146. Two hours of lecture and two hours of laboratory 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, game theory, patterns of parental care, mating systems, group living, and cooperative behavior. Labs introduce methods of data collection and analysis of behavioral research. Two midterms plus a term paper. (SP) Lacey

147. Neuroethology. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: C144, Psychology C115B, or consent of instructor. The course will emphasize the neural processes that span the gap between the properties of individual molecules and complex cognitive behavior, including the cellular properties of single neurons, the functional organization of the brain, and the nature of the processes by which the brain interacts with the environment, considering both the physiological and ecological bases of behavioral diversity. Also listed as Psychology C115C. (SP) Staff

148. Comparative Animal Physiology. (3) Students will receive no credit for C148 after taking 100A. Two hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A, 1B, C144. Comparative study of physiological systems among animal phyla. General physiological principles will be illustrated by examining adaptation to environments, cardiovascular, respiratory, digestive and excretory systems. (F) Full

149. Molecular Ecology. (2) Students will receive no credit if they took 149 prior to Spring 2003. Two hours of lecture per week. Prerequisites: C163, 161, or Molecular Biology C142 (may be taken concurrently), or consent of instructor. This course focuses on the use of molecular genetics in ecology. Applications and techniques covered range from analysis of patterns and relatedness (DNA fingerprinting and multilocus genetics) to analysis of population and systematics. Also listed as Biochemistry 180. (F) Staff

151. Plant Physiological Ecology. (3) Three hours of lecture per week. Prerequisites: Biology 1B or consent of Instructor. Will explore the physiological adaptations by which plants cope with their physical and biotic environment, considering both the physiological and ecological responses made by individual plants and the evolutionary consequences seen in different plant species. This course will begin with the physiological adjustments to environmental stresses (water, nutrients, light, and temperature) and then consider the physiological and ecological responses of plants to competitive and mutualistic interactions between plants, animals and microorganisms.

151L. Plant Physiological Ecology Laboratory. (1) Three hours of laboratory per week, plus one weekend field trip. Prerequisites: Concurrent enrollment in 151 or consent of instructor. The course will introduce the student to the techniques and experimental approaches of plant physiological ecology, using modern physiological equipment. The course will then take the experimental approaches learned in the lab exercises to address an unresearched question: What are the physiological traits which enable plants to adapt to California’s diverse environments?

152. Marine Pollution. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. The environmental fate and effects of human wastes, particularly toxic chemicals, in estuarine and coastal systems. Course will review waste disposal methods, their impacts on marine communities, monitoring 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. Formerly Population 115B. Marine populations and communities; monitoring approaches, and regulatory issues. Observational, experimental, and theoretical approaches to population and community ecology will be discussed. Topics will include quantitative approaches relating on algebra and elementary calculus. Discussion session will review recent literature in ecology. (F) Staff

153L. Laboratory in Population and Community Ecology. (3) Eight hours of laboratory per week, plus two or three weekend field trips. Prerequisites: 153 (may be taken concurrently) or consent of instructor; Introductory course in statistics strongly recommended. Introduction to field and laboratory study of ecological patterns and processes in nature. Course begins with a series of group field exercises conducted in local terrestrial, aquatic, and marine habitats. These exercises emphasize sampling methodology, experimental design, and statistical interpretation of the results. The course is a prerequisite for independent research projects. A written report and class presentation of project results are required.

154. Plant Population and Community Ecology. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: C144 or 100A. Principles of integrative morphological study of plants, with emphasis on their role in maintaining plant communities, monitoring approaches, and regulatory issues. (SP) Staff

Comparative DNA sequencing) to analysis of diet and trophic interactions (biological isolates). Grades are based on exams, a final exam, and a critique of a recent research paper. Offered alternate years.

149L. Molecular Ecology Laboratory. (2) Six hours of laboratory per week. Prerequisites: 149 (may be taken concurrently) or consent of instructor. This laboratory course is intended to provide hand-on training in techniques commonly used in molecular ecology and systematics. Techniques will include DNA extraction, agarose gel electrophoresis, PCR amplification, RFLP and AFLP analysis, DNA sequencing, and microsatellite screening. The genetic basis of each technique will be discussed. Students will also 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.
162. Ecological Genetics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B. This course will bridge the gap between ecology, genetics, and evolutionary biology. It will present contemporary approaches to studying evolution in natural populations, including analyzing heritability of ecologically important traits, using molecular techniques to decompose genotypes, and documenting and measuring the magnitude of selection in natural systems, and using models to predict evolution in natural populations. Case studies will be used to examine evolutionary effects of ecological interactions among organisms, the importance of population size and structure, and interactions among populations through migration and dispersal.

163. Survey of General Genetics. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Biology 1A-1B or equivalent. Credit cannot be received for C163 after taking Molecular and Cell Biology 142 or equivalent. A survey of genetics with primary emphasis on mechanisms of heredity and molecular genetics. Includes some treatment of evolutionary genetics. Also listed as Molecular and Cell Biology C142. (SP) Beckendorf, Calendar.

164. Human Population Genetics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A-1B or consent of instructor. Recommended: Chemistry 3A-3B or equivalent. A survey of genetics with primary emphasis on mechanisms of heredity and molecular genetics. Includes some treatment of evolutionary genetics. Also listed as Molecular and Cell Biology C142. (SP) Beckendorf, Calendar.

165. Molecular Evolution. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Biology 1A-1B. Must be taken concurrently with 154. Laboratory course designed to introduce students to the diversity of amphibians and reptiles on a world-wide basis, with emphasis on behavior, ecology, functional morphology, and evolutionary history. Grade is based on two examinations (midterm, final), and an independent research paper. (SP) McGuire.

175L. Herpetology Laboratory. (2) Four hours of laboratory per week, plus two field trips. Prerequisites: 104. Must be taken concurrently with 175L. Formerly Zoology 165 Lectures and assigned readings will introduce students to the diversity 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. (SP) Staff.

176. Ichthyology. (3) Three hours of lecture per week. One midterm exam and a library term paper. Prerequisites: 130 and 104 recommended. Highly recommended to be taken concurrently with 176L. Biology 1A-1B and consent of instructor. An advanced course in the biology of fishes. Students learn about the diversity of marine and freshwater fishes, their phylogeny and radiations, major features of their life history such as locomotion and schooling, migration, mimicry, symbiosis, reproduction, and mating systems, and differences between fishes in relation to their environment.

176L. Laboratory in Ichthyology. (3) Six hours of laboratory per week, plus three field trips. Prerequisites: 176 (may be taken concurrently with 176). Biology 1A-1B and consent of instructor. An advanced course in the biology of fishes. Students learn about the diversity of marine and freshwater fishes, their phylogeny and radiations, major features of their life history such as locomotion and schooling, migration, mimicry, symbiosis, reproduction, and mating systems, and differences between fishes in relation to their environment.

180L. Micropaleontology Laboratory. (2) Two hours of lecture per week. Prerequisites: 182 and 182L. A course in Marine Geobiology is recommended. Must be taken concurrently with 180L. Formerly lecture portion of Paleontology 115 Marine Protista that are common in the fossil record will be discussed; this includes planktonic, benthonic and larger foraminifera, diatoms, radiolarians, dinoflagellates, and cocolithophores. The biology, ecology, deposition, preservation, biostratigraphy, paleoecology, and special research applications of each group will be considered.

180L. Micropaleontology Laboratory. (3) Six hours of laboratory per week. Prerequisites: 182 and 182L. A course in Marine Geobiology is recommended. Must be taken concurrently with 180L. Formerly lecture portion of Paleontology 115 Laboratory demonstrating and studying marine Protista of the fossil record, including planktonic benthonic and larger foraminifera, diatoms, radiolarians, dinoflagellates, and cocolithophores. Taxonomy, evolution, stratigraphy, biogeography, paleoecology, and research applications will be the focus.

182. Invertebrate Paleontology. (2) Two hours of lecture per week. Prerequisites: Must be taken concurrently with 182L. Formerly lecture portion of Paleontology 111 Paleobiology of invertebrates. The use...
of invertebrates in ecotoneography and chronostatigraphy.

182L. Invertebrate Paleontology Laboratory. (3) Two hours of lecture per week. Prerequisites: Must be taken concurrently with 182L. Formerly laboratory portion of Paleontology 111 Laboratory in invertebrate paleobiology, with practical study of their uses in ecos- tronomy and chronostatigraphy. (SP) Padian

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 vertebrate paleontology recommended. Formerly laboratory portion of Paleontol- ogy 125. An introduction to vertebrate paleontology, focusing on the history and phylogeny of vertebrates ranging from fishes to humans. Emphasis on evolution, taxonomy, func- tional 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 labora- tory per week. Prerequisites: Biology 1B, introductory courses in earth history and vertebrate paleontology recommended. Formerly laboratory portion of Paleontol- ogy 125. An introduction to vertebrate fossils, focusing on demonstration and study of problems related to tax- onomy, systematics, functional morphology, structure, and preservation of fossil vertebrates and their faunas through time. Offered alternate years. (SP) Padian

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. Lectures on comparative os- teology, with emphasis on selected groups of terrestrial vertebrates considered in pale- oecological, palaeoclimatological and biostratigraphic analyses.

184L. Laboratory on the Vertebrate Skeleton. (2) Must be taken concurrently with 184. Six hours of labora- tory and one hour of discussion per week. Prereq- uisites: 30, 33, or 34 or Biology 1B or Anthropology 1. Prerequisites: Paleontology 125. Laboratory on the vertebrate skeleton, with emphasis on selected groups of terrestrial vertebrates in paleoan- tomical and anthropological studies.

185. Human Paleontology. (3) Three hours of lec- ture and three hours of laboratory per week. Prereq- uisites: Anthropology 1, Biology 1A-1B. Origin and re- lationships of the extinct forms of mankind. Also listed as Anthropology C100.

186. Evolution of Hominid Behavior. (4) Three hours of lecture and one hour of discussion per week. Prereq- uisites: Biology 1A and Biology 1B or Anthropology 1. Prerequisites: Paleontology 125. Laboratory on the evolution of hominids.

187. Advanced Topics in Endocrinology. (2) One hour of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. The control of normal human movements, and reflexes, motor systems of the brain. Synthesis of these mechanisms in control of posture, locomotion, and simple voluntary movements. Critical review of current literature in motor control.

200A. Principles of Phylogenetics: Systematics. (4) Three hours of lecture and three hours of laboratory per week. The core theory and methodology for phy- logenetic systematics is based on both morph- ology and molecules, and both living and fossil or- ganisms. Topics include homology, character analysis, competing optimality criteria, classification, and a brief introduction to comparative methods. Laboratories are closely integrated with lectures and cover the major al- gorithms and software. Requirements include a prac- tical term project. Note: This course and 200B may be taken in either order or after odd-numbered years.

200B. Principles of Phylogenetics: Ecology and Evolution. (4) Three hours of lecture and three hours of laboratory per week. The use of phylogenetic trees in comparative biology. Covers the many applications of phylogenetics to biogeography, speciation, conver- sation, population genetics, ecology, behavior, de- velopment, functional morphology, and macroevolution that are revolutionizing those fields. Laboratories are closely integrated with lectures and cover algorithms and software. Requirements include a practical term project. Note: this course and 200A may be taken in ei- ther order or after even-numbered years.

220. Integrative Biology Research Review. (2) Two hours of seminar per week. Prerequisites: 123A, 123AL, Formerly Human Biodynamics 204. Discussion of current topics in the biomechanics and energetic cost of locomotion. Emphasis on terrestrial legged loco- motion and current topics in the biomechanics and energetic cost of locomotion. Emphasis on terrestrial legged loco-}

221. Seminar in Locomotion. (2) Two hours of seminar per week. Prerequisites: 124, 124L, 125, 125L or equivalent or consent of instructor. Formerly Human Biodynamics 205. Discussion of current topics in the biomechanics and energetic cost of locomotion.

222. Seminar in Locomotion. (2) Two hours of seminar per week. Prerequisites: 124, 124L, 125, 125L or equivalent or consent of instructor. Formerly Human Biodynamics 206. Discussion of current topics in the biomechanics and energetic cost of locomotion.

223. Seminar in Locomotion. (2) Two hours of seminar per week. Prerequisites: 124, 124L, 125, 125L or equivalent or consent of instructor. Formerly Human Biodynamics 207. Discussion of current topics in the biomechanics and energetic cost of locomotion.
and microscopic) and functional relationships of the mammalian central nervous system. (SP) Diamond

245L. Functional Neuroanatomy Laboratory, (2) Six hours of laboratory per week. Prerequisites: Consent of instructor. Formerly 245 and Anatomy 203. Histological examination of the human nervous system: gross dissection of the human brain. (SP) Diamond

247. Seminar on Controversies in Comparative Physiology and Evolution. (2) May be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly Zoology 203. Seminar topics will vary. Report and discussion of current literature.

248. Comparative Physiology and Endocrinology 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 Biology 221 Reviews and reports of current research in vertebrate endocrinology and physiology. (F,SP) Staff

249. Seminar on Evolutionary Genetics. (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 Zoology 243. Present developments in evolutionary genetics will be discussed in a seminar format.

250. Seminar in Ecology. (2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: 152. Readings and discussion of current topics. (F,SP) Staff

251. Ecological Research Reviews. (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: Consent of instructor. Formerly 254. Reports and discussions of original research. (F,SP) Staff

252. Advanced Topics in Theoretical Ecology, (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Discussion of recent theoretical topics in population and community ecology. Emphasis will be placed on quantitative techniques for developing and testing ecological models and on conceptual approaches to testing the predictions of theory.

254. Topics in History of Ecology. (2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 153 or 154 or consent of instructor. Readings and discussion of recent literature emphasizing historical background of concepts in community and population ecology.

256. Methods in Ecology and Environmental Biology. (3) One hour of lecture and two hours of laboratory per week. Prerequisites: Course work in biology or consent of instructor. This course will introduce students to a variety of field and laboratory methods and techniques used in ecology and environmental biology. It will focus on major areas of research such as environmental science, population and community ecology, environmental physiology, and ecosystem ecology. In particular, we will discuss the processes that influence the relationships between the biosphere and the atmosphere and the effects of anthropogenic changes, the components and functions of biodiversity, the interactions among organisms and between organisms and their environments, and the major biogeochemical cycles. Each topic will be analyzed from a theoretical and an empirical-practical perspective during the weekly seminars.

257. Current Topics in Behavioral Ecology. (2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: 145 or consent of instructor. Course topics may be varied. Report and discussion of current literature.

257A. Symposium in Behavioral Ecology. (1) One hour of seminar per week, plus one weekend field trip to Hastings Reservation. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Students will each select a related topic in the field of behavioral ecology and explore in detail the current research literature and point of view from a primary study. Oral presentation focusing on chosen topics will be presented during a weekend symposium at Hastings Reservation. Discussions include consideration of techniques, statistical analysis, theoretical basis, implications, and future directions related to the selected problem. (SP) Koenig

259. Advanced Paleoecology. (2) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Consent of instructor. Formerly Paleontology 243 Topics vary from year to year but will include paleoecology of major groups of organisms or major environments from the Mesozoic to modern evolutionary, or taxonomic perspectives. (F) Staff

261. Seminar in Plant Nomenclature. (1) One hour of lecture per week. Prerequisites: Consent of instructor. Formerly Botany 224 Principles, articles, recommendations and consent of instructor. Formerly Zoology 223 Topics to vary. Report and discussion of current literature.

262. Seminar in Evolutionary Biology of the Vertebrates. (1) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing; consent of instructor. Formerly Zoology 220. Presentation of results of original research by students, faculty, and visitors. (F,SP) Staff

265. 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 Anthropology C200.

267. Evolution and Systematics of Mammals. (2) Two hours of lecture per week and one weekend field trip. Prerequisites: 183, 183L, 184, 184L, and 162 or equivalent. Must be taken concurrently with IB 267L. Formerly Paleontology 226. Study of fossil record of Mammalia; comparative research on modern animals contributing to determination of mammalian phylogenetic relationships. A field trip will provide experience with collecting techniques.

267L. Laboratory in Evolution and Systematics of Mammals. (2) May be repeated for credit. Two hours of laboratory per week. Consent of instructor. Formerly Paleontology 226L. Formerly Paleontology 225. Syllabus and reading list will vary as topics change from semester to semester. Open to Undergraduate students with permission. Enrollment limit: 25

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 290. Advanced study and current literature in various fields of paleontology. Topics vary from year to year. (F,SP) Staff

289. Tropical Biology—An Ecological Approach. (8) Ten 1-hour lectures and 30 hours of laboratory per week. Prerequisites: Graduate standing in a biological discipline and a course in general ecology or consent of instructor. Formerly Biology 250. Evolution and dynamics of tropical biota, their relationships to their physical and chemical environments; an intensive field course in Costa Rica. Offered in cooperation with the Organization for Tropical Studies. This course is sponsored by the Graduate Council. 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. Formerly Zoology 240. Review and discussion of topics of current interest. Topics vary. (SP) Staff

292. Integrative Biology Colloquium. One hour of meeting per week. Formerly Integrative Biology 290. Meetings for the presentation of original work by faculty, visiting lecturers, and graduate students. (F,SP) Staff

295. Concepts and Principles in Integrative Biology. (1) Course may be repeated for credit. One hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. First-year graduate students are expected to attend. Discussion with faculty members of their papers reflecting integration in biology.

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. Field work. Must be taken on a satisfactory/unsatisfactory basis. Formerly Zoology 297/298/299 Open to qualified students directly engaged in field studies. (F,SP) Staff

298. Special Study in Integrative Biology. (1-12) Course may be repeated for credit. May be arranged. Prerequisites: Consent of instructor. Formerly Zoology 298 and Anatomy 298 Graduate research by small groups. (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
Interdepartmental Studies Courses

Graduate Courses

IDS 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. Reviews and reports of current research in tumor biology. Sponsoring departments: Integrative Biology and Molecular and Cell Biology.

Interdepartmental Studies Courses

(501-590) Interdepartmental Studies courses are sponsored by two or more departments because the content of each course serves the interests of individual departments. Each class is taught by one or more instructors who represent the departments sponsoring the class. For further information, please contact the sponsoring departments.

Note: Many IDS courses that formerly appeared in this section are no longer taught and have been withdrawn. Some of them, however, have equivalents that are now listed in the sponsoring departments. See individual course department listings for further information.

Lower Division Courses


Upper Division Courses

100. History of American Technology. (4) Four hours of lecture per week. Survey of American technology from colonial times to the present. Analysis of technical innovations in industrial, commercial, economic, and political settings. Topics include the Industrial Revolution, technology of war, diffusion of science in technology, industrialization and the use of corporations. Sponsoring departments: History and Electrical Engineering and Computer Science.

100AC. Technology and the American Experience. (4) Three hours of lecture and one hour of discussion per week. The history of technology in America and the place of technology in the experience, philosophy, and culture of different American groups. The technological practices and attitudes of Native Americans and of European Americans before 1700. Technological clashes, transfers, and dialogues between different American groups and the rest of the world and the republican and pastoral ideals. The relationship of slavery and technology. The industrial and agricultural revolutions: winners and losers. Technological progress in the 20th century. Digital technology and the global village. Sponsoring departments: Engineering Interdisciplinary Studies and History. This course satisfies the American cultures requirement. (SP)

110. Introduction to Computers. (4) Three hours of lecture and four hours of laboratory per week. Formerly 110 and 110L. An introduction to computers and digital technology and their role. The conceptual foundations and functions of computer hardware and software. Structure and use of the Internet. Elements of programming for the World Wide Web. Students will compare and contrast substantial programming efforts 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 “Computer Science Service Courses” in the departmental listing for Electrical Engineering and Computer Sciences, and/or consult with the instructor. (F,SP) Staff

114A-114B. Advances in Aging. (2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: High school biology and chemistry. This interdisciplinary course will single out specific topics in aging of great current interest and present lectures on several aspects of each topic (biological, socio-economic, local, and ethical). Each semester a different topic will be presented. Invited speakers with special expertise in these areas will participate. Sponsoring departments: Molecular and Cell Biology, Optometry, Public Health, and Social Welfare. (F,SP) Timiras

130. Seminar on Social, Political, and Ethical Issues. (3) Three hours of lecture per week. Prerequisites: English 14, or equivalent course; upper division or graduate standing. Emphasis on improving language skills and use of the rhetorical conventions of technical presentations. This course is designed to prepare non-native speakers for the more advanced work in Engineering 190. Sponsoring departments: College Writing and the College of Engineering. (F,SP) Jones

170. Economics of Organization. (3) Three hours of lecture per week. Prerequisites: Economics 100 or 101; Business Administration 110 or equivalent; or consent of instructor. This course presents economic concepts which explain why economic activity is organized in firms, why firms are vertically integrated, and why there are limits to the growth of firms. Other forms of economic organization, such as the partnership, the labor-managed firms, and cooperative ventures will also be considered. Sponsoring departments: Business Administration and Economics. (F,SP) Staff

H195A-H195B. Senior Honors Thesis. (3;3) Hours to be arranged with advisor. Credit and grade to be awarded on completion of sequence. Prerequisites: Open only to honors students and individual group major in the College of Letters and Science. The senior thesis will be written while a student is enrolled in IDS H195. The thesis serves to integrate and synthesize the principal theme common to the courses comprising the major. (F,SP)

Graduate Courses

213A-213B. Mathematical Economics. (3) Two hours of lecture per week. Prerequisites: Math 104 and 110; Statistics 101. Mathematical analysis of economic theory. The problems treated involve as wide a range of mathematical techniques and of economic topics as possible, including theories of preferences, utility, demand, personal probability, games and general equilibrium. This course requires at least twelve hours of work per week including outstanding and preparation. Also listed as Economics 207A and Math 213A-213B.

270. Workshop in Institutional Analysis. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Doctoral standing or consent of instructor. This seminar features current research of faculty, seminars by UC Berkeley and visiting advanced doctoral students who are investigating the efficiency of...
Interdisciplinary Studies

(Commerce and Interdisciplinary Studies, 301 Campbell, (510) 642-9220
http://www.isf.berkeley.edu/dept/isf/
Director: Renate Holub, Ph.D.

Professors
Alan Dundas, Ph.D. (Anthropology)
Renate Holub, Ph.D. (UGIS)
Richard E. Hutson, Ph.D. (English)
Kari L. Sanders (Scandinavian)
Paul Thomas (Political Science)

Lecturers
Robert Burch, Ph.D.
Earl Klas, Ph.D.
Gary P. Wren, Ph.D.

Affiliated Faculty
Nazan Al-Sayad (Architecture and Director, Center for Middle Eastern Studies)
Guy Benveniste (Economics and Haas School of Business)

Gillian Hart (Geography and Director, Center for African Studies)
Franca Massielli (Comparative Literature and Latin American Studies)
Richard Slansky (Molecular and Cell Biology)
Pravin Varaya (Electrical Engineering and Computer Sciences)

Michael Watts (Geography and Director, Institute of International Studies)
Oliver Williamson (Economics and Haas School of Business)

Faculty Advisers: A list of faculty advisers is available in the main office or on the Interdisciplinary Studies web site.

Student Affairs Officer: Jain Hutzel.

The Interdisciplinary Studies Field (ISF) Major

Note: Revisions to the ISF major are under consideration. Please go to http://is.berkeley.edu/dept/isf/ for up-to-date information.

The ISF major offers students the opportunity to develop individualized cross-disciplinary majors using courses from the social sciences, the professional schools and colleges, and the humanities. Students, with the help of a faculty adviser, must select courses and focus their majors on the basis of a unifying issue, theme, or topic called an area of concentration.

The area of concentration must meet three criteria:
- First, the area of concentration must be interdisciplinary. This means the area must integrate approaches from at least three fields and disciplines. The principle of integration can be historical, regional, thematic, or problem focused.
- Second, the area of concentration must not replace an existing major. The purpose of the ISF major is to link undergraduates with clusters of courses and faculty who have not structured or formal program exists.
- Third, the area of concentration must be feasible. Each student’s proposed program must be discussed with a faculty adviser to make sure that the field is one that students can be prepared for.

The field major is administered by a faculty advisory committee consisting of faculty representatives 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 by competitive application. ISF faculty will review applicants on the basis of the appropriateness of their proposed area of concentration, the quality of their previous work in relevant courses, and their overall promise for interdisciplinary work. Candidates for the major should discuss their individual proposals with a member of the faculty before submitting an application. Applications will be accepted throughout the semester. The lower division requirement should be completed.

Upper Division Requirements. 30 units distributed among the following:

1. Area of Concentration. A minimum of 20 units (at least six courses) drawn from at least three fields or disciplines. For further information, please see the sample areas of concentration 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. Two of the following three courses are to be taken during the junior year. Interdisciplinary Studies 100A-100B, Introduction to Social Theory and Cultural Analysis, and/or 100C, Word and Image.

3. Thesis Requirement. ISF 190, Senior Thesis. The preparation and presentation of a senior thesis including the student’s area of concentration.

Honors Program. Upper division students who declare the major in fall 1993 or later and who have an overall grade-point average of 3.5 and a grade-point average of 3.5 in the major may, upon approval of the adviser, enroll in the honors program. (Students who declared the major before 1993 must maintain an overall grade-point average of 3.5 and a grade-point average in the major of 3.5.) H195 will be substituted for ISF 190. Honors candidates will submit a detailed research proposal with a preliminary bibliography to the thesis adviser. They will also obtain the prior agreement of a faculty member (in addition to the adviser) to read and evaluate the completed thesis. Requirements for graduation in the honors program include: (1) 3.5 grade-point average in all courses taken for the major and (2) a recommendation for honors based upon the high quality of the senior thesis.

Lower Division Courses

60. Technology and Values in the Global Arena. (3) Three hours of lecture per week. In recent years, the pace of international transfers of technology, funds, resources, information, and even populations has increased dramatically. This cross-cultural diffusion has raised complex and interesting moral issues which this course seeks to explore. We will examine some of the emergent ethical issues in international affairs, with particular attention to those involving technological development. Such issues include the effect of mass media and the Internet on cultural integrity, the politics of environmental regulation, ethical implications of genetic engineering, and others. The student will explore the relevant historical and empirical background as well as the salient moral and political debates. We will draw on classical, academic, and popular sources, including contemporary films, to explore the ramifications of such issues in modern culture. The goal of the course is to provide the student with an interdisciplinary introduction to key areas of conflict in the next century. (F,SP) Wren

61. Moral Reasoning and Human Action: The Quest for Judgment. (3) Three hours of lecture per week. This is an interdisciplinary survey course that seeks to understand how we define justice, evil, and individual responsibility in modern society. In particular we are going to probe cases that affect people on a local level and practice the process of moral reasoning. We will focus on human behavior in extreme situations: war, life and death conflicts, genocides, death camps, mass killings, as well as competing conceptions of human freedom. The course has a distinctive dual purpose. On the one hand we want to encourage learning of critical thinking skills. This includes the ability to systematically evaluate information and competing moral claims. Also, it is intended as an exposure to the interdisciplinary approach. That is, how can different perspectives illuminate the same issue? With this in mind the course draws on important work from philosophy and ethics, social psychology, jurisprudential analysis, historical-political accounts, and personal memoirs. (F,SP) Klee

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

Upper Division Courses

100A. Introduction to Social Theory and Cultural Analysis. (4) Three hours of lecture per week. Formerly 100. Introduction to central theoretical investi-
gations concerning the construction and organization of social life. Using some works from the “classical” tradition 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) Ehrlich, Klee, Wren, Holub

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 social world. An interdisciplinary exploration of the nature of meaning and communication through an examination of works from discourse analysis, symbolic anthropology, literary and film studies. (F,SP) Ehrlich, Holub, Klee, Wren

100C. Word and Image. (4) Three hours of lecture per week. This course is designed to sharpen our understanding of what happens when the word of images and words meet. Starting with works from the “classical” tradition we will proceed to investigate how word/image constellations operate in a variety of media, including sculpture and poetry, painting and prose, illumination and death masks and diaries, photography, silent movies and advertising. (SP) Sanders

C100C. Word and Image. (4) Three hours of lecture per week. This course is designed to sharpen our skills in understanding how the Western “classical” tradition happened to the world of images and words meet. Starting with the work from 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, tablaux vivants, photography, and advertising. Also listed as Scandinavian C114. (SP) Sanders

C106. The Literary Freud. (4) Three hours of lecture per week. The course will explore Freudian theory in its relation to literature. We will study the interpretative theory developed by Freud, and questions such as how the use and misuse of literary material in his theories, how he and others used psychoanalytic theory as a literary hermeneutics, and how psychoanalytic theory inspired authors to develop new narrative techniques. The purpose of the course is to familiarize students with Freudian theory, its possibilities, and the problems that are created when Freudian theory is used to analyze literary texts. Reading and discussions in English. (F,SP) Staff

137AC. Across Disciplines: 20th-Century Art Forms. (4) Three hours of lecture per week. This course is an introduction to and comparative exploration of parallel developments in the works of 20th-century artists using examples from various art forms including dance, painting, sculpture, printing, writing, theatre and performance art. The course will focus on the work of individual artists and examine how different perspectives, exchanges of materials, and borrowings of forms define and transform what comes to be considered art. Also listed as Theater 137AC. This course satisfies the American cultures requirement.

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 migratory flows due to globalization processes on the national culture of the core countries and examine the ways in which particular national cultures shape 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 Geography C152, History C176, and International and Area Studies C145.

C155. Social Implications of Computer Technology. (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; the relationship of artificial intelligence and the sense of self; pornography and censorship; professional ethics. Students will lead discussions on some of these topics. Also listed as Computer Science C195. (SP) Harvey

C160. Forms of Folklore. (4) Three hours of lecture per week. Prerequisites: Upper division standing. A world-wide survey of the major forms of folklore with special emphasis upon proverbs, riddles, superstitions, games, songs, and narratives. Also listed as Anthropology C160. (F,SP) Dunlop

190. Senior Thesis. (4) Two hours of seminar per week. Prerequisites: Senior standing; completion of ISF core courses; declared in the major. The preparation and presentation of a senior thesis pertaining to the student’s individual area of concentration within the interdisciplinary studies field major. (F,SP) Staff

H195. Honors Thesis. (4) Two hours of seminar per week plus individual conferences. Prerequisites: Senior 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 student’s individual area of concentration within the interdisciplinary studies field major. The completed thesis will be read by the thesis adviser and one other faculty member. (F,SP) Ehrlich, Holub, Klee

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Prerequisites: Must 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. Formerly Group Study of selected topics not covered by regularly scheduled courses. Topics will vary from semester to semester. (F,SP) Staff

199. Supervised Independent Study and Research for Upper Division Majors. (1-4) Course may be repeated for credit. Individual conferences. Must be taken on a passed/not passed basis. Prerequisites: Regulations set by the College of Letters and Science. Formerly Social Sciences 199 and Humanities 199. Directed individual independent study and research of special topics by arrangement with faculty. (F,SP) Staff

International and Area Studies
(Concerns Letters and Science)
Office: 101 Stephens Hall, (510) 642-4466
http://www.ias.berkeley.edu

Program Overview
International and Area Studies attempts to enhance the educational experience at the undergraduate and graduate levels. The courses that IAS offers are interdisciplinary and internationally focused, and they 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 office regarding the current offerings.

Graduate Program
Advisors: Richard Abrams (History), Vinod K. Aggarwal (Political Science), Nazar Alsayyad (Architecture), Michael K. Buckland (Information Management and Systems), Richard Busbaum (Law), David D. Carol (Law), Margaret Chowning (History), Alain de Janvry (Agriculture and Resource Economics), Edwin Epstein (Peace and Conflict Studies), Peter Evans (Sociology), Jillian Hart (Geography), David Leonard (Physical Science), John M. Quigley (Public Policy, Economics), Gene Rochlin (Energy and Resources), Jeffrey Room (Environmental Science, Policy, and Management), David Vogel (Business), Bonnie Wade (Music), Michael Watts (Geography), John Zysman (Political Science)

M.A. Degree. The M.A. Degree Program in international and area studies is a two-year master’s program for students already matriculated in one of Berkeley’s professional or academic graduate programs. A clearly defined and interdisciplinary program, it is designed to complement other degree programs by providing the fundamentals of contemporary international issues and detailed knowledge of particular world regions or countries. Students tailor the content of their programs within a defined framework to suit their interests. Specific course work is chosen in consultation with a faculty adviser.

Eligibility. Any Berkeley student currently enrolled in a professional degree 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 language relevant to the focus of the program. Students must have at least one year remaining in their current degree program and must be able to demonstrate proficiency in a modern foreign language relevant to the focus of the program. The program of study equivalent to the completion of four semesters of college-level instruction.

Courses. Students in the M.A. program concentrate their course work in one of two ways, topical or area. Topic-oriented course work concentrates on selected aspects of current international affairs. Area-oriented course work focuses either on a major country or a major region of the world and usually has a strong historical or cultural dimension. Each student must demonstrate a strong grounding in economics and politics. Students who have not completed equivalent coursework before enrolling in the program must take Economics 100A-100B (Economic Analysis, Micro and Macro) and at least one graduate-level course in political science such as Political Science 202A or 202B, Theories of Development and Political Change; 205, The Nation-Building Process; 209A or 209B, Comparative Political Economy; or 225A or 225B, International Political Economy.

Minimum Requirements for the Degree. (1) A minimum of 24 units of course work independent of course work undertaken for the professional or Ph.D. degree is required, at least 12 units of which

B prefix=language course for business majors
C prefix=course satisfies R&C requirement
R prefix=course satisfies R&C requirement
S prefix=course satisfies R&C requirement
*Professor of the Graduate School
**Recipient of Distinguished Teaching Award
must be graduate-level work. All courses must be courses offered outside the professional school or department in which the student is concurrently 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 a basic language study. Failure of the courses taken to fulfill this requirement can be applied toward the degree. Up to 4 units of advanced, 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.

How to Apply. Graduate students submit applications during the spring semester of their first year of course work at one of Berkeley’s professional schools or Ph.D. programs. Students in Ph.D. programs or professional degree programs requiring more than two years to complete may apply in the fall or spring semester of their second to last year of work. The deadline to apply for spring admission is October 1; the deadline to apply for fall admission is March 31. Admission is limited to 15 students per year.

Lower Division Courses

1. The Berkeley Forum on the International World. (1) Course may be repeated for credit. One and one-half hours of discussion per week. Must be taken on a passed/not passed basis. An introduction to major topics and current faculty research concerning international studies. Emphasis upon modern and contemporary society. Areas and national or regional focus to vary by semester. Lectures by scholars from diverse disciplines will address critical issues in politics and international relations, economics, business, culture, and the arts, religion, ecology, social organization. Sessions will include comments from discussants and open question and answer periods. (F,SP)

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 acceleration 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. (4) Three hours of lecture and one hour of discussion per week. This course focuses on benchmarks of the history of various nations and civilizations. It begins with the ancient Greeks, Romans, and Chinese, but emphasizes world developments since the 15th century. The purpose of the course is to gain a better understanding of the rise and decline of states, empires, and contemporary trends. Therefore, the course will explore the 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) One and one-half hours of lecture and one hour of discussion per week. Must be taken on a passed/not passed basis. Prerequisites: Freshman or sophomore standing. This course is designed to provide graduate reading in the PhD and Development Studies majors. It consists of a series of guest lectures presenting different issues and perspectives relating to the political economy and development. Topics will be divided into three general sections: 1) theories on political economy and development; 2) historical background on the causes and effects of politics and markets; and 3) case studies on both the international and domestic levels. Peer discussion groups are 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 Developement Studies H195 and Political Economy of Industrial Societies H195. Introduction to interdisciplinary research strategies for the collection, interpretation, and analysis of data. The course integrates the study of the fundamental theories of social science with the practical techniques of social science research methods. (F,SP)

120. Selected Topics. (3) Course may be repeated for credit. Three hours of lecture per week. Interdisciplinary study of selected topics in international and area studies. Each offering focuses on problems and issues of international concern in greater depth than can be accomplished in a general topic lecture course. Through the use of lectures, discussions, 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 various writing assignments or short projects, exams, and written exams. 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 international and area studies. Topics will vary from semester to semester. (F,SP)

C145. Multicultural Europe. (4) Three hours of lecture per week. Formerly Multicultural Studies C145. 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 nationality and citizenship, and (2) a study of the processes of cultural assimilation. Also listed as Geography C152, History C176, and Interdisciplinary Studies 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. Prerequisites: Consent of instructor. Advanced multidisciplinary research in current issues and topics in international and area studies. 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)

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 preparation of a major research paper 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,SP)

298. Directed Group Study. (1-4) Course may be repeated for credit. Group meetings to be announced. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor and graduate-level standing. Group conferences intended to provide supervision in directed readings and research in subject matter not covered by available seminar offerings. (F,SP)

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 supervision in directed readings and research in subject matter not covered by available seminar offerings. (F,SP)

Professional Courses

301. Professional Training: Teaching in IAS. (2) Course may be repeated for a maximum of 8 units. Required for graduate student instructors in International Area Studies major programs for the first time,
and is strongly recommended for all IASTP GSIs. Must be taken on a satisfactory/unsatisfactory basis. Pre-requisite: Appointment as a graduate student or commitment to one or more of 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 courses from the ground up. Organized around 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)

310 ias workshop on IAS for K-12 and Community College Teachers. (2) Course may be repeated for credit as topic varies. One hour of lecture and one hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. An intensive 20-hour institute for elementary, secondary, and community college faculty on topics relating to international and area studies. Lectures on current research and pedagogical topics, teaching materials and resources, discussions, and group work on teaching and research interests. Participants will work in small groups to complete group projects appropriate to teaching responsibilities. Level and quality of participation will be the basis of evaluation. (F.S.P)

Staff

Catherine Feucht, B.A.
Senior Lecturer

Louise George Clubb, Ph.D. Columbia University, L.H.D.
Albert Russell Ascoli, Ph.D. Cornell University. Medieval and Renaissance literature, 10th-14th centuries.

Mia Fuller, Ph.D. University of California, Berkeley.
Assistant Professor

Gavriel Moses, Ph.D. Brown University. Italian film and film theory, 16th-17th-century literature and culture.

Loren Partridge, Ph.D. Harvard University. Italian Renaissance art

Barbara Spackman, Ph.D. Princeton University. Italian medieval and early modern literature.

Randolph Starn, Ph.D. Harvard University. Early modern Europe, and Renaissance art

Gustavo Costa, Dottore in Filosofia (Emeritus)

Nicola DeMaria, Dottore in Lettere (Emeritus)

Ruggero Stefanini, Dottore in Lettere (Emeritus)

Armando Di Carlo, Ph.D. University of California, Los Angeles. Early modern European and Renaissance art

Senior Lecturer

Catherine Feucht, B.A. (Emerita)

Lecturer

Armando Di Carlo, Ph.D. University of Michigan, Ann Arbor. Language program coordinator

Undergraduate Program Faculty Adviser: Mr. Botterill

Graduate Adviser: Ms. Spackman.

Department Overview

The undergraduate program is designed to provide training to a high degree of fluency in reading, writing, and speaking Italian; to give students the opportunity for intensive study in Italian literature and culture; and to introduce them to the Middle Ages to the present day, to introduce them as fully as possible to the richness and variety of Italian experience past and present; and to 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 range 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; classics; political science; medieval and early modern Italian language and literature, and so on.

The Major

Lower Division. 20 units of Italian Language courses to include Italian Studies 1, 2, 3, 4, Elementary/Intermediate/Advanced Italian, or their equivalent in linguistic proficiency.

Upper Division. 32 units of upper division 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 course work with primary readings and discussion in English may be counted toward the total major 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-graded basis. A grade-point average 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 grade-point average of 3.3, students must have completed at least 20 upper division units in the major with a minimum grade-point average of 3.5. Candidates must enroll in Italian Studies H195 for one semester during which they will carry out research and write a honors thesis under the guidance of a faculty member. Students who meet the grade-point 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 1, 2, 3, 4, Elementary/Intermediate/Advanced Italian, or their equivalent in linguistic proficiency.

Upper Division. 20 units of upper division courses, to include either Italian Studies 101A or 101B, and either Italian Studies 103 or 104. At least 12 units must be taken in residence. Up to 4 credits of course work 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-graded basis. A grade-point average 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, Venice, Bologna, Trento, Rome, Siena, or Milan. The programs feature courses in several aspects of Italian language, culture, and history. The department serves many of these courses as satisfying requirements in the Italian Studies curriculum. Students intending to Study Abroad should consult the undergraduate faculty adviser before departure. Details of the programs are available from Berkeley Programs for Study Abroad. 160 Stephens Hall. (510) 642-1356, http://www.ias.berkeley.edu/bpsa.

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 master’s degrees in Italian Studies and related fields from other institutions may be admitted directly to the second phase of the program, as described below.

First Phase: Master of Arts in Italian Studies. Requirements: Completion of between 24 and 32 units of course work, at least half of which must be in graduate seminars. The courses must include Italian Studies 205. The exact 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 the field of Italian Studies. 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 referral of the M.A. degree, students must prepare a statement indicating plans for work in the second, doctoral phase of the program and formally request permission to proceed. Detailed information is available from the faculty adviser.

Second Phase: Doctor of Philosophy in Italian Studies. Requirements: Two to three years of course work, the exact number of units depending on the extent of the student’s preparation. During this phase, students develop expertise in a primary and secondary field of Italian Studies, prepare for a qualifying examination in their areas of specialization, and develop a dissertation topic. The qualifying examination includes both written and oral parts, and is based on the students’ primary field and on two special topics developed in tutorials during the year preceding the examination. 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 on the area of doctoral research of each student. Students write a prospectus following the examination, and 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. A Ph.D. in Romance languages and literatures with emphasis in Italian is also offered. For information, please see the Romance Languages and Literatures in this catalog.

Italian Studies / 301

B prefix=language course for business majors
C prefix=cross-listed course
D 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
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. Beginning Italian for Graduate Students. Three hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Basic grammar, reading comprehension, and translation. (F,SP) Staff

2. Elementary Italian. (5) Five hours of lecture and one hour of laboratory per week. Prerequisites: 1 or 1A. Basic grammar for beginners: Part two. (F,SP)

2G. Advanced Italian for Graduate Students. Three hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 1G or equivalent. This course is designed to develop and enhance reading and translation skills from Italian to English, for graduate students in departments other than Italian. Permission for taking and knowledge and research. A midterm and final exam are required.

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 compositions. (F,SP)

12. Advanced Conversational Italian. (3) Three hours of lecture per week. Prerequisites: 4 or equivalent, or consent of instructor. The course is designed to develop and enhance oral communication skills at an advanced level, by means of conversational practice. (F) Three-pointer, student presentation or original material, and use of audio-visual materials and realia. (SP) Di Caro

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 pass/fail basis. 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. (F,SP) Staff

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. 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 group of peers in a small-seminar setting. These seminars are offered in all campus departments; topics vary from department to department and semester to semester. (F,SP) 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

70. Italian Cinema: History, Directors, Genres. (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. The course will study the history, auteurs, and genres of Italian cinema. These will be examined in their interaction with each other and in their intersection with other cultures and film histories. Focus will alternate between specific periods, directors, and kinds of film-making. Topic will be announced in the semester course lists of the Italian Department and film program. (F,SP) Moses

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/fail basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small-seminar classes in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP) Staff

96. Directed Group Study. (1-4) Course may be repeated for credit. Hours are to be arranged. Must be taken on a pass/fail basis. Group study of selected topics not covered by regularly scheduled courses. (F,SP) Staff

Upper Division Courses

101A-101B. Advanced Grammar, Reading, and Composition. (4,4) Three hours of lecture per week. Prerequisites: 4. Reading and grammatical analysis of representative texts; advanced written composition. (F,SP)

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, and 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 technical terms used by Italian critics. Three-pointer, presentation or original material, and use of audio-visual materials and realia. (SP) Di Caro

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

111. Fifteenth-Century Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Humanism and the Early Renaissance. (F,SP) Staff

112. Sixteenth-Century Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Formerly 112A-112B. Studies in the literature and culture of the High Renaissance and the Late Renaissance. (F,SP) Staff

113. Seventeenth-Century Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. The main trends in the prose and poetry of the age of the Baroque. (F,SP) Staff

114. Eighteenth-Century Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Emphasis on the works of Vico, Goldoni, Parini, Alberi. (F,SP) Staff

115. Nineteenth-Century Literature and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Studies in the literature and culture of nineteenth-century Italy. (F,SP) Spackman

117. Twentieth-Century Literature. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. The main trends in the fiction, poetry, prose and theatre of the twentieth century. (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). (4) 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 literary discourse in its responses to a broad spectrum of cultural, ideological, and institutional forces. Taught in English or Italian. (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 in the development of specific film genres such as neorealism, comedy, self-reflexive cinema. Occasionally we will concentrate on a specific director and study his individuality through style, theme, and personal development. 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 video-production workshop per week. The interaction 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 film experience 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. (Individual conferences). Prerequisites: Permission of instructor and 3.0 overall GPA. 3.5 GPA in the 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 are to be arranged. Must be taken on a pass/fail basis. Prerequisites: 1 or 4. GPA of 2.0.

199. Supervised Independent Study and Research for Advanced Undergraduates. (1-4) Course may be repeated for credit. Individual conferences. Prerequisites: Permission of instructor and 3.0 overall GPA of 3.0 or better. Enrollment restrictions apply; see the Introduction to the Course and Curricula section of this catalog. (F,SP) Staff

Graduate Courses

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 practices of literary criticism through the study of stylistic problems. Required of all Master of Arts candidates. (SP) Staff

201. Historical Grammar. (2,4) Three hours of seminar and one hour of discussion per week. Students who take this course for 2 units will not be required to write a final paper. (F) Stefanini

C201. Linguistic History of the Romance Languages. (3) 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. Com-
204. Contemporary Trends in Critical Theory. (2,4)
Three hours of seminar and one hour of discussion per week. This course is designed to provide the student with a general view of the major developments in contemporary critical theory 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 are introduced to major topics, genres, and authors in the Italian literature and culture of Italy in the 13th and 14th centuries. Two hours of seminar and one hour of discussion per week. This course introduces the study of Italian literature in its historical scope, while presenting the range of research interests represented on the Italian Studies faculty. Required of all Master of Arts candidates. (F,SP) Staff

210. Seminar in Medieval Literature and Culture. (2,4)
Course may be repeated for credit as topic varies. 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 207, 208, 211, 213. Investigation of major topics, genres, and authors in the vernacular and Latin culture of Italy in the 13th and 14th centuries. (F,SP) Ascoli, Bottrell, Stefani

212. Seminar on Dante. (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 204. Investigation of major topics, genres, and authors in Italian literature and culture of the late 13th century. (F,SP) Ascoli, Clubb, Moses

215. Seminar in Baroque 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 205. Study of major topics, genres, and authors in Italian literature and culture of the 17th and 18th centuries. (F,SP) Ascoli, Bottrell, Stefani

216. Seminar in Renaissance 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 206. Investigation of major topics, genres, and authors in Italian literature and culture of the 15th and 16th centuries. (F,SP) Ascoli, Clubb, Moses

220. Seminar in Baroque 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 218. Investigation of major topics, genres, and authors in Italian literature and culture of the 16th and 17th centuries. (F,SP) Moses

222. Seminar in 18th-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 219. Investigation of major topics, genres, and authors in Italian literature and culture of the 18th century. (F,SP) Staff

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 222. Investigation of major topics, genres, and figures in Italian literature and culture of the 19th and 20th centuries. (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 223. Investigation of major topics, genres, and authors in Italian literature and culture of the 20th century. (F,SP) Spackman

236. Seminar in Italian Cinema. (2,4) Course may be repeated for credit as material changes. 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 and two hours of laboratory per week. Formerly 203. Investigation of major topics, movements, and directors of Italian cinema. (F,SP) Staff

240. Special Topics in Film and Film Theory. (2,4) Course may be repeated for credit as material changes. 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 and two hours of laboratory per week. Prerequisites: Open to qualified seniors in the film studies program with consent of instructor. Investigation of special topics in the theory and practice of cinema, related to various trends in contemporary critical thought (film theory, psychoanalysis, ideological critique, discourse analysis, etc.). (F,SP) Mosca

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 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

248. Special Topics in Interdisciplinary Italian Studies. (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

260. Directed Readings in Italian Literature and Culture. (2) Course may be repeated for credit as topic varies. Assigned readings and one hour per week per professor. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of Instructor. Directed readings undertaken under the direction of a faculty member of the department of Italian Studies in conjunction with an audit of a 100-series seminar. (F,SP) Staff

270. Seminar Research Course. (1) Course may be repeated for credit as topic varies. Prerequisites: Consent of instructor. Directed reading 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, related to 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) Course may be repeated for credit. M.A. or Ph.D. students who elect to repeat the sequence must do so on a satisfactory/unsatisfactory basis. Two hours of colloquium per week. Section 1 to be graded on a letter-grade basis for M.A. students. Section 2 to be graded on a satisfactory/unsatisfactory basis for Ph.D. students. Prerequisites: Graduate standing in Italian studies. Formerly 290. Reports on current scholarly work by faculty and graduate students. (F,SP) Staff

298. Special Study. (1-4) Course may be repeated for credit. Individual conferences. Prerequisites: Consent of the instructor. Designed to allow students to do research in areas not covered by other courses. Requires regular discussions with the instructor and a final written report. (F,SP) Staff

299. Directed Research. (5-12) 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

601. Individual Studies for M.A. Candidates. (1-8) Course may be repeated for credit with consent of graduate adviser. May not be used for unit or residence requirement for the Master's degree. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with faculty member with a view to the M.A. comprehensive examination. May be taken only in the semester of the comprehensive examination. (F,SP) Staff

602. Individual Studies for Doctoral Students. (1-8) Course may be repeated for credit with consent of graduate adviser. Course does not satisfy unit or residence requirements for doctoral degree. Individual conferences. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with a faculty adviser. Intended to provide an opportunity for qualified students to prepare for the Ph.D. qualifying examination. May be taken only in the semester of the qualifying examination. (F,SP) Staff

Professional Courses

302. Practicum in College Teaching of Italian. (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: 301. Consent of 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 and Familiarity with course on the theoretical and practical 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, (510) 642-3383
http://www.journalism.berkeley.edu
appryo@alum.berkeley.edu
Dean: Orville Schell, M.A.

Professors

Mark Darner, A.B. Harvard University. Foreign policy, nonfiction writing
Wilam Drummond, M.S. Columbia University Graduate School of Journalism. Broadcast journalism, broadcast policy, reporting
Ben H. Epstein, M.A. Stanford University. Documentary film, television, cinematography
Thomson Geoghegan, M.S. University of California, Berkeley. Historical and social influence of the press
Michael Lottman, M.A., Columbia University. Environmental journalism
Orville Schell, M.A. University of California, Berkeley. Contemporary China
Ben H. Bagdikian (Emeritus), A.B. Clark University. Timothy Fentis (Emeritus), B.S. Northwestern University
David Littledjoe (Emeritus), Ph.D. Harvard University
A. Kent MacDougall (Emeritus), M.S. Columbia University Graduate School of Journalism
Bernard B. Taper (Emeritus), M.A. Stanford University

Associate Professors

Robert Cola, M.A., San Francisco State University. Broadcast journalism
Lydia Chavez, M.S. Columbia University Graduate School of Journalism
Cynthia Gorney, B.A. University of California, Berkeley. Profiles, long-form journalism
Neil Henry, M.S. Columbia University Graduate School of Journalism, Africa, race relations
Carolyn Walsman, Ph.D. Washington University, China, Asian studies

Adjunct Professors

Lowell Bergman, Investigative reporting
Paul Grabowicz, New media reporting and production

Senior Lecturers

Joan Bieder, Television and broadcast journalism
Susan Rasky, M.A. London School of Economics. Political and international reporting

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
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.) pro-
gram provides intensive training in journalism skills and a knowledge of the traditions and principles of the field. A professional project is required to com-
plete the two-year program. The program is rooted in the idea that the best possible preparation for ca-
reers in journalism can be obtained by following training in journalism at the graduate level.

Concurrent degree programs with Law, Asian Studies, International Area Studies, and the Center for Latin American Studies are available.

The school offers courses in print, broadcasting, documentary film, radio, new media, and photo-
journalism. All students must take a focused and demanding 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 attributes of the craft, and intensive practice in reporting, writing, and editing. Professors give ex-
haustive critiques of students' work.

Beyond the core course, there are courses in specific areas, such as political, business, science, international, and cultural reporting. There are also courses stressing different techniques, such as in-
vestigative reporting and magazine reporting. The curriculum also includes courses in copy editing and photography and a sequence of courses in television and radio reporting.

Another group of courses is intended to increase understanding of the role of journalism education. There are courses in the history of journalism, leg-
al aspects of the media, journalism ethics, and the literature of journalism.

Candidates for the M.J. degree are expected to complete a course for the degree in four semesters. They must complete 36 units in ap-
proved upper division and graduate courses, of which 24 must be in graduate courses in journalism, and must present an accept-
able project. Students are encouraged to take courses in at least three areas in disciplines other than journalism.

Applicants for graduate study should hold a bach-
eelor's degree comparable to that given by the Uni-
versity of California. Requirements and procedures are outlined in the Graduate Bulletin. Admission to the program is available at the Office of the Dean of the Graduate Division, and in the Announcements of the Graduate School of Jour-
nalism.

The Graduate School of Journalism offers several courses for undergraduates, ranging from small writing and reporting seminars to large lecture courses.

Further information, application requirements, and copies of the Announcement of the Graduate School of Journalism are available from the University of California, North Gate Hall, or via http://www.journalism.berkeley.edu/admissions/. Request.

Lower Division Courses

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2-1-2 to be graded on a passed/not passed basis. The Berkeley Seminar Program has been de-
signed to provide first-year 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 de-
partment to department and semester to semester. (F,SP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priority given to freshmen and sopho-
mores. Freshman and sophomore seminars offer lower 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 offered in all campus departments; topics vary from de-
partment to department and from semester to semester. Upper Division Courses

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

197. Field Study in Journalism. (1-2) Course may be repeated for credit. Must be taken on a pass/fail basis. Supervised experience in the practice of journalism in off-campus organizations. Individual meetings with faculty sponsor and written reports re-
quired. See Additional Information, "Field Study and In-
ternships." (F,SP) Staff

199. Supervised Individual Study and Research. (1-
4) Course may be repeated for credit. Supervised in-
dividual study and research. Must be taken on a
pass/fail basis. Prerequisites: Total grade point average of not less than 3.0 and consent of in-
structor. Enrollment restrictions apply; see department. (F,SP) Staff

Graduate Courses

200. Reporting the News. (5) Five hours of seminar and fifteen hours of fieldwork per week. In this course, students are taught the fundamentals of reporting and writing news stories and of collecting information. Close individual attention is given to each reporting as-
signment. Required in the fall term of first year. Limited to first year graduate students in Journalism. (F) Chavez, Drummond, Henry, Gomey, Gunnnson, Rasky

201. Advanced News Reporting. (4) Three hours of seminar and eight hours of field work in news report-
ing per week. Prerequisites: 200 or consent of in-
structor. Advanced study of reporting in more complex subject areas and more sophisticated writing styles. (F,SP) Staff

205. News Editing. (2) Three hours of lecture/labo-
ratory per week, plus outside assignments and read-
ing. Must be taken on a satisfactory/unsatisfactory ba-
sis. Study of the principles and practice of news editing, copyreading, headline writing, and makeup, with later emphasis on creative editing and critiques of manuscripts. (F,SP) Staff

210. News Photography. (2) Two hours of lecture and four hours of laboratory per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Priority to journalism graduate students. Fundamentals of photography and taking news photography. (F,SP) Light

211. Computer Assisted Reporting. (2) Two hours of lecture per week. Students learn how journalists are using the Internet to help report stories. They get in-
struction in using Web search engines and subject guides, exploring information databases on the Web, using news groups and discussion lists, and finding sources and interviewing people on-line. They also learn how to use spreadsheet and database programs, and how to do a basic Web page. And they get an overview of the world of new publishing and the problems that new media poses for the press and so-
ciety. (F) Grabowicz

212. Advanced Radio. (3) Two hours of lecture per week. By popular demand, the advanced radio class will reprise the Inside Oakland radio program in the Spring 2000 semester. The KALK-FM program was warmly and enthusiastically received when it made its debut in the Spring of last year. The pro-
dio differs from North Gate Magazine in its mission, its sound and its production values. Pieces will be gen-
erally longer and make more use of interviews. The program has one anchor. It features one long interview on each program. There is no "top of the news" news-
cast. Its focus is on the geographic, cultural, and pol-
itical entity known as Oakland. Each program will ex-
plore a specific theme. (F) Drummond

213. Documentary Photography. (3) Two hours of lecture per week. An exploration of magazine pho-
tography as applied to photo essay, clay assignments and book projects, as well as content based lectures (location lighting, environmental portraiture, etc.) and critiques. Students work on in-depth assignments that include research, reporting, and photographing. Le-
gal/ethical and business issues are explored, including fund-raising and grant writing to support extended pro-
jects. (F,SP) Light

214. Photography Tutorial. (2-3) Two hours of lecture per week. This photo tutorial will emphasize the tech-
nical aspects in photography such as darkroom skills, lighting, cropping, composition, editing, and presen-
tation. Students will be working on weekly assignments as well as a final project that would directly correlate with the material covered in class as well as to the courses taught by Ken Light. The tutorial will encour-
age students to explore the darkroom and to improve not only their conceptual understanding of the medium, but especially their technical, shooting and printing, knowledge of photography. Several Photoshop tutor-
ials will also be incorporated in the class for those stu-
dents who are interested in learning digital photogra-
phy and its possibilities. The sessions will cover scanning, resolution, and tools applicable to image ma-
 nipulation, color correction, and output. The Photog-
ography Tutorial and its content will be, of course, to a large extent determined by the questions raised by stu-
dents, their levels of experience in the medium, as well as their final goals. (F,SP) Chakarova

224. Reporting on Social Issues. (4) Three hours of lecture and eight hours of fieldwork per week. Pre-
requisites: For journalism students, 200, all others con-
sent of instructor. Work on a selection of major social problems in contemporary society, acquaintance with current developments in the social sciences relating to the problems, exposure to contrasting views, and writ-
ing of articles that will aid public understanding. Staff

226. Science Reporting. (4) Three hours of lec-
ture/discussion and eight hours of field work per week. Prerequisites: For journalism students, 200 or equiv-
alent; for others, consent of instructor. Advanced study of methods of reporting developments in such fields as science, education, health, or the environment. Staff

227. Reporting of Cultural Events. (4) Three hours of lecture/discussion and eight hours of field work per week. Advanced study of reporting and criticism in fields such as drama, film, music, fine arts, literature, and architecture. Staff

228. Political Reporting. (4) Three hours of lec-
ture/discussion and eight hours of field work per week. Prerequisites: For journalism students, 200 or equiv-
alent; for others, consent of instructor. Advanced study of methods of reporting developments in such fields as science, education, health, or the environment. Staff

230. Business Reporting. (4) Three hours of lec-
ture/discussion and eight hours of field work per week. Prerequisites: For journalism students, 200, Reporting and writing of business, financial, and corporate af-
fairs. Staff

232. New Technology and News. (2) Two hours of lecture per week. Prerequisites: 200 or consent of in-
structor. Two hours of lecture and discussion with ad-
tional reports of newswriting, and new techniques in
photography in the press. Study of how journalists present new technology and how new methods of communi-
cation may change the nature of news reporting. Staff

234. International Reporting—Mexico. (4) Three hours of lecture per week and a one-week reporting
trip. 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. Course will include one-week trip to Mexico and the production of a magazine. (SP) Staff

236. China Reporting. (3) Three hours of lecture/discussion per week. An examination of the shifts in Western reporting on China since Edgar Snow’s classic Red Star Over China (1938). Wagner

238. Multicultural Issues in the News Media. (3) Three hours of lecture/discussion per week. Race, ethnicity, gender, and sexual orientation in the contemporary newsroom. How multicultural values are influencing news standards. Drummond

247. Inside Revolutionary China: Studies in Memoir, Fiction, and Film. (3) Three hours of seminar per week. Students will analyze events, policies, and situations in China over the last half century through the revealing reports provided in memoirs, profiles, fictional narratives, literary reportage, and feature films. Texts will chronicle the personal experience of the revolution from the War of Resistance against Japan (1937-1945) through the post-Mao decade and the suppression of the democracy movement. (SP) Staff

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, magazines, radio, and television) and of the popular media (revolutionary operas, films, short stories, reportage, wall posters, cartoons, advertisements) on the Communist victory and the Korean War through the Cultural Revolution to the democracy movements of 1979 and 1989 and the subsequent political reformation. (SP) Wagner

250. Investigative Reporting. (4) 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 assignments. (F,SP) Staff

251. Reporting as Literature. (3) Three hours of lecture/discussion per week. A study of outstanding examples of journalistic literature. (SP) Staff

252. Magazine Article Writing. (4) Three hours lecture/discussion and eight hours of field work per week. Prerequisites: For journalism students, 200 or equivalent; for others, consent of instructor. Study of and analysis of the techniques of writing and editing of articles for publication (F,SP) Staff

254. Opinion Writing. (2) Two hours of seminar per week. The reporting, writing, and editing of newspaper editorials and op-ed essays. Staff

255. History, Ethics, and Law. (3) Three hours of lecture per week. Issues related to writing about high technology and high-tech industries. In addition to introducing students to industry consultants, reporters, and executives, the class will involve using the Internet as a reporting tool. 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 reporting and writing radio news. Students will produce weekly live radio news programs. Enrollment is limited to 15. (F,SP) Drummund, staff

282. Introduction to Television News. (4) Four hours of lecture/discussion, fifteen hours of laboratory per week and some field work. Study of the history and-institutions of broadcast journalism (nine weeks), practice, techniques of reporting news for radio and television. (F,SP) Staff

283. Reporting for Television. (5) Six hours of lecture/discussion and twenty-four hours of laboratory/field work per week. Prerequisites: 282 and consent of instructor. Videocasting of live television news programs. (SP) Bieder, Calo

284. Documentary News Films. (4) Three hours of lecture and twelve hours of laboratory/field work per week. Prerequisites: 200 and consent of instructor. Production of television documentary programs. (F,SP) Else

285. Advanced Television Reporting: TV Magazine. (4) Three hours of lecture, fifteen hours of laboratory/field work per week. Prerequisites: 282, 283 and consent of instructor. Reporting and production of television news, magazine stories and programs. (SP) Bieder, Calo

294. Professional Project (Thesis) Seminar. (1) 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. Work begins 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 experience in the practice of journalism on-off-campus organizations. Individual meeting with faculty sponsor and written reports required. See Additional Information. "Field Study and Internships." (F,SP) Staff

298. Special Group Study in Journalism. (1-3) Course may be repeated for credit. For students who wish to pursue a special program of study and research not covered by any other course or seminar. Units of credit to be determined by the instructor. (F,SP) Staff

299. Individual Study. (1-3) Course may be repeated for credit. Individual study. Supervised individual study and research. (F,SP) Staff

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 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 building complexes, and analysis, planning, and detailed design of public and private exterior spaces and landscapes, it requires an understanding of visual and social factors, plant materials, construction technology, cost, and ecology.

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 open space and 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 with a major 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 after fulfilling a three-year apprenticeship 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 in-depth 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 the Announcement of the College of Environmental Design.

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 from the scope of detailed form to that of the regional landscape. A core of courses in the department is required of all students, emphasizing the relationship between the design and the environmental planning aspects of the field. This core group forms the foundation for extended core work in landscape design, urban and community design, and environmental planning.

Current faculty research and professional involvement include growth and use planning, human factors and design, environmental simulation, landscape visual and scenic assessment, ecological art, ecology and plant succession, hydrology and planning, cultural geography, the educative city, energy conservation in landscape and community design, urban and community participation in design and planning.
Admission is granted to a small number of indi-
sertation. Progress toward the degree is evaluated
academic residency, reading knowledge of a de-
per division and graduate course work, two-year
Ph.D. requirements are as follows: 32 units of up-
field of environmental planning.
There are no specifically required courses for the
or urban design or in specialized roles in govern-
planning is appropriate for those seeking careers
vironment. The Ph.D. degree in environ-
program emphasizes the development of theories
pursue advanced scholarly and research work. The
Doctor of Philosophy program in environ-
years of professional experience
landscape architecture and a minimum of two
architecture and who satisfy the admission re-
pective graduates, leading to both the Master of Landscape Architecture and Master of City Planning degrees. Applicants to the concurrent degree program typically have an undergraduate degree in landscape architecture and who satisfy the admission re-
quired separately by both the Department of Land-
Architecture and Environmental Planning and the Department of City and Regional Planning. More information may be obtained from the Gradu-
ate Office in 202 Wurster Hall, or from our web site at http://landscape.berkeley.edu/

Concurrent Degree Program in Architecture and Landscape Architecture. The Departments of Architecture and Landscape Architecture and Environmental Planning have developed a con-
current degree program. This program will lead to two professional degrees: Master of Architecture and Master of Landscape Architecture. This new program brings together two closely connected branches of environmental design—the design of sites and the design of buildings. This program is for qualified students who have an undergraduate degree in architecture or landscape architecture and who satisfy the admission re-
quires of the one- or two-year M.Arch. program and/or the two-year M.L.A. program. Applicants to either of the above concurrent degree programs should apply to the Department of Landscape Ar-
Architecture and Environmental Planning. December 15. Acceptance into the concurrent degree program is limited to outstanding applicants. More information may be obtained from the Graduate Office in 202 Wurster Hall or from our web site.

Master of Urban Design. The Master of Urban Design is for exceptionally well-qualified students who have a bachelor’s degree in architecture or landscape architecture and a minimum of two years of professional experience after completion of the undergraduate degree. See the Urban De-
section of this catalog for further information.

The Ph.D. Degree in Environmental Planning. The Doctor of Philosophy program in environ-
mental 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 pro-
cesses for environmental design as they relate to the solution of problems in the natural and urban en-
vironment. The Ph.D. degree in environmental planning is for those seeking careers in research and teaching in environmental planning or urban design or in specialized roles in govern-
ment or professional consultation.

There are no specifically required courses for the Ph.D. Degree in Environmental Planning. However, applicants seeking admission are encouraged to submit their transcripts and letters of recommendation with their application. Students may take courses in other departments to complete the environmental planning requirements. However, these courses will not count toward the Ph.D. Degree in Environmental Planning. Admission is granted to a small number of indi-
viduals or to both the Master of Landscape Architecture and Environmental Planning and the Department of City and Regional Planning jointly offer a pro-
grams of study in urban design or in environmental planning, leading to both the Master of Landscape Architecture and Master of City Planning degrees. Applicants to the concurrent degree program typically have an undergraduate degree in landscape architecture and who satisfy the admission re-
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quired separately by both the Department of Land-
Architecture and Environmental Planning and the Department of City and Regional Planning. More information may be obtained from the Gradu-
ate Office in 202 Wurster Hall, or from our web site at http://landscape.berkeley.edu/
138. Computer Applications for Environmental Design. (2) Two hours of lecture and two hours of laboratory per week. It addresses special topics in the design and planning of the landscape using CAD. The focus varies from semester to semester but typical topics include garden design, park design, neighborhood design, open space design, and others. (SP/Radke)

134A. Drawing Workshop I. (2) Two hours of lecture and two hours of studio per week. Prerequisites: Environmental Design 11A or 11B or Landscape Architecture 230 or consent of instructor. Freehand and formal perspective approaches to graphic representation of design concepts. Pencil, ink, and color media. (SP/Sullivan)

134B. Drawing Workshop II. (2) Two hours of lecture and two hours of laboratory per week. Prerequisites: Environmental Design 11A-11B or consent of instructor. This studio will focus 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 compositional structure. Visits to galleries and museums will complement the studio sessions. (F/Hood)

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 design 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. Throughout the course, drawing with intuition and imagination, students will be able to bring their visions to reality. (SP/Sullivan)

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 professional practice—office structure, public, private and non-profit 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 major phases: 1) urban open spaces, that is, plazas, parks, and recreation systems; 2) 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 practice and aesthetics, as well as the environmental concerns, horticultural practices, and technological innovations of historic landscapes. (F/Mozingo)

171. The American Designed Landscape Since 1850. (3) Three hours of lecture per week. This course surveys the history of landscape architecture since 1850 in four realms: 1) urban open spaces—that is squares, plazas, parks, and recreation systems; 2) urban and suburban design; and 3) regional and environmental planning; 4) gardens. The course will review the cultural and social contexts which have shaped and informed landscape architecture practice and aesthetics, as well as the environmental concerns, horticultural practices, and technological innovations of historic landscapes. (F/Mozingo)

C188. Geographic Information Systems. (4) Two hours of lecture, one hour of discussion, and two hours of laboratory per week. Prerequisites: Some computer experience. Formerly C188X. This course introduces the student to the rapidly expanding field of Geographic 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, integrated, interpreted, and manipulated. It emphasizes a conceptual appreciation of GIS and offers an opportunity to apply skills related 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 department information sheet for limitations. Supervised experience related 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 allowed each semester. Course may be repeated for credit. 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) Course may be repeated for credit. 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. (4) Three hours of lecture and five hours of studio per week. Prerequisites: 134A-134B or consent of instructor. Through lectures, studio problems, research projects, and design projects the course will explore the challenge and potential incorporating ecological factors in urban contexts. The course focuses on the interaction of landscape science (hydrology, geology, etc.) with the necessities and mechanisms of the human environment (urban design, transportation, economics, etc.). Lectures and discussions will particularly emphasize innovative and forward thinking solutions to the ecological problems of the human environment. Throughout the semester, reading and discussions sessions will highlight the connections between the broader concerns of the global ecological crisis and landscape design and planning. (F/Mozingo)

202. Design of Landscape Sites. (4) Two 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 through final design and implementation in various contexts. Technical projects will be of an intermediate scale and might include a park, plaza, museum sculpture garden, playground, office park or housing project. Modules on site planning and planting design are included. (SP/Jewell/Hood)

203. Shaping the Public Realm. (4) Two hours of lecture and six hours of studio per week. Prerequisites: Previous design experience and Landscape Planning 240. This interdisciplinary studio focuses on the public realm of cities and explores opportunities for creating more humane and delightful urban environments. Problems will be 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 led by lecturers, discussions, and field trips. Visiting professionals will present case studies and will serve on reviews. (F/Southworth)

204. Advanced Project Design. (4) Two hours of lecture and six hours of studio per week. Prerequisites: 201 or consent of instructor. Special topics in the design and planning of the landscape. The focus of the studio varies from semester to semester. Possible topics include community design, educational environments, landscape as art, park design, or energy conserving design. For current offerings, see department announcement. (F,SP/Staff)

205. Environmental Planning Studio. (4) Six hours of studio and two hours of lecture per week. Prerequisites: 201 or consent of instructor. Application of environmental planning principles to identify the effects of a project involving a variety of environmental criteria and desired land uses in a complex institutional and political setting. Student teams will identify needed data, assess environmental developmenetal problems, weigh competi- tions, and prepare an environmental management plan. (SP/Hester)

206. Final Project Preparation Studio: Thesis and Report Writing. (4) Eight hours of studio per week, including one hour of lecture and three hours of studio. Prerequisites: 252 and graduate standing. This is a spring studio for students to work on their final thesis (theoretical and professional reports). The studio, including lectures by the instructor, is meant to train and assist students in writing their thesis or professional report and help them in finalizing their thesis or professional report topic. The course includes weekly exercises ranging from writing articles documenting, illustrating, and critiquing landscapes to finally producing a thesis or professional report. (SP)

210. Restoration of Aquatic Ecosystems. (2) Two hours of lecture/seminar per week. Prerequisites: 222 or 223 and Civil Engineering 113, Environmental Science, Policy, and Management 115B, or consent of instructor. Interdisciplinary course taught in conjunction with Civil and Environmental Engineering 210N, for students who intend to carry out research on damaged ecosystems, supervise actual restorations or enhancement, and also students who are simply inter- ested in this field. The course emphasizes differences and similarities in restoration goals and strategies among wetlands, rivers, lakes, and estuaries, and coastal oceans. The course format is based on the Dahlem system where students prepare and present orally and in writing, one or two aspects of the topic and culminates with an all-class final restoration/enhancement. Offered alternate years. (SP/Kondolf)

213. Landscape Planting Design. (2) Two hours of lecture and two hours of laboratory per week, plus two weekend field trips. Prerequisites: Geology C188, or consent of instructor. Advanced introduction to the theory and practice of planting design. Application specific sites will be addressed, with an emphasis on plant selection and an understanding of the multiple roles that plants may serve in a landscape setting. (SP/Lindsay)

220. Environmental Geology for Planners. (4) Three hours of lecture and three hours of laboratory per week, plus two weekend field trips. Prerequisites: Geography 1 or Earth and Planetary Sciences 50, or equivalents, or consent of instructor. Review of geographic principles followed by analysis of seismic hazards, landslides, flooding, coastal processes, soil erosion, and use of geologic information in planning. Recognition of geologic hazards in the field and on aerial photography are emphasized in laboratories and field trips. Critical reading of technical reports and improvement of writing skills. Offered alternate years. (F/Kondolf)

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 assessment, analysis, and evaluation in envi-
222. Hydrology for Planners. (3) Three hours of lecture and two hours of laboratory per week, plus three hours of weekend field trips. This course presents an overview of the fundamental hydrologic, hydraulic, and geomorphic processes, to provide the planner and ecologist with insight sufficient to coordinate with technical specialists. The course is extended through additional readings, regulations and policies are reviewed. (SP) Kondolf

223. Introduction to California Landscapes. (1) One hour of lecture/discussion per week plus two one-day field trips (total of four days). Must be taken on a satisfactory/unsatisfactory basis. Introduction to the ecology, visual characteristics, land use, and design history of the major landscape regions in California. (SP) Staff

224. Vegetation Analysis and Management. (2) Three hours of lecture and four hours of laboratory per week. The analysis and assessment of vegetation for landscape design and environmental planning. Management of vegetation in parks, nature reserves, and open space areas. Offered alternate years. (SP) McBride

225. Urban Forest Planning and Management. (3) Three hours of lecture per week plus two one-day field trips. Must be taken on a satisfactory/unsatisfactory basis. Introduction to tree growth, history, and its role in contemporary towns and cities. Emphasis on planning and management of the urban forest, including parks, street trees, and community participation. Offered alternate years. (SP) McBride

226. Landscape Design Construction. (2) Three hours of seminar per week. Prerequisites: 221 (may be taken concurrently). The course investigates the process of developing schematic 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: 221 (may be taken concurrently). This course reviews the underlying principles of river and stream rehabilitation and restoration projects, reviews techniques employed in these efforts, and emphasizes strategies for evaluation of project success. The course focuses on the relationship between the geologic and hydrologic analyses relevant to restoration and enhancement of aquatic and riparian habitat in freshwater systems. Lectures by instructor, guest speakers, presentation of student independent projects, and field trips. Course requirement: independent term project involving original research. (F) Kondolf

228. Research in Environmental River 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 the field. This course consists of (1) presentation by students of proposals, progress reports, and final results of their independent research projects, and (2) review of newly published research papers in the field. Students review recent issues of specific journals for all papers relevant to environmental river planning, management and restoration, and report on the papers to the seminar, broadly reviewing all the relevant papers on a given topic. Emphasis is on research methods and new findings. Oral presentation skills are also critiqued. Requirement: one or two oral presentations, accompanied by a 2-page handout. (F,P,S) Fairfax

232. The Landscape As a Sacred Place. (3) Three hours of lecture per week and two field trips (total of three days). Visual and cultural analysis of landscapes, inventories and "place" values, and potential relationships to sustainable development, with special emphasis on highly valued places. Offered every third year. (SP) Hester

C233. Environmental Law and Resource Management. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly Interdepartmental Studies 233. An introduction to the American legal system governing the use and management of natural resources. Topics include water, air, land, and solid waste regulation, environmental impact assessment; the regulation of development and land use, water resources law and policy, public lands, hazardous waste management; hazardous lands; resource extraction. Offered every third year. (SP) Staff

235. Environmental Simulation and Public Communication. (2-4) Two hours of seminar per week. The focus will be on debate and discussion of central issues in landscape architecture, with an emphasis on the theory of environmental simulation; case studies, and policy. Three hours of lecture and three hours of laboratory per week. Designed to be a forum for presentation of student independent projects, and field trips. Emphasis is on sustainable design development, with presentations, accompanied by a 2-page handout. (SP) Radke

236. Advanced Seminar in Land Use and Environmental Planning. (3) Course may be repeated for credit. Three hours of seminar per week. An advanced investigation of current issues in land use and environmental planning, with a focus on the development of proposed policies and implementation strategies. Topics will vary from year to year. Likely topics include: the regulation of sensitive lands; environmental impact assessment; the regulation of design; supralocal land uses controls; water resources management and policies; management of laboratory per week. (SP) Staff

237. The Process of Environmental Planning. (3) Three hours of lecture/discussion per week. A review of the techniques used in environmental planning, and evaluation of alternate means of implementation in varying environmental circumstances. The class will examine and critique a number of well-known environmental planning programs and plans. Lectures and discussion will address recurring planning problems, such as the limitations of available data, legal and political constraints on plans, conflicts among specialists. (F) Duane

239. Public Land and Resource Planning and Administration. (4) Three hours of lecture/discussion per week with seminars. Prerequisites: Environmental Science, Policy, and Management 151 or Geology 117 with consent of instructor. This course reviews the underlying principles of river and stream rehabilitation and restoration projects, reviews techniques employed in these efforts, and emphasizes strategies for evaluation of project success. The course focuses on the relationship between the geologic and hydrologic analyses relevant to restoration and enhancement of aquatic and riparian habitat in freshwater systems. Lectures by instructor, guest speakers, presentation of student independent projects, and field trips. Course requirement: independent term project involving original research. (F) Kondolf

240. Social, Cultural, and Psychological Factors in Design. (3) Three hours of lecture per week. Prerequisites: Graduate standing in the College of Environmental Design. A course survey to introduce designers to the basic approaches, concepts, and research findings in the social, cultural, and psychological aspects of design. Lectures will focus on the application of relevant issues in the design process and how to evaluate environments from a user’s perspective. Guest lecturers will introduce students to a range of faculty and design practitioners who deal with sociocultural issues as they pertain to the design, perception, and use of the physical environmental. (F) Staff

C241. Research Methods in Environmental Design. (4) Three hours of lecture/seminar and two hours of laboratory per week. Formerly Interdepartmental Studies 241. The components, structure, and meaning of the urban environment. Environmental simulation; the major techniques that have been developed by courts, legislatures, and administrative agencies for environmental protection. Topics will include nuisance law, constitutional constraints, environmental impact assessment, permit systems for development control, pollution control, natural resources planning law. Also listed as City and Regional Planning C253. Duane

C243. Computer Applications in Landscape Architecture. (3) Three hours of lecture and three hours of laboratory per week. Intermediate introduction to the application of computers in landscape architecture; covers applications in computer hardware and software in central campus and departmental computing facilities. (F) Radke

Staff

C244. Advanced Seminar in Landscape Architecture. (3) Three hours of lecture and three hours of laboratory per week. Designed to be a forum for presentation of student independent projects, and field trips. Emphasis is on sustainable design development, with presentations, accompanied by a 2-page handout. (SP) Staff

C251. Theories of Landscape Architecture and Environmental Planning. (2) Two hours of seminar per week. New course. The focus will be on debate and discussion of central issues in landscape architecture, with an emphasis on the theory of environmental simulation; case studies, and policy. Three hours of lecture and three hours of laboratory per week. Designed to be a forum for presentation of student independent projects, and field trips. Emphasis is on sustainable design development, with presentations, accompanied by a 2-page handout. (SP) Southworth

C252. Thesis and Professional Project Research Seminar. (2) Two hours of lecture/discussion per week. Course may be repeated for credit in the same or a different theoretical area. (SP) Staff

C252A. Thesis and Professional Project Proposal Seminar. (2) Two hours of session per week. Prerequisites: Proposal must be submitted prior semester and approved by LAEP Curriculum Committee. Students learn research methods including social factors, historical/archival, design exploration, master planning, theoretical, and scientific field work. 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) Staff

C252B. Thesis and Professional Project Proposal Seminar. (2) Two hours of session per week. Prerequisites: Proposal must be submitted prior semester and approved by LAEP Curriculum Committee. Students learn research methods including social factors, historical/archival, design exploration, master planning, theoretical, and scientific field work. 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) Staff

253. Landscape Architecture and Environmental Planning Colloquium. (1) Course may be repeated for credit in the same or a different theoretical area. Offered every other year. Must be taken on a satisfactory/unsatisfactory basis. Invited lectures on current research, planning practice, and design projects. (SP) Staff

254. Topics in Landscape Architecture and Environmental Planning. (1) Course may be repeated for credit in the same or a different theoretical area. Offered every other year. Must be taken on a satisfactory/unsatisfactory basis. Invited lectures on current research, planning practice, and design projects. (SP) Staff
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 arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and appointment as research assistant. Supervised experience on a research project in landscape architecture and/or environmental planning. Regular meetings with faculty sponsor required. See departmental sheet for other limitations. (F,SP) Staff

296. Directed Dissertation Research. (1-8) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor. Supervised experience relative to specific aspects of practice in landscape architecture and/or environmental planning. Regular meetings with faculty and outside sponsor as well as final report required. See departmental information sheet for other limitations. (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 arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing and consent of instructor and approval. Supervised experience on a research project in landscape architecture and/or environmental planning. Regular 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 arranged. 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 arranged. 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 allows for four units maximum in 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 arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Last semester of residence in M.L.A. program. Individual study for final degree requirements in consultation with 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. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Candidates for doctor's degree. Individual study in consultation with the major field advisor, 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. Hours to be arranged. 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

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 to take a broader perspective of the area that is usually available through a de-
Students are reminded that: 1) no course work for the major can be taken on a pass/fail or non-passed basis, and 2) no course may be used to satisfy more than one major requirement.

Minor. Latin American Studies does not offer a minor program. However, other minor programs taken in conjunction with Latin American Studies are encouraged.

Double Majors. Double majors must be approved by the dean of the College of Letters and Science. 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 requirements.

Study Abroad. The use of course work taken at institutions outside the United States to fulfill major requirements 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 courses taken at other institutions (including those of the Education Abroad Program of the University of California) may be transferred into the major. These courses will be accepted only as three of the ten required upper division courses (regardless of unit value) and must be validated by the Office of Undergraduate Admission and Relations with Schools and approved by a major adviser. Courses used to fulfill foreign language and lower division prerequisites are not included in this restriction.

Honors Program. To be admitted to the honors program, a student must have senior standing with a cumulative grade point average (GPA) of 3.3 or higher for all work completed in the University and a 3.3 or higher for all work completed in the major. In order to graduate with honors in the major, a student must enroll in the honors seminar, Latin American Studies H195, and must obtain a GPA of 3.3 in the major and in overall University course work. The student is required to write a thesis on research performed in Latin American Studies H195. The thesis will be prepared under the supervision of a member of the Latin American Studies faculty committee and approved by a selected group of the same committee. For information about eligibility for participating in the honors course, check with the Teaching Program Office.

Course Plan

The considerable flexibility within the Latin American studies major encourages students to construct a program appropriate to their specific interests and geographic interests. The overarching structure of the major, however, presumes that each student has a three-tiered program. First, a series of lower division courses, in which LAS 10, an introduction to Latin American Studies, is critical. Language proficiency in either Spanish or Portuguese equivalent to four college-level semesters is also required. Second, a series of six upper division courses focusing on familiarity with a secondary language and four courses emphasizing literature and history. And third, a series of six upper division courses through which the student builds a working knowledge of the culture, history, literature, politics, and economy of Latin America. These courses are chosen in consultation with a faculty adviser and follow one of two tracks, humanities or social sciences. In addition, students may enroll in the honors program, which consists of a senior thesis seminar.

Lower Division

Required Courses

Latin American Studies 10, History B8, and one of the following social science courses, the choice based on the focus the student intends to pursue at the upper division level: Anthropology 1 or 2, Political Science 2, or Geography 4.

A. Humanities Program. The Humanities program is designed for students who wish to focus their studies on the languages, literature, and culture of Latin America. As in the Social Science program, theory courses may be taken from a variety of fields and do not necessarily have to be in the same discipline. However, content courses (which also may have theoretical elements) must focus on Latin America. Students are required to complete:

1) one theory course in social sciences or humanities, and

2) five courses in the upper division concentration.

Lists of approved courses for the above can be obtained from the Teaching Program Office.

B. Social Science Program. The Social Science program is designed for students who wish to attain a strong command of one social science discipline while focusing on a variety of Latin American political, historical, sociocultural, and economic issues. Students are required to complete:

1) 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 methodology course can be drawn from any of two broad categories—statistical methods or research design.

2) Theory (two courses). Each LAS major should endeavor to attain a strong command of one social science discipline through two courses which provide critical theoretical concepts and methods.

3) Upper division concentration (three courses). The concentration courses address a variety of historical, sociocultural, and political-economic concerns in Latin America. A student’s selection of courses should reflect a particular focus or emphasis, and the courses should complement one another to provide comprehensive coverage of the selected emphasis.

Lists of approved courses for the above can be obtained from the Teaching Program Office.

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 at the immediate postbaccalaureate level. Candidates must have a bachelor’s degree, a reading knowledge of either Spanish or Portuguese, and a high grade-point average. Applicants from the United States must take the Graduate Record Exam (GRE), and foreign students must take the Test of English as a Foreign Language (TOEFL).

Requirements for the M.A. Degree. Under Plan I, the student completes 20 units of course work and writes a master’s thesis. Under Plan II, the student completes 24 units of course work and takes a comprehensive exam. The courses, in both cases, must be concentrated primarily in two or three disciplines, although a broad range of courses may be taken if appropriate to the student’s academic objectives. The program must include at least 16 units of Plan I courses or 18 units of Plan II courses, or 12 units for Plan II at the graduate level. Credit earned for writing the master’s thesis may not be included. In addition, students are required to take Latin American Studies 200 their first year. The re-
main courses/units may be at either the under-graduate (upper division) or graduate level, must be examined at least one methodology course appropriate to the student’s course of study, and should be selected in consultation with the student’s faculty adviser. While a student’s program will consist primarily of courses focused explicitly on Latin America, courses with a comparative, theoretical, or methodological focus that contribute to the student’s understanding of Latin America may be considered.

The language requirement for both plans is a high level of proficiency in Spanish or Portuguese and a basic reading and speaking knowledge of the other language.

**Doctoral Degree.** The Ph.D. program in Latin American Studies is intended for advanced students who have completed an M.A. (or equivalent) in Latin America or in a related subject. Students should have unusually strong academic records and a high degree of intellectual maturity and independence. Students in this program have well-defined interdisciplinary interests that do not fit within the confines of traditional departments. Generally these students do not plan to pursue traditional academic careers. Admission to the program follows the same procedures as are required for the M.A.

**Requirements for the Ph.D. Degree.** Students must fulfill the GRE/TOEFL requirement, the minimum course and unit requirements described for the M.A. in Latin American studies, and the language requirements; pass the qualifying examination; write a dissertation. In addition, the resident requirement, a minimum of four semesters with at least four units at the 200 level each semester, must be met. The language requirement is a high level of proficiency in reading, writing, and speaking Spanish or Portuguese, a strong reading and speaking knowledge of the other language, and a reading knowledge of a third language chosen in consultation with an adviser. Students concentrate their course work primarily in three disciplines. Course work should be selected in consultation with a faculty adviser. Upon successfully completing the qualifying examination, students will be advanced to candidacy and will prepare a doctoral dissertation under the guidance of a three-member faculty committee.

**Concurrent M.A./Degree. The Group in Latin American Studies, in cooperation with the Graduate School of Journalism, offers a concurrent M.J./M.A. in journalism and Latin American Studies. Students apply for the concurrent program through the School of Journalism at the time of admission. Please contact the School of Journalism for additional information.**

**Lower Division Courses**

**10. Introduction to Latin American Studies. (4)** Three hours of lecture and one hour of discussion per week. This course is intended as a lower division, interdisciplinary core course for students planning to pursue the Latin American Studies major, as well as other interested students. The aim is to provide an introduction to the field that integrates the offerings from the various disciplines. Particular attention will be given to the analysis of the relationship between cultural expression and the politics, economy, and history of the region. (F, SPR)

**84. Sophomore Seminar. (1)** One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade option. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they graduate. (F, SPR)

**Upper Division Courses**

**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 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 Latin American Studies. (F, SPR)

**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, SPR)

**H195. Senior Honors Thesis Seminar. (3) Three hours of seminar per week. Prerequisites: International and Area Studies 102 and consent of instructor; senior standing.** The thesis process is focused on research and writing a thesis based on the prospectus developed in International and Area Studies 102. The thesis work is reviewed by the honors instructor. A second reader is to be selected based on the thesis topic. Weekly reports required. (F, SPR)

**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 experience relevant to specific aspects of Latin American Studies in off-campus organizations. Regular individual meetings with faculty sponsor and written reports required. (F, SPR)

**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, SPR)

**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 adviser; consent of instructor. Enrollment restricted by regulations of the college. (F, SPR)**

**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. This course is designed to accommodate cross-listed courses offered through other departments, the content of which is applicable to the graduate program in Latin American Studies. Content varies from course to course. (F, SPR)**

**240. Special Topics. (2) Course may be repeated for credit. Three hours of lecture per week for eight weeks. Prerequisites: Consent of instructor and graduate-level standing. A graduate level 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 Latin American Studies graduate students. (F, SPR)**

**250. Selected Topics in Latin American Studies. (4)** Course may be repeated for credit with consent of instructor. Three hours of seminar per week. Seminar will take a multidisciplinary approach to specific geographic areas with appropriate comparative material included. Topics change each semester. (F, SPR)

**292. Directed Study and Research. (1-4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Directed study and research for graduate students in Latin American Studies.** Prerequisites for graduate students engaged in an interdisciplinary exploration of Latin America-related topics in subject matter not covered in available course offerings. The course will involve directed readings and writing of a report. (F, SPR)

**296. Directed Dissertation Research. (1-12) Course may be repeated for credit. Unit credit to be based on workload ratio of three hours per week for each unit of credit assigned. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Advancement to Ph.D. candidacy.** By arrangement with faculty, individual conferences to provide supervision in the preparation of a dissertation. (F, SPR)

**298. Directed Graduate Group Study. (1-4) Course may be repeated for credit. Group meetings to be announced. Prerequisites: Consent of instructor and graduate-level standing. Topics vary from semester to semester. (F, SPR)**

**299. Individual Study. (1-4) Course may be repeated for credit. Three hours of lecture required. Prerequisites: Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual study for graduate students in Latin American Studies.** Prerequisites vary from semester to semester. (F, SPR)

**602. Individual Study for Doctoral Students. (1-8) Course may be repeated for credit. Independent.** 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. May not be used for unit or residence requirements for the doctoral degree. (F, SPR)

**Law (School of Law, Boalt Hall)**

Office of Admissions: 5 Boalt Hall, (510) 642-2274
http://www.law.berkeley.edu/
Interim Dean: Robert Berring, Jr., J.D., M.L.S.
Associate Deans:
David D. Caron, M.Sc., J.D., Dip., Dr.Jur.
Richard M. Buxbaum, LL.B., LL.M.
Jan Vetter, LL.B.
Assistant Deans:
Charles J. McClain, Jr., Ph.D., J.D.
Kathryn Abrams, J.D. (Heima Hall Kay Distinguished Professor/ Constitutional law, feminism, jurisprudence, voting rights)
Alan J. Auerbach, Ph.D. (Robert D. Buch Center for Tax Policy and Public Finance/Law and economics)
Copyright, torts, trademarks
Robert G. Berring, Jr., J.D., M.L.S. (Interim Dean and Director; Garret W. McKinney Law Librarian and Walter Perry Johnson Professor/ Chinese law, legal research and writing, legal profession, contracts)
Stephen M. Bundy, J.D. (Asian law, legal ethics and civil procedure)
Richard M. Buxbaum, LL.B., LL.M. (Jackson H. Raiston Professor/ Corporations, international trade law, international transactions)
David R. Caron, M.Sc., J.D., Dip., Dr.Jur. (William Maxeiner Professor/ International environmental law, international organizations, ocean law and policy, public international law, resolution of private international disputes)
Stefan Choo, A.M., J.D., Ph.D. (Corporations, securities regulation, business taxation)
Lori Doler, LL.B., LL.M., J.D. (Earl Warren Professor/ Constitutional law, corporations, corporate finance, judicial review and the national political process)
Robert D. Cooter, M.A., Ph.D. (Harlan F. Salvin Professor/ Contracts, law and anthropology, regulated industries (banking)
Mak Dan Cohen, LL.B., L.L.M., J.S.D. (Milo Rease Robbins Professor/ Criminal law, legal theory
Study for a degree in Jurisprudence and Social Policy may be combined with study for a J.D. degree. For information contact the JSP program at (510) 642-4036 or go to www.law.berkeley.edu/academics/jsp.

Course Descriptions
Not all courses are offered each academic year. Course descriptions, content and requirements are subject to change. For current course offerings, visit our web site at www.law.berkeley.edu/currents/courses.

First-Year Curriculum
The first-year curriculum provides an essential foundation for subsequent legal study. First-year students take three or four courses each semester, as well as the Legal Research and Writing course in the fall and Written and Oral Advocacy in the spring. Civil Procedure I, Contracts, Criminal Law, Property and Torts constitute the first-year curriculum’s required courses. In addition, first-year students may take elective courses in the remaining courses from the upper division curriculum. Of the courses taken in the first year, some are taught in classes of 60 to 120 students, and some are taught in small sections of 25 to 30 students.

First-Year Required Courses
Civil Procedure I. This course covers the main stages of civil litigation in the trial court, including pleading, discovery, summary judgment, right to jury trial, motions for judgment as a matter of law, joinder of parties and claims, and claim and issue preclusion.

Contracts. The law of contracts, including formation, performance, remedies and termination, is discussed in this course.

Criminal Law. This class is an introduction to criminal law with primary emphasis on the general principles of criminal liability.

Legal Research and Writing/Written and Oral Advocacy. Instruction in legal research and writing is given in this course during the fall semester. Members of the class participate in Written and Oral Advocacy class in the spring.

Property. This course provides an introduction to the topics involved in the law of property, including adverse possession, possessory estates in land, future interests, marital property, landlord-tenant law, concurrent estates, easements and covenants, and land-use planning.

Torts. This course covers the law of civil injuries, including both intended and unintended interference with personal and property interests, as well as liability without fault.

Upper Division Curriculum
The second- and third-year curriculum is incredibly varied, with numerous courses and seminars offered, as well as student-initiated courses, supervised self-instruction, individual and group research projects, clinical work, and judicial externships. In addition to the basic law school subjects, there are opportunities for intensive study of more specialized substantive areas, including comparative legal studies, environmental law, international legal studies, law and economics, law and technology, and social justice/public interest.

Before graduating, students are required to take a constitutional law class and a professional ethics class.
Upper Division Courses

The following list includes courses typically offered at Boalt Hall. However, all course offerings are subject to change as a result of curriculum reviews. For the most current course offerings, visit our web site at www.law.berkeley.edu/prospective/academics/courses.html.

Administrative Law. This basic course concentrates on the fundamental legal principles surrounding federal administrative agencies, including legislative, executive and judicial control of administrative action; the exercise of administrative power; and structures of agency decision making.

Admiralty Law. Selected topics in maritime law, including jurisdiction, practice, maritime liens, charters and carriage of goods, maritime injuries, marine casualties, salvage, average, and limitation of liability are examined in this course.

Advanced Comparative Law Seminar. This seminar is designed to acquaint the student with the basic institutions and policies in legal systems adhering to continental European legal traditions (so-called civil law countries), with emphasis on judicial organization, the scope of judicial power, and the protection of civil and human rights.

Advanced Criminal Law. This course consists of workshops, lectures and interviews covering the more sophisticated areas of cross-examination, voir dire and trial techniques. Also included are ethics, attorney fees, indigent defense issues, forensics, complex cases and topical subjects.

Advanced Criminal Procedure: Prosecution Perspectives. This course focuses on the legally changing and constitutionally mandated requirements of the criminal justice system by studying current high-profile cases.

Advanced Issues in Employment Discrimination. The seminar explores a variety of advanced theoretical and policy issues in employment discrimination law.

Advanced Legal Research. This course provides an overview of legal research that makes the transition from law school to law practice easier and more productive. Students explore the history of legal materials and examine the structure and use of various research tools, including all types of research books and systems, from the earliest nominal reporters to the newest online databases.

Advanced Topics in Jurisprudence. Plato’s Phaedrus is the topic of this course.

Alternative dispute Resolution: Process and Policy. This course introduces the student to alternative dispute resolution (ADR) procedures, looks at how best to counsel clients in choosing the appropriate dispute resolution method, and critically examines the policy questions posed by various ADR methods.

American Federalism Seminar. This course explores historical and jurisprudential perspectives on American federalism, with attention to “the original understanding” of 1787; 19th century constitutionalism; and radical, conservative and relativist views on federalism. The seminar considers the important role that innovation and intellectual property play in a competitive economy; market definition and innovation markets; in- tersection of antitrust and intellectual property. The advanced course focuses on the special, and often insufficient, understanding of 1787; 19th century constitutionalism, with attention to “the original understanding” of 1787; 19th century constitutionalism; and radical, conservative and relativist views on federalism.

Antitrust Law and Economics Seminar. The course provides an in-depth examination of the economic principles that underlie modern antitrust law. The seminar explores antitrust law and economics, vertical market definition and innovation markets; intersection of antitrust and intellectual property. Topics include merger analysis, intellectual property and high-technology. Principles are developed through a discussion of significant recent cases.

Appellate Advocacy. This course is designed to improve written and oral advocacy skills at the appellate level. It focuses on working with a factual record and on the analysis and creative use of legal authorities.

Asian Americans and the Law. In this seminar, students explore how the Asian American identity is governed by specific legal issues, including: the doctrine of the Asian-American identity under federal law; the impact of the dramatic statutory changes enacted by Congress in 1996.

Constitutional Law: Structural Issues. This course focuses on how the structure of the Constitution affects the law and how that structure affects the law. Students explore the structure of the Constitution and how that structure affects the law. Students examine the structure of the Constitution and how that structure affects the law. Students examine the structure of the Constitution and how that structure affects the law.

Complex Civil Litigation: Cutting-Edge Issues. This seminar explores how to represent a client in complex civil litigation. The seminar focuses on the development and application of new legal theory and practice.

Constitutional and Civil Rights of Immigrants: Current Issues. This seminar examines the legal issues relating to immigration, citizenship and the rights of immigrants. The seminar focuses on how immigration laws, international law and the Constitution affect the rights of immigrants.

Conflict of Laws. This seminar explores the legal and doctrinal issues relating to the application of law in complex cases.

Civil Procedure II. This course covers allocation among courts of authority, issues of jurisdiction (constitutional and statutory) with respect to parties, venue, transfer of venue, and forum non conveniens issues of subject matter jurisdiction, principally federal. Also covered is the doctrine of Erie Railroad v. Tompkins, dealing with the application of state law in federal courts.

Commerical Transactions. This course examines the laws governing the sale of goods and the laws governing the use of personal property as collateral to secure loans and other transactions.

Community Law Practice at the East Bay Community Law Center (EBCLC). The East Bay Community Law Center (EBCLC) offers students an opportunity to work in a clinical setting providing free legal services to residents of Oakland and Berkeley. The EBCLC focuses on housing law, public benefits, community economic development, and legal services for people with AIDS. Students receive training in the substantive law areas and, under the supervision of staff attorneys, handle their own client caseload.

Comparative Constitutional Law. This research seminar explores the effect of the U.S. Constitution on the legal systems outside the United States.

Comparative Environmental Politics and Policy. This seminar explores the legal and legislative environment in the major industrial countries and the United States. The seminar focuses on how domestic and international politics and policies affect the quality of the environment.

Comparative Federalism, Globalization and Environmental Policy. This seminar explores the relationship between federalism and globalization, examines the impact of globalization on federalism, and considers the role of federalism in the global environment.

Comparative Legal History. An introduction to the development of Western legal systems and a foundation for more advanced courses in legal history.

Constitutional and Civil Rights of Immigrants: Current Issues. This seminar examines the legal issues relating to immigration, citizenship and the rights of immigrants. The seminar focuses on how immigration laws, international law and the Constitution affect the rights of immigrants.

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Conflict of Laws. This seminar explores the legal and doctrinal issues relating to the application of law in complex cases.
terests of buyers and sellers and how counsel for each side addresses those interests.

**Construction Law.** This course covers such issues as the relationships between parties involved in the design and construction process; the key provisions to be included in construction and design contracts; the obligations and protections for subcontractors and suppliers; and the means of resolving disputes.

**Copyright.** This is an in-depth course in copyright, covering legal protection of works of literature, art, architecture, computer software, industrial design and other forms of authorship, primarily under the federal Copyright Act of 1976. Attention is also given to challenges to copyright posed by digital technologies and to international treaties affecting U.S. law and industries.

**Copyright and Trademarks.** An in-depth study of copyright, covering legal protection of works of literature, art, architecture, computer software, industrial design and other forms of authorship, primarily under the federal Copyright Act of 1976. It also covers the law of trademarks and unfair competition, both independently and as it interacts with copyright law, and takes a brief look at other areas of intellectual property law, such as the right of publicity and legal protection for ideas.

**Corporate Finance and Bankruptcy Reorganization.** This seminar has two main purposes. First, it introduces students to the major elements of corporate bankruptcy reorganization under Chapter 11 of the Bankruptcy Code; and (2) to show students how bankruptcy law affects the structure of corporate financing transactions outside bankruptcy.

**Corporate Finance Seminar.** This seminar studies the principles of finance that inform corporate and securities transactions. Topics include valuation, the dividend decision, mergers and acquisitions, corporate restructuring, financial instruments used to manage risk, and international securities transactions.

**Corporations I.** This course is an introduction to basic legal principles governing the relations among investors, managers, creditors and workers in the business enterprise. The course focuses primarily on state corporate law. The course is designed to give students a basic understanding of the fundamental principles governing those relationships in a detailed, transaction-specific context. It covers the structure of corporate financing transactions outside bankruptcy.

**Corporations II.** This class explores the relationships among the participants of a corporate venture, with particular attention to the fiduciary principles governing those relationships in a detailed, transaction-specific context. It considers the directors and officers of the corporation, particularly but not exclusively with derivative suits, also covered.

**Courts and the Image of Justice in Cinema.** This seminar examines the social construction of justice and its cultural function, as both a value and a legal institution, as depicted in trials and judgments in films. The films discussed, from various countries and historical periods, provide elements for a comparative study of judicial systems.

**Crime and Social Control.** This seminar examines major socio-legal works on crime and social control. It focuses on selected policy issues in criminal justice, such as imprisonment: strict sentencing; community correction; and crime policies as they affect youth, women and minorities. These issues are viewed in the context of policy for police officers and citizens/suspects. Topics include constitutional restraints on search and seizure, police interrogation, the right to trial, discovery, sentencing and capital punishment.

**Critical Race Theory.** This seminar allows students to explore at an advanced level some of the central debates in this area of scholarship. It inquires on such issues as the intractability of racism; the failure of civil rights laws; and the relationship between race, gender and law.

**Current Issues in Immigrants’ Rights.** This course addresses current law and policy issues that affect the rights of immigrants in our society, with special attention to the constitutional rights of immigrants, including the right to due process and equal protection and the right to judicial review. The course also covers the rights of immigrants under labor, employment and antidiscrimination laws.

**Cyberlaw.** The emergence of global digital networks and digital technologies has brought a host of new legal issues that lawyers preparing to practice in the 21st century need to understand and address. The course investigates problems in applying law to cyberspace in such areas as intellectual property, privacy, content control and creative commons. It explores specific legal problems in applying law to cyberspace in such areas as intellectual property, privacy, content control and creative commons.

**Disability Rights.** This course teaches disability rights, an emerging area of civil rights law, exploring the substantive areas of employment, housing, education and access rights. Students will learn practical skills for litigating these civil rights cases.

**Domestic Violence Law Clinic.** Students work in one of several government agencies or nonprofit offices in the Bay Area, under the supervision of the instructor on state legislation. They may also assist with post-conviction issues faced by battered women in state prisons and employment issues affecting victims of domestic violence. Students interview clients; draft restraining orders, memaranda, op-ed pieces and motions; represent clients at hearings; research policy issues; and attend meetings with government officials, judges and legislators.

**Domestic Violence Law Seminar.** This course uses an interdisciplinary approach to examine the legal system’s response to domestic violence. Historical and psychological materials are considered, and topics in criminal, family, tort, immigration, welfare and constitutional law are explored.

**Drafting Legal Documents for Small Business.** Through this course students learn and apply a range of law and business knowledge related to the development of small businesses, particularly in the context of drafting key documents for business organizations.

**Economic Analysis of Legal Rules.** This seminar provides students with an opportunity to discuss ongoing research in law and economics. At most meetings, invited speakers (from Berkeley and elsewhere) present work in progress.

**Economic Analysis of Legal Rules II.** This seminar explores the methods of economic analysis of law. Readings include works by economists on the role of government in the economy and on the role of courts in shaping the contours of economic reform, focusing on the role of government in the economy and on the role of courts in shaping the contours of economic reform.

**Education Law and Policy for the 21st Century.** This seminar examines the aspirations of U.S. educational policy (toward elementary and secondary schools) and the educational policies of the federal government, focusing on the role of government in the economy and on the role of courts in shaping the contours of economic reform.

**Employment Discrimination Law.** This general survey course explores various state and federal laws prohibiting employment discrimination based on sex, race, national origin, age, sexual orientation and disability.

**English Legal History.** This course is a topical introduction to English legal developments, both common law and equity, from 1200 to 1700. Major emphasis is placed on the development of rules and institutions, the legal profession, and substantive and adjudicative law centering on litigation patterns, particularly in real property law.

**Entertainment Law.** The worlds of film, television and music form the core of this course. Each industry is discussed from the clients’ perspectives, detailing the business, legal and social issues encountered in the development of a project from raw idea to final distributed product. Topics also include agents, managers, the studio system, new media, sexually oriented entertainment and careers in entertainment law.

**Environment and Culture.** The theme of this course is preservation as it applies to the natural world (parks, wilderness, wildlife, cultural properties), art, historic structures, objects of scientific importance, and communities (Alaska Native communities, etc.). The course explores how preservation becomes an official policy of the state, and how many other important values are affected by preservation mandates.

**Environmental Compliance and Enforcement.** This research-oriented seminar examines the processes by which environmental laws are implemented and enforced, primarily in the United States. Students examine theoretical issues from a political science and organizational perspective as well as from a legal perspective. Readings and class discussion focus on such topics as alternative methods of implementing environmental policy; regulatory noncompliance and regulatory enforcement styles; policy influences on regulatory strategies and enforcement; legal restrictions on detection and enforcement; the choice among criminal, civil and administrative sanctions for non-compliance, and the challenges of regulatory administration.

**Environmental Law and Policy.** This course explores fundamental legal and policy issues in environmental law. By focusing on a limited number of statutes-principally the Clean Air Act, the hazardous waste statutes and the National Environmental Policy Act-students study in detail the principal methods of regulation, as well as important environmental issues such as the role of citizens in enforcement, the value of provisions forcing agency action, the role of judicial review, and the optimal allocation of regulatory authority between federal and state governments.

**Environmental Law Writing Seminar.** Each student in this seminar produces a short research paper to be published in the Ecology Law Quarterly and takes part in rich intellectual discourse on environmental policy.

**Environmental Litigation.** The course explores three universal stages of the litigation process: analyzing potential theories of liability and defenses, determining the appropriate targets for recovery, and selecting the desired remedy. Within each stage, the class focuses on the mechanics of the law governing soil and groundwater contamination, and other strategic considerations unique to the environmental arena.

**Environmental Remedies.** This course provides students with a sophisticated understanding of the
range of remedies available to plaintiffs in environmental litigation, both public and private. The class of associated features of the income tax, available under the common law, the California Safe Drinking Water and Toxic Enforcement Act, the federal Comprehensive Environmental Response Compensation and Liability Act, and the federal Resource Conservation and Recovery Act.

Estate Planning and Taxation. This course is a basic study of federal estate and gift taxes, and select associated features of the income tax, with some attention to elementary estate planning.

Estates and Trusts. This course provides an introduction to testamentary succession, the drafting and enforcement of wills, limitations on the power to bequests, and the use of trusts and other devices to create and control future interests. It emphasizes California law, although alternative rules are also considered.

Evidence. This course offers a study of the basic problems in evidence law through analysis of the Federal Rules of Evidence, case law and problems. Topics include relevance, trial process, competency and examination of witnesses, hearsay and other rules of exclusion, and lay and expert opinions. Discussion includes allocation of decision-making authority among judges, juries and attorneys, and between trial and appellate courts.

Eviction Advocacy. This course presents the application of evidentiary rules and principles of trial practice through actual courtroom experience. Students work on a team to negotiate an eviction, prepare and execute direct examination, cross-examination, opening statement and closing arguments.

Family Law. This course examines common law, statutory law and federal constitutional principles relating to the formation and dissolution of families. Major topics include regulation of sexual and reproductive behavior, adoption, marriage and marital choice, and its consequences, the doctrine of family privacy, the public law of child welfare, medically incapacitated children and neglect.

Federal Courts. This course covers the constitutional and statutory role of courts in the federal system, focusing on the jurisdiction of the federal courts, their relation to the state courts, and the roles of federal and state law.

Federal Criminal Law. Students gain familiarity with federal statutes that give rise to the bulk of complex criminal prosecutions in the federal system, as well as white collar crime, narcotics, RICO and federal narcotics, and tax offenses. Federal sentencing guidelines and sentencing litigation are also explored.

Intellectual Property Strategies for E-Commerce. This course considers the broad range of international courts, such as the International Court of Justice, the International Criminal Court, and the International Tribunal for the former Yugoslavia. It examines the role of the European Union in international disputes, and the role of the United Nations in the resolution of international disputes.

Foreign Relations Law. This course examines the constitutional and legal framework for the conduct of foreign relations. It considers the role of the executive branch, the legislature, and the courts in foreign affairs. Topics include the separation of powers, the role of the President in war powers, as well as the role of the President in foreign affairs, as a matter of the original understanding of the Constitution and as a matter of tradition and practice, recent conflicts; the roles of the branches in making international agreements; and the role of the federal courts in foreign affairs, especially their activities in the incorporation of international law with federal constitutional law.

Habeas Corpus. This course traces the history of habeas corpus, examining its origins and evolution, and provides a thorough understanding of the range of habeas corpus petitions in state and federal court decisions. This course explores the impact of habeas corpus on the role of habeas as a constitutional right and the development of habeas corpus in other areas of law, with a special focus on the role of habeas corpus in the death penalty. This course is of particular interest to students considering federal court clerks.

Health Care Law. This course studies legal issues relating to medical practice, health insurance, and the rights and responsibilities of health care providers and patients. Topics include doctor and hospital licensing, informed consent, medical malpractice, regulation of health insurance, and public subsidies for healthcare, laws relating to death and dying, and selected issues of biomedical ethics.

History of Punishment. This course considers the changing pattern of state-organized punishments in the United States and Western Europe from the 18th to early 20th century. Attention is given to the emergence of a system of incarceration as the standard sanction for the treatment of the most serious crimes, and to the later adoption of therapeutic and rehabilitative models of criminal corrections. The course explores such general issues as what a community’s penal practices reveal about its system of social values and cultural expectations, its conceptions of criminality and related understandings of normal social agency, and its delineation of the range of socially acceptable techniques of public coercion and force.

Human Rights Writing Seminar. This course allows students to pursue a project of publishable quality for the writing requirement in the field of human rights.

Income Tax. This course uses statutory, judicial and administrative materials as an introduction to principles of federal income taxation, particularly as applicable to individuals. It provides a working understanding of tax concepts and statutory provisions, as well as an appreciation of the economic and social implications of the law and its potential use to implement defined policy objectives.

Insurance Law. This course examines principles of insurance policy interpretation and the law of property insurance; liability insurance and the insurance claim process, including bad faith and ERISA.

International Agreements and Institutions. The post-Cold War world is facing a variety of complex global issues, including human rights, ethnic conflict, environmental degradation, financial crises, arms control and terrorism. This course studies important issues in the design of international institutions, such as sanctions, incentives, dispute settlement and information—considering these in theory and examining how they have been handled in various international regimes.

International Aspects of Intellectual Property Law. In the highly integrated global economy, goods and services move worldwide, and the innovative component of goods and services increasingly defines their value. The protection of intellectual property rights (IPRs) on an international basis assumes great importance for investors, authors and artists, and business enterprises. This course examines the international system for the protection of IPRs.

International Business Transactions. This seminar considers the role of institutional investors in international law, and the role of international institutions, such as the International Monetary Fund, the World Bank, and the International Criminal Court, in the resolution of international disputes.

International Civil Litigation. This seminar considers the role of international institutions, such as the International Court of Justice, the International Criminal Court, and the International Tribunal for the former Yugoslavia, in the resolution of international disputes.

International Courts and Tribunals. This seminar considers the role of international courts and tribunals that have emerged over the last decade. Particular attention is given to the new international criminal bodies.

International Development Law and Policy. This seminar considers the role of international institutions, such as the World Bank, the International Monetary Fund, and the United Nations, in the resolution of international disputes.

International Environmental Law. This seminar considers the role of international institutions, such as the United Nations, in the resolution of international disputes.

Intellectual Property Transactions. This seminar considers the role of international institutions, such as the World Intellectual Property Organization, in the resolution of international disputes.

IPR Seminar. This seminar considers the role of international institutions, such as the World Intellectual Property Organization, in the resolution of international disputes.

International Tax Law. This seminar considers the role of international institutions, such as the Organization for Economic Co-operation and Development, in the resolution of international disputes.

International Trade Law. This seminar considers the role of international institutions, such as the World Trade Organization, in the resolution of international disputes.

International Human Rights Law. This seminar considers the role of international institutions, such as the United Nations, in the resolution of international disputes.

International Environmental Law. This seminar considers the role of international institutions, such as the United Nations, in the resolution of international disputes.

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International Tax Law. This seminar considers the role of international institutions, such as the Organization for Economic Co-operation and Development, in the resolution of international disputes.

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the international Court of Justice in identifying and establishing international environmental law; in-ternational law of private conduct that affects the environment; and the effects of international trade, financial institutions, human rights and armed conflict on the environment.

International Finance. This course examines fi-nancial transactions that cross national borders. Virtually all regulation of these transactions takes place through national laws, so important questions exist regarding the appropriate country to regulate a particular transaction and the appropriate law to be applied. This course focuses primarily on U.S. laws regulating international securities transactions and international banking activities.

International Human Rights Law Clinic. Stu-dents in the International Human Rights Law Clinic assist survivors of human rights abuses in two ways. First, students represent refugees seeking asylum. Second, they work on innovative human rights projects that advance the struggle for justice on behalf of individuals and marginalized com-munities that have been the targets of repression and violence. Students prepare and appear in asy-lum cases; conduct litigation before national and international judicial forums concerning human rights violations, and engage in interdisciplinary empirical studies designed to achieve policy outcomes.

International Human Rights: Law, Policy, and Process. This seminar introduces the law and institutional mechanisms for the international pro-tection of human rights, emphasizing international treaty mechanisms for protecting and promoting human rights, including regional systems and the role of nongovernmental organiza-tions. The use of international human rights standards in the United States is also addressed.

International Law. This course deals with the ba-sic rules governing the international community. A substantial portion of this course focuses on the role of international and national tribunals in the law-making process of the international community, with emphasis on modern developments in juris-diction, international agreements, the law of the sea, and international economic law. Special con-sideration is also given to the impact of the United Nations.

International Tax Law. This course studies the law of international taxation and the taxation of for-eign-source income and foreign persons with dom-estic-source income. Emphasis is placed on the underpinnings of the law and the tax issues arising on present or proposed solutions. Special at-tention is paid to the tax problems faced by U.S. citizens, international companies, and non-U.S. citizens in foreign countries, and, in particular, on the U.S. taxation of income earned by U.S. taxpayers abroad.

International Trade. This course provides an in-troduction to American trade law and the world trade system. Topics include the Constitution and the statutory regulation of international economic affairs, unfair trade practices, American an-tidumping and countervailing duty laws, and the lei-gal structure established by the World Trade Or-ganization (WTO). The WTO dispute settlement process, tariffs, quotas, nontariff trade barriers, most-favored nation status and national treatment clauses, and free trade areas are studied.

Internet and Patent Issues in Patent Law. This course provides a practical understanding of the patent issues associated with the Internet and soft-ware. Practical materials (such as pleadings from actual lawsuits, patent license agreements and patent file histories) will be used to provide stu-dents an opportunity to engage in exercises that simulate actual patent situations.

Interviewing, Counseling, and Negotiation. This course gives students an orientation to, and some practice in, the basic skills required for both litiga-tion and transactional law practice. A combination of lectures, demonstration videotapes and simulation exercises is used to prepare stu-dents for working with clients. Students learn com-munication skills, interviewing counsel clients, and negotiate on behalf of their clients.

Introduction to Intellectual Property. This course is intended for students interested in a general overview of intellectual property and as a gateway to Boalt’s Law and Technology Program. The course begins with an analysis of the competing policies underlying intellectual property laws. Top-ics include the basics of trade secrets; patent, copyright and trademark law; and licensing, own-ership and antitrust issues; in addition to the in-fringement of rights and requirements for legal pro-tection. Two areas of particular contemporary interest-the protection of computer programs and biotechnology-are considered in depth.

Introduction to Juisprudence. This course pro-vides an introduction to the main currents of con-temporary thought about the nature of law. Among other things, the traditional problem of the source of law’s authority is considered, and the course ex-plores whether an unjust law is still a law and whether law does or ought to bear a relatively close relationship to morality. It considers the changing conception of law’s function, ushered in by the law and economics revolution. More recent and radical critiques of the authority of law, for ex-ample those provided by Marxists, feminists and critical race theorists, are also considered.

Introduction to Law and Economics. Economic analysis provides one of the major theoretical per-spectives on the study of law in American univer-sities. In this course, students learn to construct and critique economic models of the incentive ef-fects of different legal institutions.

Introduction to Legal Theory. This class focuses primarily on the theoretical and philosophical under-pinnings of substantive legal issues. It identifies salient ideas and values that shape legal discourse and inform legal policies in a wide variety of areas such as crimes, contracts, property and torts, as well as in regard to such basic legal commitments as the rule of law and due process. The main strands of thought within the liberal tradition are used as a backdrop for understanding many legal controversies.

Japanese Law and Society. The course intro-duces students to Japan’s legal system and to some of the social science and legal literature showing how that system works. Among the topics examined are the degree of litigiousness; informal systems for adjudication; the Japanese constitution; public interest litigation; the judicial system; the bar; and law and practice as they re-late to international relations, adminis-trative regulation, contractual relations and criminal justice.

Jurisprudence. This course views the law from a philosophical perspective. Topics include the relation between law and morality; legal reasoning; the justification of sanctions and rights; authority; the ethics and political theory of adjudication and legislation; and positive law and nihilism.

Jurisprudence and Social Policy Orientation Seminar. This seminar is evolutionarily oriented for all first-year students in the graduate program of the Jurispru-dence and Social Policy Program. Intensive read-ing and discussion establish the scope of the field for degree candidates, constructing with a com-mon core of theoretical and empirical materials, and acquaint them with options for specialization. Enrollment is limited to students in the Jurispru-dence and Social Policy Program except with spe-cial permission from the instructors.

Juvenile Justice. This course examines the ma-jor jurisdictional categories and the legal doctrines of the juvenile court and contrasts the treatment of young offenders in juvenile and crim-inal courts. Emphasis is on the court’s evolution over time and prospects for further reform of its juve-nile delinquency jurisdiction.

Labor Law. This course considers the fundamental legal principles affecting labor relations in the pri- vate sector workplace, as incorporated in the Na-tional Labor Relations Act and related labor juris-diction. Several topics will be reviewed, including union or-ganizing and elections, collective bargaining, strikes, boycotts, arbitration and individual em-ployee rights within unions.

Land-Use Planning. This course examines tradi-tional land-use controls. Areas covered include zoning and private covenants; environmental pro-grams arising from the environmental decade of the 1970s, such as comprehensive planning, pri- vate transfers of entitlements, environmental im-pact assessment, citizen action, and state and fed-eral mandates; and countervailing constraints on public authority imposed in the last decade by in- creased restrictive constitutional and statutory doctrine.

Law and Economics Workshop. This seminar provides students with an opportunity to discuss ongoing research in the economic analysis of law. At each session, an invited speaker (from either UC Berkeley or elsewhere) presents work in progress and then takes questions.

Law and Literature. Lawyers are involved in a long-term discussion of issues such as causation, moral responsibility and natural law. Sometimes the debate is carried on in jurisprudential, philo-sophical terms, but it has also been the subject of great narrative works of art. This course examines these artistic precedents.

Law and Modern Social Thought. This course examines several influential attempts to construct social theories of law and to use legal materials for systematic social theorizing from the mid-18th cen-tury to the early 20th century. The seminar con-siders especially how major theorists characterized the distinctive elements of the legal order of “mod-ern” Western societies and explained their social foundations.

Law and Psychology. This seminar examines the implications of psychological theory and research for normative legal theory and contemporary legal policies, procedures and practices. Students draw on contemporary cognitive, social and clinical psy-chology to address the concepts of intent, respon-sibility, deterrence, retribution, morality, and procedural and distributive justice. Topics include evidence law; procedures and various topics in criminal law, tort law and family law; and a com-parison of “rational actor” and other perspectives on decision making by judges, juries, judges, at-torneys and litigants.

Law and Social Justice. This course considers the relationship between law and social justice, asking such questions as: What factors would lawyers and activists consider in making institu-tional choices (courts versus legislatures versus bureaucrats)? Whatever path is followed toward social justice, how does one measure one’s ef-fectiveness? To ground these theoretical questions in real-life practice, the course features presenta-tions by classroom teachers and clinicians associa-ted with Boalt who work in the area of public in-terest and social justice.

Law and Technology Writing Seminar. This seminar provides a structured environment for sec-ond-year law students to prepare a case comment or comparable contribution for the “Annual Review of Law and Technology” published by Berkeley Technology Law Journal. The range of topics in-cludes intellectual property, life sciences (e.g., biomedical ethics, health law), communications regulation, commercial law, corporate law, intellectual property and antitrust. Topics include the relationship of technology to various substantive areas of law, the role of technology regulation, and the impact of new technologies on our legal institutions.

Law and Technology Writing Seminar. This seminar provides a structured environment for sec-ond-year law students to prepare a case comment or comparable contribution for the “Annual Review of Law and Technology” published by Berkeley Technology Law Journal. The range of topics in-cludes intellectual property, life sciences (e.g., biomedical ethics, health law), communications regulation, commercial law, corporate law,
venture capital, antitrust law, international law, cyberbanking and cyberlaw.

Law of Electronic Commerce. This writing seminar considers how developing law of electronic commercial transactions, with particular attention to digital signature legislation, cryptography and export controls, and contract law issues. Other topics include secured transactions, tax and intellectual property.

Law of Nonprofit Organizations. This course focuses primarily on the charitable sector, both in the United States and abroad, and the distinctive legal, ethical and policy issues that lawyers for charities are likely to encounter. Students study the law of nonprofit corporations, including the rights and liabilities of directors; charitable trust law and enforcement; and federal and state tax law as it applies to charities and donors. Ethical and policy issues, including conflicts of interest and practical aspects of managing charities and their donors, are emphasized.

Legal Accounting. This survey course is designed to introduce the concepts and principles of financial accounting as they interrelate with the practice of general business law. The course has two major components: financial reporting and financial decision-making and valuation.

Legal and Social Implications of the War on Drugs. This seminar investigates the results of recent trends in narcotics enforcement. Topics include the drug enforcement system, developments in constitutional criminal procedure, and the results of drug policy on sentencing and the American prison system. Students consider the significance of narcotics policy on drug law; explore the particular issues raised by the government’s attempts to deal with the problem of drug-addicted infants; and review and evaluate alternatives to the criminal enforcement of narcotics laws.

Legal Theory. When compared to other industrialized democracies, the United States seems more likely to resort to courts for enforcement of public noncompliance and political action. American methods of policy implementation and dispute resolution generally seem more legalistic and formal than those of comparable nations. This course asks: Is this assessment accurate? If so, why do these patterns recur? And are they a bad thing?

Legal Profession. This course considers a range of legal and ethical rules-including doctrines of zeal and competence, loyalty and confidentiality—across a variety of lawyer roles and practice settings, including counseling, transactional, criminal, and public interest advocacy; and negotiation and mediation.

Legislation. This course examines the legislative process, with a focus on topics relevant for students interested in career in advocacy, including overall theories of interpretation, the canons of statutory interpretation and the use of legislative history.

Legislative Policy and Drafting: Comparative Labor Law. This seminar gives students the opportunity to explore how economic and social policy decisions are reflected in legislation and common law. It focuses on labor and employment policy and law as a substantive example of the interplay between policy and law, considering U.S. policies and laws with those of other countries.

Life and Death: Moral Reasoning and the Law. This seminar explores several issues involving life and death, including abortion, the theory of the right to die in self-defense, and active and passive euthanasia. The focus is on moral reasoning and its potential implications for the legal system. Students will consider how the community is defined, that is, how it determines who gets in and out. It also explores the nature and scope of the community’s relationships with its neighbors. Topics include the relationship between federal government, its residents and their neighborhoods.

Media Law. This course examines legal and policy issues concerning regulation of the media and rights of publishers, broadcasters and members of the “new media.” Topics include theories of free speech, the special role of the press, defamation and other torts resulting from publication or publicity, constitutional and statutory protections for speech (or limitations on) news gathering, regulation of the media, and problems posed by the application of existing doctrine to Internet publications.

Mediation. This practice-oriented course introduces the lawyers and methods of mediation in civil disputes. It covers the aims of mediation and the variety of approaches to it; mediation ethics, including problems of neutrality and confidentiality; and techniques for resolving bargaining impasses.

Mergers and Acquisitions in the High-Tech-Technology World. This class focuses on mergers and acquisitions through the special lens of the high-technology merger. The high-technology world produces mergers and acquisitions at a rate far above standard merger transactions because, in general, the product is intangible property, an intangible asset. This class introduces students to the special type of practice found in Silicon Valley-type deals and highlights ways to add value to those deals.

Mergers in High Technology and Network Industries. This course examines the complex issues that arise during mergers and combined economic activities among firms in technologically dynamic industries. It focuses in part on the relationship between competition and innovation, and examines the challenges for antitrust policy in simultaneously achieving those two objectives. Topics include joint ventures and other alliances, the standards and guidelines of the Federal Trade Commission and Department of Justice, current debates over antitrust enforcement in high-tech markets, and evaluation of the different sides of those debates and their applicability to recent and pending cases.

Modern American Legal History. This course traces the history of American law from the adoption of the 14th Amendment (1868) to the present, focusing on different conceptions of the judicial role in protecting fundamental rights, the appropriate relationship between state and federal legal systems, and the growth of a national positive state. These issues are analyzed in the distinct historical circumstances of Reconstruction, Progressivism, the New Deal, the civil rights movement, the War on Poverty and the environmental movement.

Modern Chinese Law. This course examines the full range of legal concepts in modern China. It concentrates on post-1949 developments in the People’s Republic of China, but also touches upon earlier concepts that shaped these developments. Special attention is paid to the Maoist version of the law and post-1978 developments aimed at economic modernization through the legal structure.

Negotiations. Primarily through simulation exercises and role playing, this course covers alternative approaches to negotiation and the requisite skills associated with each. Students negotiate mock problems based on a prepared set of facts. Among the topics addressed are preparation, including case evaluation and client counseling; tactics; communication skills; psychological barriers to conflict resolution; competitive versus cooperative styles and techniques; and ethical issues.

Ocean Law and Policy. This course examines ocean law from a historical perspective and provides a survey and analysis of contemporary ocean-related international relations and U.S. constitutional law and public policy.

Patent Law. This course covers the major aspects of patent law, primarily as applied in the United States. Topics include patentable subject matter, infringement, ownership and licensing, and remedies. The course emphasizes legal principles that are useful as a solid background for nonpatent specialists or as a foundation for a career as a patent lawyer representing inventors before the patent office or the courts.

Patent Litigation. This course is a hands-on introduction to patent litigation. The class is taught around a hypothetical case, in which doctrinal elements of patent law such as infringement, validity and damages are explored, not only through discussions of relevant Federal Circuit and Supreme Court decisions, but also through student presentation on behalf of the hypothetical plaintiff and defendant.

Pensions and Employee Benefits. This course is designed for students interested in employment and labor law and business planning. The course follows a model client through the start-up, growth and merger phases of a business, and looks at employee benefits from both the client’s perspective and the labor union perspective. Students employ basic tax and labor law concepts to advise the client on the one hand, and the union on the design, implementation and operation of health and retirement plans for the client’s employees.

Pretrial Civil Litigation. This course is designed to acquaint students with pretrial litigation practice in typical civil commercial and personal injury pleadings; written discovery; preparing for, taking and defending depositions; making and opposing motions; and oral argument of motions. Strategies, settlement considerations, client relations and other topics relevant to typical litigation practice are also discussed.

Pretrial Criminal Litigation. This course examines the fundamental structure of the criminal court system, from arrest to disposition. It focuses on the creative preparation of the criminal case for trial, including how to evaluate a criminal case and how to file pretrial motions that will maximize the likelihood of a fair disposition for the defendant. The course explores real-life aspects of criminal representation, including traditional and nontraditional courtroom techniques, and also promotes thoughtful discussion of the criminal justice system and the inherent abuses that predominate.

Public Interest and Nonprofit Organizations. This course focuses on the distinctive legal, ethical and policy issues faced by lawyers representing public interest and charitable organizations. It considers what it means to be a public interest or nonprofit organization and focuses on the advantages and disadvantages of alternative types of organizations, the potential liability of members, obtaining and maintaining most-favored-tax-exempt status, directors’ duties and liabilities, Attorney General regulation, and the unrelated business income tax.

Public Land Law. The subject matter of this course is federal public land used primarily as a commodity and for preservation of nature and recreation. Taught as a discussion group to a small number of students, this class includes readings on the purposes and uses of public lands as well as materials dealing with related statutes and court decisions.

Race and American Law. This survey course provides an introduction to the diverse topics of race and law in the United States. Topics include the emergence and collapse of a slave regime, relations with indigenous peoples, and the role of race in definitions of national identity as evidenced by immigration and naturalization laws.

Real Estate Transactions I. This course covers the major aspects of real estate law, primarily as applied in the United States. Topics include property rights in real estate, property rights in personal property and the law of contracts, property taxation, and the law of condominiums and co-ops. Other topics covered include the mechanics of closing a real estate transaction, the protection of rights in real estate, and the law of landlord and tenant relations.
Securities Regulation I. This course concentrates on the regulation of securities trading on stock exchanges and the over-the-counter market. The course covers the regulation of tender offers and anti-takeover measures (including advising the board of directors on negotiations in securities transactions, broker-dealer regulation, insider trading under federal laws, and civil liabilities under federal and state securities acts.

Separation of Powers. This course provides an in-depth examination of the relationship among the three branches of federal government by reviewing different theoretical approaches to the separation of powers and then examining the checks and balances that each branch has over the others.

Sex Discrimination and the Law. This course analyzes the legal approach to distinctions based on sex, explores the theory and practice of sex-based inequality, and charts the development of legal avenues of redress.

Sexual Harassment Law. This course examines the substantive law applicable to sexual harassment cases in various settings, with an emphasis on places of employment, but also including schools, housing, and public places. Evidentiary and other practical problems in litigating sexual harassment cases are considered, and current developments in the law and their underlying legal theories are analyzed.

Sexual Orientation and the Law. This course explores the relationship between the law and sexual orientation, gender identity, and gender expression. It examines various legal principles that might be used to limit the ability of government and other institutions to disadvantage people because of their sexual orientation. The course looks at issues such as equal protection and due process/privacy, and explores how courts have used these doctrines in consideration of lesbians, gay men, bisexuals and transgender individuals in critical aspects of their lives (employment, housing, family relationships, etc.). It also examines the philosophy that informs each doctrine to see if law ought to be helpful in coping with sexual orientation discrimination and issues of gender.

Small-Business Counseling. This course readies students for counseling and assisting small businesses (organized either for-profit or not-for-profit), while also identifying critical practice issues involved in representing business clients generally in transactional matters. Traditional topic areas in law are examined and applied in the context of counseling entrepreneurs.

Social Justice Skills and Practice Issues. This skills and policy course emphasizes preparing students for public interest practice and the representation of indigent and other marginalized clients.

Social Justice Writing Seminar: The Role of the Bar Exam in Shaping the Legal Profession. Research shows that significant racial disparities in bar passage rates shape entry into the legal profession. This seminar addresses the implications of this research for social justice lawyering. Students may examine such topics as the relationship of racial disparities to delivery of legal services to underserved communities; the impact, if any, of those disparities on applications by people of color to law school; testing methodologies used to address racial disparities; comparative methods of attorney licensing in other countries; or comparisons of attorney licensing methods with methods used to determine minimal competence in the medical and engineering professions.

Sports Law. Legal issues of special relevance to the sports industry-professional sports and university sports-are studied in this course. Emphasis is on antitrust, labor law, intellectual property, nonprofit, and civil rights laws. Topics include free agency, the role of agents, salary controls, player discipline and drug use, commercialism versus amateurism in college sports, and gender issues.

Securities Regulation II. This course concentrates on the regulation of securities trading on stock exchanges and the over-the-counter market. The course covers the regulation of tender offers and anti-takeover measures (including advising the board of directors on negotiations in securities transactions, broker-dealer regulation, insider trading under federal laws, and civil liabilities under federal and state securities acts.

Resolution of Private International Disputes. This course explores the prominent issues faced in resolving a transnational dispute. Throughout the course, a contract dispute and a tort claim are considered in the context of international arbitration and transnational litigation. Post-proceeding issues, such as challenging arbitral awards, appeals, and the recognition and enforcement of foreign judgments and arbitral awards, are also examined.

Secured Transactions: Article 9. This course focuses on one of the most basic tools in business transactions, the secured loan. This course examines the mechanics of making secured loans, the rules that govern repossesson of collateral if the debtor does not pay, and the priority rules that determine the fate of various parties who claim rights to the same collateral.

Securities and Class Action Litigation. In this class, students study key trends in the securities field, both before and after the Private Securities Reform Act of 1995. The course reviews a number of the recent mega-fraud cases, such as Enron, Waste Management and McKesson. Ethical issues facing the professions in the field are also discussed.

Securities Regulation I. This course concentrates on the regulation of the distribution of securities and corporate finance transactions under the Securities Act of 1933 and state Blue Sky laws. Topics include registration process under the 1933 act, exemptions from registration, practice before the Securities and Exchange Commission, and the underwriting of private and public distributions of securities.

Real Estate Transactions II. This is a course on security transactions in real estate. It covers real property, security devices and the problems connected with real estate security. Topics include redemption, subrogation, priority, subordination, foreclosure, antideficiency provisions, multiple security and mixed collateral loans, the transfer of debtors' or creditors' interest, state and federal regulation, and allocation of ultimate loss.

Refugee Law. This course examines the root causes of refugee flight and the existence of international norms that address human rights abuses and civil strife. Using both an international and a domestic law perspective, students examine the responsibilities of nations to accept refugees. The course includes an in-depth examination of refugee law doctrine in the United States, with particular focus on the assessment of individual claims for asylum status.

Remedies. Remedies is a practice-oriented exploration of the substantive and strategic issues associated with the remedies available to litigants in a variety of contexts. The class explores provisional and permanent injunctive relief, declaratory relief, restoration, restitution, unjust enrichment, specific performance, and various measures of damages, attorneys' fees, and associated procedural issues and defenses.

Responsible Attorneys. The course focuses on the assessment of individual claims for asylum status.

Secured Transactions. This course concentrates on the mechanics of making secured loans, the rules that govern repossesson of collateral if the debtor does not pay, and the priority rules that determine the fate of various parties who claim rights to the same collateral.

Strategic Patent Licensing. This course addresses the world of patent licensing, providing both academic and foundational understandings, and strategic guidance for understanding and participating effectively in this area. The class features guest speakers, such as high-level business executives who deal with patent licensing.

Taking Clause Seminar. This seminar covers developments in the law of takings and property rights, studying the historic status of property rights; leading cases and articles; state and federal takings; and legislative developments; and key issues that are the subject of active litigation, such as temporary takings, segmentation and diminution of value.

Tax Policy. This seminar examines important issues of federal tax policy and theory. Illustrative topics include consumption versus income taxation; indexing for inflation; integrating corporate and personal income taxes; tax incidence; tax expenditures, wealth and property taxes; death and gift taxes; tax reform; value-added tax proposals; Social Security taxation; incentives for saving, work and investment; and trade-offs among equity, social policy and efficiency.

Techniques of Financial Analysis for Lawyers. This survey course introduces the concepts and principles of finance, as well as the practice of general business law. It is especially designed for the law student who does not have a significant business background, and focuses on financial decision making including financial forecasting, investment analysis and design, determination of capital costs, valuation of businesses, and mergers and acquisitions.

Telecommunications. This course examines the statutory, administrative and constitutional foundations for the regulation of voice, video and data communications. Course material includes broadcast, cable, wireless and telephone systems, as well as new and emerging communications technologies. The course covers the historical development of related laws and the major issues currently being debated in several key areas of telecommunications regulation.

“Three Strikes and You’re Out” in California Seminar. The focus of this seminar is the 1994 California “three strikes” legislation and initiative.

Trade Secrets. This course explores the theoretical and practical aspects of protecting trade secrets as a trade secret. It examines the basic legal doctrines and social issues that define this field and addresses the process of trade secret litigation.

Trademarks. This advanced course in international trademark law and practice covers topics of trademark/trade name infringement and dilution, including defenses such as parody and fair use. Topics include mechanisms of global trademark protection (such as international treaties and protection strategies); trademark issues in cyberspace; rights of publicity; trade dress; false advertising; and trademark licensing.

Trial Practice: Civil. This basic course in trial practice focuses on trial advocacy skills, including factual and legal preparation for trial, trial objection, introduction of demonstrative and real evidence, direct examination, cross-examination, examination of expert witnesses, opening statements, closing arguments, jury selection and courtroom communication skills. The heart of this course is student performance of trial problems that are videotaped and candidly critiqued.

Trial Practice: Criminal. This course is designed for students who are interested in trying criminal cases. The emphasis is on courtroom practice, although some written work is required. Areas covered include client interviews, initial stages of the criminal process, objections and preliminary hearings and pretrial motion hearing.
Trial Practice and Preparation I and II. This advanced two-semester skills course (a year-long component) immerses students in the art of trial advocacy from client intake through trial.

Part I: Legal Interviewing and Pretrial Examination. The first semester covers techniques used in an initial interview, the pretrial examination (deposition) of the opposing party(s) and witness(es), the defense of your own witness. Skills addressed include preparing the fact (lay) witness to testify at deposition, reviewing the deposition, gathering information (discovery), gaining admissions, handling documents, defending at a deposition, preparing and examining expert witnesses, dealing with the obstreperous opponent and using depositions at trial.

Part II: Trial Advocacy: Proving Your Case. The second semester builds on examination skills. This course clarifies complex evidentiary doctrines by demonstrating how to use the rules of evidence in trial, discovery and motions. The course culminates in a half-day trial. Students study the art of crafting a rhetorically persuasive case theory and portraying evidence to support that theory in the tradition of post-trial trial attorneys past and present. Students conduct individual exercises constituting the building blocks of a trial, including voir dire, opening and closing statements, direct and cross-examinations, laying foundations, impeachment, re-examination, etc. Students gain an understanding of the mechanics of introducing percipient testimony, expert opinion, objects, writings and demonstrative material into evidence.

Victimless Crime. Is victimless crime a meaningful category of penal offenses or a law reform slogan with little or no practical policy implications? This seminar examines contemporary attempts to address the general topic and then considers debates about drug control, pornography, firearms and gambling (as case studies in victimless crime controversies).

Water Law. This course emphasizes western water law, with special attention to California. It deals at substantial, public rights in water, the public, trust, area of origin claims, federal and Indian reserved rights, and interstate controversies. Water pollution is dealt with only peripherally. The theme of the course is that water is a distinctive species of property, a community resource that can never be fully privatized and that must be used in the public interest.

Women and Crime. This course focuses on the traditional concerns about crime, with an emphasis on women’s involvement in “ordinary” criminality. The course will take a historical and critical look at theories of criminal behavior, studies of the differential treatment of men and women in the criminal justice system, and shifts in trends of men’s and women’s criminality.

Workshop on Environmental Policy. The workshop is an opportunity for students to work directly with and counsel governmental or nongovernmental organizations (NGOs) on issues involving environmental law and policy. Working in small groups, students choose from a variety of assignments involving environmental and land-use law, work directly with in-house counsel to shape the scope of the assignments, and produce a written product suitable for the organization’s needs. Students also meet intermittently to discuss issues of general concern, such as ethical considerations, satisfying client expectations, and reconciling personal values and the client’s goals.

Student-Initiated Courses and Projects
Subject to credit limitations in the Academic Rules and the appropriate approvals, second- and third-year students may also earn credit for student-initiated educational projects as follows:

The Group Research Projects Program enables groups of students to study or research special topics of common interest, primarily in subject matter areas not covered by the regular curriculum. A faculty supervisor and the approval of the dean are required.

The Independent Research, Writing and Study Projects Program enables individual self-instruction, study or research in subject areas of interest, often with the goal of producing an original paper or report. A faculty supervisor and approval of the dean are required.

Credit is also available to second- and third-year students for extramural work on the Boalt Hall law journals, as well as for work as editorial or tutoring associates, Academic Support Program tutors, and First-Year Writing Program student instructors.

Legal Studies
(School of Law, Boalt Hall)
Program Office: 2240 Piedmont Avenue, (510) 642-4038
www.law.berkeley.edu/dep/legal

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 how 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 Law School faculty, including humanities scholars and social scientists who teach in the graduate programs in Journalism and Social Policy. The courses build on the contributions of philosophy, history, sociology, political science, economics, psychology, and anthropology, as well as legal scholarship. 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 and justice and the critical inquiry, irrespective of their ultimate career objectives.

Lower Division Requirements. One term of course work is required in each of the following areas: introductory statistics, introductory economics, introductory philosophy, and one course in legal reasoning. Students may declare the major after completing the introductory philosophy course.

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 groups of courses: A. Legal and Social Theory; B. Historical/Comparative; C. Principles and History of Substantive Law; D. 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 because of the many new words and ideas are said about each of the course groups referred to above. The Group A requirement insures that all students are exposed to conceptual analysis and broad intellectual perspectives. Group B courses are meant to limit parochialism and to insure that students have the capacity to draw on the insights of legal traditions other than their own. The courses from Group C are meant to acquaint students with selected forms of legal ordering—e.g., the substantive law of crimes, property—and to assure that students can relate legal doctrines to social policies and historical contexts. The Group D requirement assures that students in the major have familiarity with some of the important aspects of legal procedure or, more broadly, legal process. These courses use 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 advisor, a student majoring in legal studies with an overall GPA of 3.3 and a GPA of 3.5 in legal studies courses may be admitted to the Honors Program. The Honors Program assures that students in the major have familiarity with some of the important aspects of legal procedure or, more broadly, legal process. These courses use insights from the social sciences, e.g., organizational theory, to illuminate the dynamics of law-making, adjudication, and implementation.

Further information on the major in legal studies may be obtained from the program office and the web site.

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Lower Division Courses
24. Freshman Seminars. (4) Course may be repeated for credit as topic varies. One hour of seminar per week. Section 1-2 to be graded on a letter-grade basis. Section 3-4 to be graded on a pass/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.

39. Freshman Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Prior permission by permission of the instructor.

84. Sophomore Seminar. (1) One hour of seminar per week, (3) total in upper division courses. Sections 1-2 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (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 lecture per week. Must be taken on a pass/not passed basis. Small group instruction in topics not covered by regularly scheduled courses. Topics may vary from year to year. (F,SP)

Upper Division Courses
100A. Foundations of Law: The Quest for Justice. (4) Three hours of lecture and one hour of discussion per week. Introduction to law for the liberal arts student. The purpose of the course is to familiarize students with major legal ideas, legal reasoning, and legal processes; to provide a comparative and historical perspective on law; and to highlight basic philosophical problems in the quest for justice.

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
100B. Foundations of Law: The Quest for Justice. (3) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. An historical and conceptual study of punishment, of guilt and blame, of retribution and the idea of justice as a goal of law. Topics include: the nature of the criminal, punishment, and the legal use of force; the relationship between legal and extra-legal sanctions; and the relationship between law and politics. (F,SP)

110. Conceptions of Punishment: Ancient and Modern. (4) Three hours of lecture and one hour of discussion per week. A comparison of the ancient and modern conceptions of punishment. Topics include the divine concept of punishment in Mesopotamia, the possibilities for divine intervention in the Roman world, as well as the ideas of ancient China, and their contemporaries.

111. The Making of Modern Constitutionalism. (4) Three hours of lecture and one hour of discussion per week. This course examines the constitution of the United States. Topics include: the give-and-take between individual rights and collective responsibility; the role of the Constitution in American society; and the relationship between law and politics. (F,SP)

112. Juvenile Delinquency and Juvenile Justice. (3) Three hours of lecture and one hour of discussion per week. This course examines the treatment of juveniles who come into contact with the legal system. Topics include: the history of juvenile justice, the role of the courts in the lives of juveniles, and the relationship between law and society.

113. Sex, Reproduction, and the Law. (4) Three hours of lecture and one hour of discussion per week. This course examines the legal implications of sex and reproduction. Topics include: the relationship between law and sexuality, the role of the courts in the treatment of sex and reproduction, and the relationship between law and society.

114. The Law of the Work of Art. (4) Three hours of lecture and one hour of discussion per week. This course examines the legal implications of the ownership and use of artistic works. Topics include: the legal protection of artistic works, the role of the courts in the treatment of artistic works, and the relationship between law and society.

115. Legal Discourse. (4) Two hours of lecture and one hour of discussion per week. This course examines the legal discourse of the United States. Topics include: the legal discourse of the Supreme Court, the role of the courts in the treatment of legal discourse, and the relationship between law and society.

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Introduction to Courses and Curricula section of this catalog.

177. Survey of American Legal 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 development, 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. This course will provide advanced 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 introduction to constitutional decision-making in a number of countries based on selected high court opinions.

180. Law, Politics, and Society. (4) Three hours of lecture and one hour of discussion per week. This course explores the theory and practice of legal institutions in performing several major functions of law: allocating authority, defining relationships, 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 and one-half hours 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 organization on law; role of law in social change; social aspects of the administration of justice; social knowledge and the law. Also listed as Sociology C184. Sociology of Law. (4) Three hours of lecture and one and one-half hours of discussion per week. Prerequisites: Consent of instructor. Advanced study in law and society with specific topics to be announced. (F,SP)

H195A-H195B. Honors in Legal Studies. (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. Hours to be arranged. May be taken on a Pass/Not Pass basis. Enrollment is limited, subject to availability. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Hours to be arranged. May be taken on a Pass/Not Pass 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
http://ls.berkeley.edu/
Executive Dean, Letters and Science: Ralph J. Hexter, Ph.D.
Divisional Deans:
  W. Geoffrey Owen, Ph.D. (Biological Sciences)
  Ralph J. Hexter, Ph.D. (Humanities)
  Mark Richards, Ph.D. (Physical Sciences)
  George W. Breslau, Ph.D. (Social Sciences)
  Kwong-Ioi Shun, Ph.D. (Undergraduate Division)
Associate Deans of the Undergraduate Division:
  Steven K. Bozick
  Richard A. Rhodes, Ph.D.
  Kam-Biu Luk, Ph.D.
  Hertha D. Sweet Wong, Ph.D.

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 preparation, 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’s departments are devoted to instruction and research in a variety of academic subjects. Each department represents a style of study and communication refined to the common form 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 language breadth requirement, and the quantitative reasoning breadth requirement of the College of Letters and Science breadth requirements. Students who apply as intercampus transfers and 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 at any general campus of the University of California.

Note: In recent years, certain major programs have introduced a new qualification applied 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 a major in biological science must in addition have completed the minimum subject preparation in the major with a grade-point average 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 must complete in addition to points 1 and 2 above:
  - 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 semester units, distributed according to regulations which appear 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, minor-progress, residence, breadth, and major requirements, which 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 Subject A, American History and American Institutions, and the Berkeley campus American Culture requirements.

Breadth Requirements. There are four breadth requirements:

1. Reading and Composition. Students must normally 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 complete the requirement through course work according to the requirements of the semester system, whether the course work 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 acceptable college course. Interssegmental examinations and acceptable courses are included in the announcement. This requirement, if satisfied by course work, must be completed without delay.

3. Foreign Language. Students who have not satisfied the language requirement at the time of admission must complete it without delay. The requirement may be satisfied by (a) completion of the third year of one foreign language in high school with a minimum grade of C-; (b) by completion of the second semester of a Berkeley course, or its equivalent anywhere, in one foreign language with a minimum grade of C- or (c) by demonstration of equivalent knowledge through examination, including the College Entrance Examination Board Achievement Test, the CEEB Advanced Placement Examination (if taken before admission to the college), or an acceptable foreign language placement examination offered by a foreign language department at Berkeley or on another campus of the University of California.

4. Seven-Course Breadth Requirement. Students must take one course from each of the following

*Professor of the Graduate School
Recipient of Distinguished Teaching Award
categories, with no more than two courses in the same department:
• one course in physical science;
• one course in biological science;
• one course in arts and literature;
• one course in historical studies;
• one course in philosophy and values;
• one course in international studies or participation in the University of California Education Abroad Program or a recognized equivalent; and
• one course in social and behavioral sciences.

These courses may be taken from the College of Letters and Science and the professional schools and colleges and may be spread over the four years of college attendance. See the College of Letters and Science’s Guide to Earning Your Degree for details and a list of the approved courses that you may take to fulfill the requirement.

Major Programs. All students must pursue and complete a major program, the object of which is to provide them with a limited experience in specialization. There are more than 60 departmental major programs ranging from the humanities (e.g., art, comparative literature, English, foreign languages, etc.) and the social sciences (e.g., anthropology, economics, geography, psychology, etc.), to biological sciences (e.g., integrative biology, molecular and cell biology) and the physical sciences (e.g., geology, mathematics, statistics, etc.). In addition, there are group majors in American studies, Asian studies, Celtic studies, cognitive science, development studies, Dutch studies, environmental studies, film, Latin American studies, legal studies, mass communications, Middle Eastern studies, peace and conflict studies, political economy of industrial societies, religious studies, and social welfare. There are also field majors in the physical sciences and interdisciplinary studies. Moreover, students who have completed at least 60 semester units and at least one semester of enrollment at Berkeley, and who have attained a minimum 3.0 Berkeley and overall grade-point average, are required for the minor. Students who have completed at least 60 semester units and at least one semester of enrollment at Berkeley and who have attained a minimum 3.0 Berkeley and overall grade-point average may, with the permission of the dean and support and supervision of a college faculty member and a faculty member who acts as second reader of the individual major thesis, pursue an individual major designed to satisfy special academic aspirations. Campus committees for the Rhodes, Marshall, Truman, and several other distinguished scholarships are housed here. Staff work to identify talented undergraduates and assist them in the application process.

Organizational Units

Undergraduate and Interdisciplinary Studies

Undergraduate and Interdisciplinary Studies (UGIS) is located in 301 Campbell Hall (510) 642-0108. The mission of UGIS is to develop and administer innovative and interdisciplinary courses and programs in the College of Letters and Science that do not belong to a single department. At present UGIS administers the field major in interdisciplinary studies, the individual major, and the group majors in American studies, cognitive science, environmental sciences, mass communications, and religious studies. Minor programs are offered in creative writing; lesbian, gay, bisexual, and transgender studies (LGBT); and religious studies. UGIS also supports the following majors and minors in international and area studies (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 of industrial societies (PEIS). In addition to our interdisciplinary majors, UGIS sponsors a wide range of academic programs and services for undergraduates, under the leadership of the dean of the Undergraduate Division at Berkeley. A world-class research university such as ours offers something special to undergraduates who know how to make the most of it, and UGIS is a good starting place for students who seek close intellectual contact with faculty, either in a small seminar or in a research apprenticeship, for students who want to apply for a national scholarship, etc. Some of the campuswide programs for undergraduates that are administered by UGIS are described below.

The College Writing Programs (216 Dwinelle Annex, (510) 642-5570), designed to help undergraduates establish fluency and control over their reading and writing skills, are also part of UGIS.

The Freshman Seminar Program is also housed in UGIS. Seminars are created and taught by faculty members from nearly every campus department. The Freshman Seminar Program office distributes descriptions of these special course offerings to freshmen in time for Tele-BEARS registration each semester.

The Sophomore Seminar Program sponsors 1-unit seminars that are designed especially for students who are seriously thinking about majoring in the department. Enrollment is limited, so students come to know other potential majors and a faculty member quite well. A brochure listing the seminars to be offered each semester is mailed to all sophomores in the College of Letter and Science in time for Tele-BEARS registration. For more information, please contact Alix Schwartz in 333 Campbell Hall, (510) 642-8378, or go to http://ssp.berkeley.edu.

The UC Berkeley-Washington Program, also administered by UGIS, allows undergraduates to spend a semester in Washington, D.C., combining course work 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 Apprenticeship Program, the Haas Scholars Program, and the Beckman Scholars Program, and maintains a central research opportunities website: http://research.berkeley.edu.

The Scholarship Connection coordinates applications for scholarships and awards based on academic achievement and social or political contribution. Campus committees for the Rhodes, Marshall, Truman, and several other distinguished scholars are housed here. Staff work to identify talented undergraduates 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
Astronomy
Biostatistics
Buddhist Studies
Celtic Studies
Chemistry
Chicano 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
Geography
German
History
Integrative Biology
Interdisciplinary Studies
Italian Studies
Latin American Studies
Legal Studies
Linguistics
Logic and the Methodology of Science
Mass Communications
Mathematics
Medieval Studies
Middle Eastern Studies
Molecular and Cell Biology
Music
Native American Studies
Near Eastern Studies
Peace and Conflict Studies
Philosophy
Physics
Political Economy of Industrial Societies
Political Science
Psychology
Religious Studies
Rhetoric
Romance Philology
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
Women’s Studies
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 pass/fail basis. This is a core course requiring students, particularly those who are undecided about the major they would like to pursue. It provides an introduction to the intellectual landscape of Letters and Science by considering the underlying assumptions, goals, and structure of a liberal arts education. Topics include the difference between the College and Social Studies, the role of professional schools, the rationale behind the broad requirements, the approaches and methodologies of each of the divisions of the college, and the benefits of engaging in research as an undergraduate. The ultimate goal of this course is to transform the students into informed participants in their own educational experiences, so that they can make the most of their years at Berkeley. (F,SP) Staff

16. The Age of the Earth. (4) Three hours of lecture and one hour of laboratory/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 excellence. This College Course will introduce students to the fundamental principles of geological time through the use of the geological time scale. This course will teach students about the processes that have shaped the Earth and the history of life on Earth. This course will meet in small groups and will require students to engage in discussions that reflect the interdisciplinary nature of the course. (F,SP) Sanders

17. Literature and Culture of the Nordic World. (4) Students will receive 2 units of credit for 17 after taking Scandinavian 75. 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 excellence. This College Course will introduce students to the fundamental principles of geological time through the use of the geological time scale. This course will teach students about the processes that have shaped the Earth and the history of life on Earth. This course will meet in small groups and will require students to engage in discussions that reflect the interdisciplinary nature of the course. (F,SP) Sanders

18. Genetics and Contemporary Social Issues. (2) Students will receive units for 2 after taking Molecular and Cell Biology 41 or C41X or Plant Biology C41X. Two 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 excellence. This College Course will introduce students to the fundamental principles of geological time through the use of the geological time scale. This course will teach students about the processes that have shaped the Earth and the history of life on Earth. This course will meet in small groups and will require students to engage in discussions that reflect the interdisciplinary nature of the course. (F,SP) Sanders

21. Medieval Memories. (3) Three hours of lecture per week, and two hours of discussion every other 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 excellence. This College Course approaches the shap- ing of individual and social memories at three pivotal junctures in the European Middle Ages—broadly, the 4th, 8th, and 12th centuries. We will read a few major works of verbal art (conventionally "great books") from these periods and begin to ask questions about the politics of myth, genre, and meaning. This course will meet in small groups and will require students to engage in discussions that reflect the interdisciplinary nature of the course. (F,SP) Middelton

22. Greek Myth and the Modern Western World. (3) Three hours of lecture and one hour of discussion per week. College Courses foster and support the ideals of a liberal arts education at the highest level of excellence. This college course explores the medieval images and their internal symbolic logic, and explore their role as catalytic events in modern Western culture and society. Texts will include Homer's Odyssey, Hesiod's Theogony, Aeschylus' Oresteia, Sophocles' Oedipus, and readings from Freud, Cocteau, Anouilh, Sartre, Camus, Forster, Pound, Auden, Fagard, Moravia, and others, and material from contemporary music and cinema. (F,SP) Anthony, Buol

23. Foods, Drugs, Moods, and Mystics. (3) Three hours of lecture and one hour of discussion per week. College Courses foster and support the ideals of a liberal arts education at the highest level of excellence. This college course explores the medieval images and their internal symbolic logic, and explore their role as catalytic events in modern Western culture and society. Texts will include Homer's Odyssey, Hesiod's Theogony, Aeschylus' Oresteia, Sophocles' Oedipus, and readings from Freud, Cocteau, Anouilh, Sartre, Camus, Forster, Pound, Auden, Fagard, Moravia, and others, and material from contemporary music and cinema. (F,SP) Presti, Carlson

25. Knights, Violence, and Romance: Contempo- rary Medievalism and Its Sources. (3) Three hours of lecture and one hour of discussion per week. College Courses foster and support the ideals of a liberal arts education at the highest level of excellence. This college course explores the medieval images and their internal symbolic logic, and explore their role as catalytic events in modern Western culture and society. Texts will include Homer's Odyssey, Hesiod's Theogony, Aeschylus' Oresteia, Sophocles' Oedipus, and readings from Freud, Cocteau, Anouilh, Sartre, Camus, Forster, Pound, Auden, Fagard, Moravia, and others, and material from contemporary music and cinema. (F,SP) Presti, Carlson

R44. Western Civilization. (5) Three hours of lecture and two hours of discussion per week. Prerequisites: Completion of Subject A Requirement. College Courses foster and support the ideals of a liberal arts education at the highest level of excellence. This college course fulfills the general education requirement for all students and covers the history of the Western world from antiquity to the present. This course will meet in small groups and will require students to engage in discussions that reflect the interdisciplinary nature of the course. (F,SP) Largier, Tennant

R45. American Culture. (5) Three hours of lecture and two hours of discussion per week. Prerequisites: 119AC. Californians and Water. (3) Three hours of lecture and one hour of discussion per week. College Courses foster and support the ideals of a liberal arts education at the highest level of excellence. This college course explores the medieval images and their internal symbolic logic, and explore their role as catalytic events in modern Western culture and society. Texts will include Homer's Odyssey, Hesiod's Theogony, Aeschylus' Oresteia, Sophocles' Oedipus, and readings from Freud, Cocteau, Anouilh, Sartre, Camus, Forster, Pound, Auden, Fagard, Moravia, and others, and material from contemporary music and cinema. (F,SP) Presti, Carlson

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sequence of great feats and monuments. It will focus on how differently people have perceived their place in the world and in time; how they have perceived history, ancestors, the future; how they have perceived the different scales of place—what is distant, what is familiar. (F) Conkey, Joyce, Tringham

121. Automobiles. (3) Three hours of lecture and one hour of discussion per week. College Courses designed to foster and support the ideals of a liberal arts education at the highest level of excellence. Organized around a social, technical, and political history of the American automobile, this College Course will examine the co-evolution of the automobile, the industries that support it, and the policies and social structure of American society (with an emphasis on California). The history of America is inextricably bound to the history of modern socio technical systems, among which the automobile in particular stands out for its impacts on energy use, the environment, and the shape of American cities. This course takes an interdisciplinary look at the automobile, not only as a technical object, but also as a visible and contested social and cultural artifact, the locus of persistent conflict between traditional formal and informal modes of regulation and collective action. (F) Rochlin

122. Renaissance Engineers. (3) Three hours of lecture and one hour of discussion per week. College Courses designed to foster and support the ideals of a liberal arts education at the highest level of excellence. This interdisciplinary College Course focuses on the blossoming of engineering in Renaissance Italy, and its roots in Greek and Roman engineering, architecture, and art. Participants will study the works of the Renaissance engineers Brunelleschi, Alberti, Francesco di Giorgio, and Leonardo da Vinci. The connections between engineering and science and the evolution of engineering into its modern form will also be explored. Students will work on projects in small multidisciplinary teams. (F,SP) Casey, Filippou, Hahn, Tobriner

123. Ancient China and Ancient Greece. (4) Three hours of lecture and one hour of discussion per week. This course aims to compare ancient Greek and ancient Chinese literary production, each in relation to its cultural and historical context. We hope to consider texts drawn from Greek culture of the 8th-4th centuries BCE, and Chinese culture from the 8th-3rd centuries BCE. These will be, for the most part, literary, religious, and historical documents, through which we will trace such themes as sociological schemes; the conception of self and body; the individual and larger orders such as cosmological schemes; the conceptions of the new social order and experimental living; upheavals of Soviet history. Topics include the early vi-sions of the new social order and experimental living; family, sexuality, and gender; the state terror in Stalin's time; the fall of the Soviet order and the revision of the Soviet experience. Course materials include docu-ments (architectural designs, legal codes, political propaganda, personal diaries), works of art (novels, films, paintings), and scholarly studies (drawn from the discipline of history, literary scholarship, and cultural studies). All readings in English. (F,SP) Paperno

Linguistics

(3) Three hours of lecture and one hour of discussion per week. College Courses designed to foster and support the ideals of a liberal arts education at the highest level of excellence. This college course explores the dramatic history of the Soviet Union, which has recently come to an end. With its end the great utopian dream of the 20th cen-tury: an attempt to organize society in accordance with the socialist ideals of equality and social justice. The course approaches the Soviet phenomenon from a specific perspective: through experiences of specific people whose lives were deeply affected by the social upheavals of Soviet history. Topics include the early vi-sions of the new social order and experimental living; family, sexuality, and gender; the state terror in Stalin’s time; the fall of the Soviet order and the revision of the Soviet experience. Course materials include docu-ments (architectural designs, legal codes, political propaganda, personal diaries), works of art (novels, films, paintings), and scholarly studies (drawn from the discipline of history, literary scholarship, and cultural studies). All readings in English. (F,SP) Paperno

The Major

The undergraduate major in linguistics introduces students to the traditions and techniques of re-search into the structure, functions, and histories of languages. Since the study of language draws from and contributes to many fields of inquiry, students choosing the linguistics major are strongly urged to achieve a more than superficial acquaint ance with some related but independent field: cogn itive science, anthropology, mathematics, computer science, philosophy, metoric, English literature, or the literature of a foreign language.

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, syntax and semantics, morphology, and language history and comparison. 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 requirements. Of these units, five must be selected from upper division and graduate level of ferences within the Linguistics Department. The remain ing five upper division units may be courses from outside the department, but must be strongly related to linguistics. A list of pre-approved courses is available from the Linguistics Department office (1203 Dwinnell Hall). Other related courses may be listed in the catalog, but require the prior written consent of an undergraduate adviser to be counted in fulfillment of your Linguistics Department requirements.

Because the major varies greatly from student to student, each student is encouraged to plan a pro gram of study with an undergraduate adviser and to see the adviser on a regular basis (at least once a semester).

Linguistics majors who have completed the core courses are encouraged to enroll in linguistics graduate courses whose prerequisites they satisfy.

Honors Program. With the approval of the major adviser, a student with a grade-point average of 3.5 or higher, both overall and in the major, may apply for admission to the honors program. This consists of 2-4 units of Linguistics H195 units per semester for at least two semesters. Under the direction of a faculty member, students carry out an approved program of independent study in which they attain a reasonable mastery of an appropriate linguistic topic. As evidence of such work, students must submit an acceptable thesis summarizing critically the material they have covered.

The Minor

Many students find it useful to take several courses in linguistics during their undergraduate careers to complement their major work. A minor in linguistics gives students official recognition for having completed a linguistics subspecialization.

Prerequisites. Linguistics 100 with minimum grade of C.

Requirements: Upper Division. Any two of the following courses: Linguistics 110, 115, 120, 130. Two additional electives linguistics courses, one of which must be from the Linguistics Department.

Graduate Programs

Preparation for Graduate Study in Linguistics. Graduate students in linguistics should have had an undergraduate major in linguistics, a foreign language, or some equivalent acceptable to the 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. Plan II requires 30 units. Both plans include at their culminating events 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, one course from the set (105, 123, 250A, 250B, tutor set), one course from the set [210, 211B, 215], and one course from the set [205, 220B]. Students are encouraged to select the core courses with a coherent battery of courses in a particular language or language family, in general linguistics, or in some other field such as cognitive science, anthropology, or literature. These supplemental courses are to be chosen in consultation with the student’s adviser.

Doctoral Degree in Linguistics. The program follows Plan B, as described in the doctoral degree section (see Index) with some augmentations. Information on further requirements is obtainable from the department office.

Linguistic Society of America Summer Institute. The principal scholarly organization representing the field of linguistics in this country, the Linguistic Society of America (1325 18th Street NW, Suite 211, Washington, D.C. 20036-6501, telephone (202) 835-1714, www.LASDC.ORG) sponsors a six-or eight-week program in linguistics every summer. Students can participate with some university credit. Students in linguistics, at both the graduate and the undergraduate level, are strongly encouraged to take part in such linguistic institutes. These programs offer a wide range of courses, seminars, conferences, workshops, and lecture series, covering developments in the field and areas of interest which no single university can offer.

Lower Division Courses

1A-1B. Elementary Swahili. (4; 4) Four hours of recitation and one hour of laboratory per week. (F) Mchombo

2A-2B. Elementary Language Tutorial. (3; 3) Course may be repeated for credit. Hours to be arranged. Prerequisites: Requires special permission. Apply to Linguistics office. Specially designed tutorials for individuals or small groups needing instruction in African languages not normally offered on the Berkeley campus. (F)

5. Language and Linguistics. (4) Three hours of lecture and one hour of discussion per week. An introduction to the study of the world’s languages and language families. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a passed/not passed basis. 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 from semester to semester. Enrollment limited to 15 freshmen.

24. Freshman Seminar. (1) Course may be repeated for credit. 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 from semester to semester. Enrollment limited to 15 freshmen.

93. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Seminar format. Prerequisites: Priorly 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 from semester to semester.

51. The Politics of Language. (3) Three hours of seminar per week. The political uses of language. Diacritics, prestige forms, bureaucratism, male and female language, politeness and indirectness, language planning, multilingualism, language attitudes. Enrollment limited to twenty-five students. R. Lakoff

52. Languages and You. (3) Three hours of lecture per week. This course is intended for the non-specialist concerned about contemporary linguistic issues currently salient in personal and popular discourse. As individuals, members of families, workers, citizens of this country, and members of our community, we need to understand how language works in order to make intelligent decisions at all levels. We will examine issues such as language and authority; language and gender; language and power; and language in a global context. R. Lakoff

55AC. The American Languages. (4) Three hours of lecture and one hour of discussion per week. A linguistic view of the history, society, and culture of the United States. The variety of languages spoken in our country and the issues surrounding them; language and ethnicity, politics of linguistic pluralism vs. societal monolingualism, language and education, language 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.

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate.

97. Field Studies in Applied Cognitive Linguistics. (2-3) Course may be repeated for a maximum of 4 units. One hour of discussion per week, three hours of tutorial per week. Must be taken on a passed/not passed basis. Prerequisites: 5 or 100. Cognitive Science is and interdisciplinary field combining methods and findings from psychology, linguistics, computer science, philosophy, and neurophysiology to understand the nature of the mind. This course focuses on current and emerging findings about language processing and explores how these findings can inform tutoring and tutor-training. Specifically, students will examine how these insights can inform the internal processes that underlie human language in order to use this insight to improve their skills as tutors of non-native speakers of English. Lectures, discussion, and laboratory. Offered by faculty from Linguistics, Psychology, Cognitive Science and other departments, will cover specific foci within cognitive science that relate to educational and language issues. Course prerequisite discussion sessions will examine specific tutoring strategies that build on these foci. Students will then have the opportunity to apply this knowledge during one-on-one tutoring sessions. Students interested in tutoring can sign up for an additional one-hour seminar at UC Berkeley’s Student Learning Center. (F,SP) Sweetser, Wato

98. Directed Group Study. (1-5) Course may be repeated for credit. Must be taken on a passed/not passed basis. Group study of a topic not included in the regular department curriculum. (F,SP)

Upper Division Courses

100. Introduction to Linguistic Science. (4) Three hours of lecture and one hour of discussion per week. Formerly 105. Conceptual systems and language from the perspective of cognitive science. Focuses on insight into conceptual structure, reasoning, category-formation, metaphorical understanding, and the framing of experience. Cognitive versus formal linguistics. Implications from and for philosophy, anthropology, literature, artificial intelligence, and politics. Also listed as Cognitive Science C101. G. Lakoff, E. Sweetser

105. 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. Focuses on insight into conceptual structure, reasoning, category-formation, metaphorical understanding, and the framing of experience. Cognitive versus formal linguistics. Implications from and for philosophy, anthropology, literature, artificial intelligence, and politics. Also listed as Cognitive Science C101. 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 structuring our everyday concepts, conceptual system, and world view. Topics include cross-cultural differences, literary metaphor, sound symbolism, and related theoretical issues in philosophy, linguistics, psychology and anthropology. (F) G. Lakoff, Sweetser

107. The Mind and Mathematics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Some background in either cognitive science, mathematics, philosophy, linguistics, or another relevant discipline. The analysis of mathematical ideas from the perspective of cognitive science. How ordinary mechanisms of mind (not metaphor and blending) characterize laws of arithmetic, sets, logic, trigonometry, exponentials, and imaginary numbers. Also listed as Basic Metaphor of Infinity and its application to infinite sets, points at infinity, infinitesimals, transfinite numbers, and limits. The meaning of Euler’s equation $e^{i\pi} + 1 = 0$. Why math is an objective feature of the universe. Also listed as Cognitive Science C107. G. Lakoff

108. 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, including basic philosophical concepts—time, events, causation, the mind, the self, and morality—and the cognitive structure of the philosophical theories of the Presocratics, Plato, Aristotle, Descartes, Kant, analytic philosophy (especially Quine), and Chomsky. Also listed as Cognitive Science C108. G. Lakoff

109. The Neural Basis of Thought and Language. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Computer Science C10B and Cognitive Science C101, C105 or Cognitive Science C100, Psychology C120B, or consent of instructor. This course is offered by the interdepartmental studies that seeks to answer the following questions: 1. How is it possible for the human brain, which is a highly structured network of work and learning, to understand, use, and understand language? 2. How are...
language and thought related to perception, motor control, and our other neural systems, including social cognition? How do the computational properties of neural systems and the specific neural structures of the human brain shape the nature of thought and language? How will we focus on the Neurocognitive Theory of Language (NTL), which seeks to answer these questions in terms of architecture and mechanisms, using models and simulations of language and learning phenomena. Also listed as Cognitive Science C110 and Computer Science C118. (SP) Feldman, G. Lakoff

110. Introduction to Phonetics and Phonology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100 or concurrent enrollment. Description, transcription, and analysis of human speech sounds in their physiological and acoustic aspects, especially as this aids our understanding of our own and the psychological mechanisms serving speech. Maddieson, Ohala

111. Phonological Theory. (3) Three hours of lecture per week. Prerequisites: 110. Introduction to the principles of classical generative phonology and non-linear phonology, with extensive data analysis involving a wide range of languages.

113. Experimental Phonetics. (3) Three hours of lecture per week. Prerequisites: 110 or equivalent. Practical training in experimental phonetics; acoustic, physiological, and perceptual analysis of speech. Maddieson, Ohala

115. Phonology and Morphology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100 or graduate status. An introduction to the study of the structural properties of sentences and the connections between sentence structure and sentence meaning. (SP)

120. Introduction to Syntax and Semantics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100 or graduate status. An introduction to the study of the structural properties of sentences and the connections between sentence structure and sentence meaning. (SP)

121. Logical Semantics. (3) Three hours of lecture per week. Prerequisites: 120 or graduate status. Basic logical concepts. Truth, denotation, and their relation. Models and interpretation. Translation from natural language into formal and compositionality. Quantification and scope. Intensionality, context-dependency, and presupposition.

122. Language Typology and Linguistic Universals. (3) Three hours of lecture per week. Prerequisites: 120. Examination of phonology and linguistic universals. An examination of various linguistic subsystems in different languages. Topics will include interrogatives, pronoun systems, relative clause formation, cleft sentences, etc.

123. Pragmatics. (3) Three hours of lecture per week. Prerequisites: 120 and 105. The relation between language use and human actions. Some topics to be emphasized are rationality, discursive logic, speech act theory, politeness, social role, psychological perception of oneself and language, variation in language use.

124. Discourse. (3) Three hours of lecture per week. 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, etc.

125. Formal Theories of Syntax. (3) Three hours of lecture per week. Prerequisites: 100 or graduate status. The course will provide a survey of contemporary syntactic theories. These will include such formal theories as lexical functional grammar (LFG), generalized phrase structure grammar (GPSG), government and binding (GB), relational grammar (RG), etc. Emphasis will be on the development of these theories and the connection between syntactic claims and internal organization. The theories will be contrasted in terms of their architectural designs and in their treatment of selected linguistic phenomena.

130. Comparative and Historical Linguistics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100. Methods of reconstruction. Types and explanations of language change. Diachronic and synchronic aspects 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, including creolization-decreolization, language planning, and the role of bilingualism. Case studies in language spread, including Austronesian, Indo-European, Amerindian, Uralic, African, Sinic, and Australian languages. Relationship of language spread to immigration and culture spread. Also listed as Slavic Linguistics L135. Nichols, Rhodes

140. Introduction to Field Methods. (3) Three hours of lecture per week. Prerequisites: 110 and 115. Training in ethnographic methods and data collection. Lectures, laboratory, and "pencil and paper" methods of analysis. R. Lakoff

152. Pidgin and Creole Languages. (3) Three hours of lecture per week. Prerequisites: 100. The principles and methods of sociolinguistics. Topics to be covered include linguistic pragmatics, variation theory, social and regional dialectology, and oral styles. R. Lakoff

155AC. Native America Meets the Europeans. (3) Three hours of lecture per week. An overview of the contact between Native Americans and Europeans, primarily English, French, and Spanish in North America (including Mexico). Material will be drawn from history, anthropology, and linguistics to highlight the nature of contact and its effects. Starting in pre-contact times, both European and American, the discussion will range into the present, but will be most focused on the age of early contact (1500s) in Mexico and 1700-1800s in the U.S. and Canada. General background discussions will be interspersed with studies of particular cases. This course satisfies the American culture requirement. (F,SP) Rhodes

158. Computational Linguistics. (3) Three hours of lecture per week. Prerequisites: 120 or consent of instructor. Computer Science 3 or 61A recommended. A survey of computational areas and methods in linguistics. Topics include linguistic hierarchy, finite-state transducers, context-free grammars, parsing, unification, two-level phonology, computational morphology, human sentence processing, garden path sentences, lexical access, ambiguity, connectionism, probabilistic algorithms, computational semantics, and computational reconstruction.

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 contrasting lexicology: lexicalization pattern differences across languages.

195. Special Study for Honors Candidates. (2-4) Course requirements. (2-4) Hours of work per week per unit. Hours to be arranged. Prerequisites: 3.5 GPA or higher. (F,SP)

197. Field Studies in Applied Linguistic Semantics. (2-3) Course requirements. Three hours of work per week per unit. Hours to be arranged. Prerequisites: 3.5 GPA or higher. (F,SP)

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 lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: M.A. requirements should be completed or instructor approval. The course is designed to help students become professional linguists by showing them how to write abstracts of papers, how to prepare papers for presentation at conferences, and how to prepare written versions of papers for submission as qualifying papers (and for journal publication), as well as to give students practical experience in the public presentation of their work.

220. Cognitive Science and Social Inquiry. (3) Three hours of seminar per week. Prerequisites: 105/Cognitive Science 101, consent of instructor. An interdisciplinary seminar applying analytic techniques from cognitive science to issues in social anthropology, feminism, and other areas of the social sciences. Biologically, cognitive science provides an empirical alternative to both objectivist and postmodern views.

225. Advanced Cognitive Linguistics. (3) Three hours of lecture per week. Prerequisites: 105 or consent of instructor. This will be an advanced course in cognitive linguistics. Among the topics covered will be cognitive bases for aspects of grammatical structure, cognitive constraints on language change and grammaticalization, and motivations for linguistic universals (i.e., constraints on variability).

210. Methods in Phonological Analysis. (3) Three hours of seminar per week. Prerequisites: 110. Field laboratory, and “pencil and paper” methods of analyzing phonological data from many languages. (SP) Maddieson, Ohala

211A. Advanced Phonological Theory. (3) Three hours of lecture per week. Prerequisites: 110. Introduction to phonological theory at the graduate level with an emphasis on cross-linguistic phonological patterns. (SP)

211B. Topics in Phonological Theory. (3) Three hours of lecture per week. Prerequisites: 211A. Continuation of 211A focusing on topics of current interest in phonological theory. (F)

212. Advanced Phonetics and Phonology. (3) Three hours of lecture per week. Prerequisites: 210. Ad-
vanced study of the anatomical, physiological, and acoustic basis of speech production and perception.

214. Language and Music. (3) Course may be repeated for credit. Three hours of seminar per week. A seminar of selected problems in the realm of language and music.

215. Advanced Morphology. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 210 or consent of instructor. Examination of complex morphological systems. Issues in the theory of word morphology.

220A. Syntax and Semantics 1. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly 220. This course has two main objectives. First, the course serves as an introduction to the study of syntax and semantics within the non-derivational context, based formal framework of Head-Driven Phrase Structure Grammar (HPSG). Second, we will explore a number of phenomena of natural language (morpho) syntax and semantics in a range of typologically diverse languages and from a variety of theoretical perspectives. Possible topics include argument structure, anaphora, auxiliaries and negation, phrase structure and non-configurationality, long-distance dependencies, problems of quantification, tense and aspect systems, relative and iterative sentences (Computers, ctics and the morphology-syntax interface. (F)

220B. Syntax and Semantics II. (3) Three hours of lecture per week. Prerequisites: 220A. This course continues the survey of syntactic and semantic phenomena in natural languages and the methods of their description begun in 220A. (SP) Kathol

221. Transformational Grammar. (3) Three hours of lecture per week. Prerequisites: 120 or consent of instructor. Recent developments in transformational grammar. Topics include Universal Grammar, Syntactic structure and different levels of representation, empty categories, case, Tense, X; Binding theory, A and A′ movement, head movement, functional heads, Logical Form and Minimalist Program.

230. Historical Linguistics. (3) Three hours of lecture per week. Prerequisites: 210 or consent of instructor. Historical linguistics. The scholarly tradition of historical and comparative linguistics. Methods of reconstruction.

231. Historical Semantics. (3) Three hours of lecture per week. Prerequisites: 200. Synchronic variation and diachronic change in the realm of meaning. (F)

235. History of Linguistics. (3) Course may be repeated for credit. Three hours of lecture per week. This course covers, grosso modo, the period from 1775 and 1925, with concentration on a limited number of distinguished personalities whose writings are, at least in part, of continuing relevance to day. Bopp, Rask, Humboldt, Schleicher, Whitney, Brinton, Sapir, Whorf, and Jespersen.

240A. Field Methods I. (3) Course may be repeated for credit. Four hours of session per week. Credit and grade to be awarded on completion of sequence. Prerequisites: 205 or 220, and either 210, 211, or 215. Training in elicitation and analysis of linguistic data in a simulated field setting. The same language is used throughout the year. (F)

240B. Field Methods II. (3) Four hours of session per week. Credit and grade to be awarded on completion of sequence. Prerequisites: 240A. Training in elicitation and analysis of linguistic data in a simulated field setting. The same language is used throughout the year. Continuation of 240A. (SP)

250A-250D. Sociolinguistic Analysis. (3-3;3;3) Three hours of lecture per week. Prerequisites: 150 or consent of instructor. This series of courses is designed to give graduate students in linguistics and related fields advanced training in current theories and methods in sociolinguistics. The four courses (Variation, Contact, Language and Communication/Conversational Discourse Analysis) represent four major foci of current sociolinguistic interest. Students will be exposed to theoretical 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, McWhorter

270. Structure of a Particular Language. (3) Course may be repeated for credit. Three hours of session per week. Prerequisites: 210 and 221. An analysis of the language structure of a particular language. The language investigated will change from year to year.

271. Linguistics of Southeast Asia. (3) Course may be repeated for credit. Three hours of session per week. Prerequisites: 230. Introduction to the major language families of mainland Southeast Asia (Mon-Khmer, Tai, Hmong-Mien, Tibeto-Burman) with special emphasis on areal typological features.

272. Tibeto-Burman Linguistics. (3) Three hours of lecture per week. Prerequisites: 230. An examination of the phonological, grammatical, and semantic characteristics of the various sub-groups of Tibeto-Burman: Lolo Burmese, Karen, Kachin, Kamarupan, and Himalayans. Reconstruction of Tibeto-Burman.

275. Survey of American Indian Languages. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 230 and either 210, 211, or 215. A critical and discussion of classic works on American Indian languages and detailed examination of one North American language family.

290. Topics in Linguistic Theory. Course may be repeated for credit. Prerequisites: Consent of instructor.

290A. Additional Seminar on Specific 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.

298. Special Group Study. (2-6) Course may be repeated for credit. Hours to be arranged. Prerequisites: One full year of graduate study at Berkeley or consent of graduate adviser. (F,SP)

299. Special Individual Study. (2-6) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. (F,SP)

301. 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. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Individual study for the comprehensive or language requirements in consultation with the field adviser. (F,SP)

302. Individual Study for Doctoral Students. (1-8) 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. Prerequisites: One full year of graduate work at Berkeley or consent of graduate adviser. 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)

Professional Courses

301. Teaching Practice and Instruction. (2,4) Hours to be arranged. Must be taken on a satisfactory/unsatisfactory basis. Course may be repeated for credit, but credit for the instructional training portion is to be given only once for each individual course taught by a T.A. For graduate students currently serving as T.A.s in the Department of Linguistics. Two units of credit are given for the teaching experience each time a student serves as T.A. in an course of two or more units. In addition, the taking the form of weekly consultations between instructors and their T.A.’s. (F,SP)

302. Training for Linguistics Teaching Assistants. (2) Two 90-minute sections per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: 110, 120 and 130 or consent of instructor. A teaching methods “clinic” for first-time Linguistics GSI’s. Sessions will deal with presentation of linguistic concepts in each of the foundation courses, the creation of homework assignments and examination, policies and practices regarding correction of students’ work, grading, and feedback. (F,SP)

Logic and the Methodology of Science / 237

Logic and the Methodology of Science (College of Letters and Science)

Group Office: 910 Evans Hall, (510) 642-0665
Chair: Paulo Manocoso, Ph.D.
Professors
Robert M. Anderson, Ph.D. Nonstandard analysis (Mathematics)
Guido Baccalapilli, Ph.D. Philosophy of Physics, foundations of mathematics
Manuel Blum, Ph.D. Recursive functions, computational complexity (Electrical Engineering and Computer Sciences)
Alan Code, Ph.D. Philosophy of Science
Lester E. Dubins, Ph.D. Probability (Mathematics, Statistics)
Lee A. Harrington, Ph.D. Recursion theory, model theory, set theory (Mathematics)
Thomas Herzinger, Ph.D. Computer-aided design, formal methods (Electrical Engineering and Computer Sciences)
Ralph N. McKenzie, Ph.D. Logic, philosophy of mathematics
George Necula, Ph.D. Electrical engineering and computer science, computer science and engineering
Christos Papadimitriou, Ph.D. Algorithms, computational complexity (Computer Science)
Thomas Scanlon, Ph.D. Model theory and diophantine geometry (Mathematics)
Jack H. Silver, Ph.D. Set theory, model theory (Mathematics)
J. Frits Staal, Ph.D. Induction logic, proof theory (Philosophy)
Hans Sluga, B.Phil., Ph.D. History of logic, philosophy of mathematics (Philosophy)
John Steel, Ph.D. Set theory, descriptive set theory, inner model theory (Mathematics)
Umesh V. Vazirani, Ph.D. Complexity theory, cryptography
H. Hugh Wood, Ph.D. Large cardinals, determinacy and set theory (Mathematics)
Emil W. Adams (Emeriti), Ph.D. Philosophy of science, philosophical logic (Philosophy)
David Blackwell (Emeriti), Ph.D. Bayesian statistics, game theory (Statistics, Mathematics)
Charles S. Chihara (Emeriti), Ph.D. Philosophy of mathematics, language, and mind (Philosophy)
William Craig (Emeriti), Ph.D. Foundations of logic, algebraic logic, proof theory (Philosophy)
Donald Davidson (Emeriti), Ph.D. Philosophy of language, theory of mind (Philosophy)
Leon A. Henkin (Emeriti), Ph.D. Algebraic logic, theory of model theory (Mathematics)
Richard M. Karp (Emeriti), Ph.D. Computational complexity (Electrical Engineering and Computer Sciences, Industrial Engineering and Operations Research, Mathematics)
Paul Kay (Emeriti), Ph.D. Semantics, pragmatics, syntax, lexicology (Linguistics)
Benson Mates (Emeriti), Ph.D. Philosophy and Psychology (Philosophy, South Asian Studies)
Larry D.add (Emeriti), Ph.D. Philosophy of science, computer science and information theory (Electrical Engineering and Computer Sciences)
Head Graduate Adviser: John Steel, Ph.D.

Overview

The Group in Logic and the Methodology of Science offers an interdisciplinary program of study and research leading to the Ph.D. degree. Although the Department of Mathematics and the Department of Philosophy each offers a Ph.D. degree toward which a student may write a dissertation in logic, the interdisciplinary program is designed for students with a broad interest in logic and the methodology of science who wish to explore the subject in both its mathematical and philosophical aspects. Methodology of science is here understood to mean metascience, the study of the methods of the sciences by logical and mathematical means. The program is administered by an interdepartmental group which cooperates closely with both the Department of Mathematics and the Department of Philosophy.

Preparation. For admission to the graduate program, students must have completed an undergraduate major in philosophy, or in mathematics, or a joint major in both, including at least one full-year upper-division course in logic. In addition, they must have completed (a) at least one upper-division course in logic.
sion course in some science, and (b) at least one full-year upper division course in mathematics (other than logic) if the undergraduate major was philosophy, or in philosophy (other than logic) if the undergraduate major was mathematics. Exceptions to these requirements are permitted only at the discretion of the graduate adviser.

Further information about the program, including a full statement of the requirements for advancement to candidacy, is given in the Announcement of the Group in Logic and the Methodology of Science, which is available upon request from the Group Administrative Office, Group in Logic and the Methodology of Science, 910 Evans Hall, University of California, Berkeley. Berkeley, CA 94720-3840.

Courses. Courses are chosen with the advice of the graduate adviser from among the offerings of the various departments of the University. In addition to the departments of Mathematics and Philosophy, attention is especially directed to courses in the various science departments, in statistics, and in linguistics.

Logic Colloquium (no credit). Reports on current research and scholarly work by members of the staff, visitors, and graduate students. Addition (F,SP).

Other Departments with Related Programs
Mathematics and Philosophy

Manufacturing Engineering
(College of Engineering)

Offices: 4135 Etcheverry Hall (IEOR) or 6189 Etcheverry Hall (ME)

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 includes quality assurance, machinery design, plant layout, employee supervision, and economic analysis. 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 for the Bachelor’s Degree
A total of 120 units is required, including:

Six courses of at least 3 units each in humanities and social studies selected from an approved list of courses will be required. Of these, at least one course must be an English composition course taken from the current approved college list of courses (List E), one must be from a list of selected courses in History and Cultures, one must be from a list of selected courses in Literature and Values, and two must be upper division courses. The English composition course and either the course in History and Cultures or that in Literature and Values must be taken for a letter grade. A minimum of two courses, at least one of which is in the upper division, must be taken from a single department.

Lower Division, Mathematics 1A-1B, 53, 54, Chemistry 1A, Physics 7A-7B, Engineering 77, 28, 36, 45. Electrical Engineering and Computer Sciences 100. Electives must include 4 units of lower division physical science, engineering, mathematics, or statistics courses approved by the adviser.

Upper Division. Engineering 102, 120; Civil Engineering 130; Mechanical Engineering 101, 104, 105, C124; Industrial Engineering and Operations Research 140, 150, 153, 165, and either 130 or 131; Mechanical Engineering 102B or Industrial Engineering and Operations Research 180. Statistics 134. Electives must include two courses from each of the following two groups: Group I: ME 110, 122, 128, 130, 133, 134, 135; Group II: Industrial Engineering 115, 131, 161, 162, 166, 170. If Industrial Engineering 162 is elected, Industrial Engineering 160 should be substituted for Engineering 102.

Mass Communications
(College of Letters and Science)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 301 Campbell, (510) 642-2363
http://is.berkeley.edu/ugis/masscommunications

Faculty Advisory Committee
John Elwood (Public Policy)
David Henkin (History)
Neil Henry (Journalism)
Thomas Leonard (University Librarian)
Peter Lyman (Information Management and Systems)
Jean P. Retzinger, Ph.D. (Mass Communications)
Mark Sandberg (Scandinavian)
Laura Stoker (Political Science)

Faculty Adviser: Ms. Retzinger.

Student Affairs Officer: Mr. Gaetjens.

Group Major in Mass Communications
The group major in mass communications 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 mass communications are advised to contact the student affairs officer as early as possible in planning their academic programs. Applications are accepted during designated advising hours in the fourth through the fifteenth week of each term.

Students who wish to declare the major in mass communications:
(1) must have completed at least 30 units of college work before applying to the program;
(2) must have completed at least three of the major prerequisites, including Mass Communications 10;
(3) must be currently enrolled in any remaining prerequisite at the time of application (see list of approved major prerequisites below);
(4) must have a minimum GPA of 3.2 in courses relevant to the major; this includes the lower division prerequisite courses and the equivalency of transferred course work;
(5) should declare the major no later than the semester in which they complete the 70th unit. Prior transfer students should contact the major adviser for Mass Communications concerning their eligibility and the equivalency of transferred course work.

Students who meet the above criteria are eligible for admission to the major. Students who do not meet the above criteria but wish to declare mass communications should submit a letter of appeal along with a completed application.

Applications and instructions regarding the admission and appeal process may be obtained from the Mass Communications Office in 343 Campbell Hall.

Transfer Students
Transfer students may complete Mass Communications 10 at Berkeley, but are urged to complete other major prerequisite courses before arriving on campus. New transfers should see the major adviser on arrival in order to have transfer prerequisites approved. Transfers may need assistance in adding Mass Communications 10 to their schedules.

Major Program
Prerequisites. One course from each of the following four groups. All prerequisites must be taken for a letter grade.

1. History 7B, 124A, 124B or 131B;
2. Political Science 1;
3. Anthropology 3, Economics 1, Psychology 1 or 2, Sociology 1 or 3;

Requirements for Graduation
(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 three core courses in mass communications: Mass Communications 101, 102, and 104.
B. One of the following methods courses: Anthropology 102A; Mass Communications 130; Political Science 231 or 132A-132B; Psychology 101; Sociology 1 or 5.
C. Five courses from the following list: Anthropology 114, 149, 156B, 165, 166; English 173, 175; Political Science 123, 124, 160; Sociology 110, 140, 150, 156, 160, 170; UGBA 106 (formerly Business Administration 160); UGBA 165 (formerly Business Administration 165),

All requirements for graduation in the major must be taken for a letter grade.

Any substitutions must be approved by the major adviser.

Honors Program
To be admitted to the honors program, a student must have attained at least a 3.5 grade-point average in the University and a 3.5 grade-point average in the major. In order to be granted honors, a student must write a thesis which in the judgment of the thesis director and the adviser is characterized by superior distinction (Mass Communications H195).

Lower Division Courses
10. Mass Communications in America: An Introduction. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: Sophomore standing or permission of the instructor. An introduction to the history, functions, and control of mass communication institutions in the United States, and to media content and effects. (F) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Sophomore seminars are designed for students considering a major in the sponsoring de-
partment. They are small, interactive courses in which students will encounter a topic typical of the discipline and will be acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they complete their degree. (F,SP) Staff

Upper Division Courses

101. The Structure of Mass Communications. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 10, or consent of instructor. Analysis of the primary structures of mass communications, primarily in capitalist societies, with historical background on the popular press, radio, and television. The organization of news and entertainment. Comparison with other societies. (SP) Staff

102. The Effects of the Mass Media. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 10 or consent of instructor. Survey and critical analysis of theory and research on the effects of media exposure and media messages. (F) Retzinger

104. The First Amendment and the Press. (3) Three hours of lecture/discussion/field work per week. The course considers the philosophical and historical underpinnings of the First Amendment guarantee of press freedom, with particular emphasis on the practical implications of major Supreme Court decisions. The focus is on the contemporary legal rights and obligations of the print and broadcast media with regard to libel, privacy, prior restraint, fair trial/free press, newsgathering, and access to information. (F) Tumer

130. Mass Communications Research and Methods. (3) Three hours of lecture per week. Prerequisites: 10 or consent of instructor. A review of primary research methods used in the field of mass communications. Quantitative and qualitative methods, including survey research, content analysis, ethnographic and textual approaches. May be oriented around research on a special issue. (SP) Retzinger

160. International Media. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 10 or consent of instructor. Case studies of the foreign mass media. Focus may be on the press and publishing, broadcasting, documentary, or new media. Possible topics: Pacific Rim press, mass media in China, Israeli and Palestinian media. Staff

170. Cultural History of Advertising. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 10 or consent of instructor. Case studies of the foreign mass media. Focus may be on the press and publishing, broadcasting, documentary, or new media. Possible topics: Pacific Rim press, mass media in China, Israeli and Palestinian media. Staff

Topics in Television. (4) Course may be repeated for credit as topic varies. Four hours of lecture per week. Prerequisites: 10 or consent of instructor. This course examines contemporary approaches and techniques of advising 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. Staff

190. Special Topics in Mass Communications. (2-4) Course may be repeated for credit. Two to four hours of seminar per week. Prerequisites: Consent of instructor. Normally open only to mass communications majors who have already completed 12 units of upper-division work in the major. Advanced study in mass communications with topics to be announced each semester. Staff

H195. Honors Colloquium. (3) Three hours of seminar per week. Prerequisites: Open only to honors seniors majoring in Mass Communications. Under the supervision of the instructor, students will work toward preparing scholarly theses in the field, basing their theses on theoretical considerations and, where applicable, analyzing empirical data. (SP) Retzinger

C196W. Special Field Research. (10.5) Course may be repeated for a maximum of 12 units. 240-300 hours work per semester plus regular meetings with the faculty supervisor. Prerequisites: Consent of instructor. Formerly 196W. Students to work in selected internships or advanced levels of mass communication experience, 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 the faculty coordinator during the course of the internship, as well as produce a final paper for the course consisting of no fewer than 35 pages. Other requirements as per faculty advisor. Also listed as History of Art C196W, Undergrad Interdisciplinary Studies C196W, Women’s Studies C196W, Political Science C196W, Political Economy of Industrial Society C196W, and Sociology C196W.

198. Directed Group Study for Advanced Undergraduates. (1-4) Course may be repeated for credit. Enrollees must be registered in a regular semester course. The course may be repeated for credit. Enrollees must be registered in a regular semester course. Four hours of lecture per week. Prerequisites: Regulations set by College of Letters and Sciences. Seminars for the 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. Enrollment by petition. See the Introduction to Courses and Curricula section of this catalog. Must be taken on a passed/not passed basis. Independent study and research by arrangement with faculty. (F,SP) Staff

Materials Science and Engineering

(College of Engineering)

Department Office: 210 Hastings Memorial Mining Building
www.mse.berkeley.edu
Chair: Fiona M. Doyle, Ph.D.

Professors
A. Paul Alivisatos, Ph.D. University of California, Berkeley. Physical chemistry
George H. Birnhauser, Jr., Ph.D. University of California, Berkeley. Economics
Lugard De Jonghe, Ph.D. University of California, Berkeley. Ceramic processes and properties
Thomas M. Davine, Jr., Ph.D. Massachusetts Institute of Technology. Ceramic and glass science
Fiona M. Doyle (Chair) and Donald F. McLaughlin (Professor Emeritus), Ph.D. Imperial College, University of London. Hydrodynamics, Fluid Mechanics, and Transport Processes
Joel W. Evans, Jr., Ph.D. City College of New York. Exergetic and process modeling
Douglas W. Fuerstenau (Professor Emeritus), Ph.D. Chair in Mineral Engineering (Emeritus) UC Berkeley. Materials Science and Engineering
Andreas Klusius, S.C. D. Massachusetts Institute of Technology. Microstructure development, ceramic joining
Robert J. Giraro, Arthur C. and Phyllis G. Oppenheimer Professor in Advanced Materials Analysis, Ph.D. University of California, Berkeley. Materials characterization
Sue E. Haller, Ph.D. California Institute of Technology. Electron materials
T. N. Narasimhan, Ph.D. University of California, Berkeley. Hydrogeology
Robert G. Ritchie, Ph.D. University of Cambridge. Toughness and fracture mechanics
K. V. S. Sathy, Ph.D. University of California, Berkeley. Mineral processing, particulate materials
Garth Thomas, Ph.D. Cambridge University. Mineral processing, particulate materials
Eike R. Weber, Ph.D. University of Cologne. Electronic materials
Robert H. Bragg, Ph.D. (Emeritus)
Didier de Fontaine, Ph.D. (Emeritus)
Marshall F. Miller, Ph.D. (Emeritus)
Joseph A. Pask, Ph.D. (Emeritus)
Alan W. Seasty, Ph.D. (Emeritus)
Jack Washburn, Ph.D. (Emeritus)
Paul A. Witherspoon, Ph.D. (Emeritus)
Victor F. Zackay, Ph.D. (Emeritus)

Associate Professors
Daryl Chorzan, Ph.D. University of California, Berkeley. Computational materials science
Korin E. Hady, Ph.D. Pennsylvania State University. Biomedical and tissue engineering
Yuri Suzuki, Ph.D. Stanford University. Nanostructured magnetic materials

Assitant Professor
Oscar D. Dubon, Ph.D. University of California, Berkeley. Electronic materials processing

Department Overview

The Department of Materials Science and Engineering administers undergraduate and graduate programs in materials science and engineering. In addition, students may be admitted to one of several double major programs.

Materials Science and Engineering deals with natural and man-made materials—their extraction, processing, development, and characterization for technological uses. Advanced engineering activities that depend upon optimized materials include medical device and healthcare, electronic and optical materials, and structural materials.

Biomaterials. Traditionally, biomaterials encompass synthetic alternatives to the native materials found in biological systems. Unfortunately, the traditional materials used in medical device, biotechnological, and pharmaceutical industries cannot integrate with biological systems either at a molecular or cellular pathway. This limitation has reoriented biomaterials to a passive role dictated by the constituents of a particular environment, leading to unfavorable outcomes and device failure. Biomaterials focuses on the design, synthesis, and surface and bulk characterization of materials that actively integrate with biological systems or replace tissues damaged through disease or trauma.

Chemical and Electrochemical Materials Science and Engineering. This area includes both the chemical and electrochemical processing of materials, and the chemical and electrochemical behavior of materials. The former includes the scientific and engineering principles used in mineral processing, smelting, leaching, and refining materials, along with numerous etching and deposition techniques. The latter includes the environmental degradation of materials, the compatibility of materials with specific environments, along with 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 structural and electronic properties of materials to modeling fluid flow in advanced batteries, or modeling the chemical kinetics and equilibria in a materials processing operation.

Electronic, Magnetic, and Optical Materials. This group of materials is defined by its functionality. Semiconductors, metals, and ceramics are used today to form highly complex devices such as integrated electronic circuits, opto-electronic devices, and magnetic and optical mass storage media. In intimate contact, the various materials, with precisely controlled properties, perform numerous functions including the acquisition, processing, transmission, storage, and dissemination of information. EMO materials research combines the fundamental principles of solid-state physics and chemistry, electronic and chemical engineering, and materials science. Nanoscale Science and Engineering is of increasing importance in this field.

Structural Materials. This area focuses on the relationships between the chemical and physical properties of materials and their performance. Regardless of the material class—metal-
Undergraduate Program
Students must complete a total of 121 units, including units in humanities and social studies.

Lower Division. Required: Mathematics 1A-1B; 53-54; Chemistry 1A-1B; Physics 7A-7B-7C; Engineering 77, 36, 45; 15 units of electives. Note: Students may take Physics 7C and Mathematics 53 or 54 in their junior year without delay in the progress toward the degree, provided they have completed a total of 60 units in the first two years.

Upper Division. Required: Chemical Engineering 178; Engineering 115, 117; Civil and Environmental Engineering 130; Materials Science and Engineering 100, 102, 103, 104, 111, 112, 113, 150A; elective from the Materials Science and Engineering 120 series; and 21 units of upper division technical electives. The program includes elective courses, individual projects to take college humanities and social studies requirement and the departmental requirement of upper division technical electives.

Courses selected to satisfy the technical elective requirement are chosen to emphasize biomaterials; electronic, magnetic and materials physics and chemistry; structural materials; or a general emphasis. A minimum of three courses, selected in agreement with the undergraduate adviser, should constitute an integrated program in another engineering field, physics, chemistry, or mathematics. All students must complete six courses of at least 3 units each in humanities and social studies selected from an approved list of courses. Double major students will be required to take five of these courses. (Please see the “Humanities and Social Studies” section of the Announcement of the College of Engineering.) One course in the Materials Science and Engineering 120 series is required. Course selection is based on individual interests. Additional math and 120 series courses may be taken to fulfill the upper division elective technical requirement.

Graduate Study
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 course work and research normally lead to the M.S., M.Eng., and Ph.D. degrees, qualifying the graduate for a wide range of positions in government, industry, research institutions (including universities) that entail research or engineering in the production, development, and use of materials.

The course work includes a core program in materials science and engineering, along with additional courses that provide breadth.

Topics for graduate research include studies in bio-materials, chemical and electrochemical materials science, crystallography, computational materials science and engineering, electronic, magnetic and optical materials, and structural materials. A wide variety of methods is available for processing materials, including thin film deposition by Molecular Beam Epitaxy, Pulsed Laser Deposition, and other physical and chemical deposition techniques. Techniques such as from the fields of scanning electron microscopy, surface characterization, optical spectroscopies, electron paramagnetic resonance, electrical properties of solids, X-ray spectroscopy, differential thermal analysis, precision calorimetry, and crenogen and high temperature methods are used for materials characterization. The structure and properties of materials. Joint facilities in Berkeley’s Microfabrication Laboratory, the Integrated Materials Laboratory, and Lawrence Berkeley National Laboratory, including the National Center for Electron Microscopy and the Advanced Light Source, can be used for graduate research.

C113. Mechanical Behavior of Engineering Materials. (3) Students will receive no credit after taking 113 or Mechanical Engineering 102A. Three hours of lecture and one hour of discussion per week. Prerequisites: Civil Engineering 132 and Engineering 115. Formerly 113 and Mechanical Engineering 102A. This course covers elastic and plastic deformation under static and dynamic loads. Prediction and prevention of failure by yielding, fracture, fatigue, wear, and environmental factors are addressed. Design issues pertaining to materials selection for load-bearing applications are discussed. Case studies of engineering failures are presented. Topics include engineering materials, structure-property relationships, materials selection for design, mechanical behavior of polymers 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, fatigue, fracture, and contact stress. Also listed as Mechanical Engineering 1214. (F,SP) Dharan, Komvopoulos, Prudt, Ritchie

C114. Experimental Corrosion Science and Engineering. (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: 112 (may be taken concurrently) Engineering 45, 115. Investigations of corrosion phenomena using electrochemical techniques that make use of reference electrodes and an electronic potentiostat constructed by the student. Topics include measurement of electrode potentials, measurement of rates of oxidation-reduction reactions, measurement of corrosion rates, investigations of pitting, crevice, galvanic and intergranular corrosion and environmentally assisted cracking. Lectures, lab, atmospheric corrosion, film formation. (SP) Devine

C115. Phase Diagrams. (2) Two hours of lecture per week. Prerequisites: Engineering 115 or an equivalent thermodynamics course or consent of instructor. Phase diagrams for one-, two-, and three-component systems. Fundamental thermodynamic relationships relevant to phase equilibrium. Relationships between solution behavior, free energy curves, and phase diagrams. (SP) Glasser

C116. Physical Science of Structural Materials. (3) Three hours of lecture per week. Prerequisites: 102, 103, Engineering 115. The physical metallurgy and materials science of the major classes of structural materials, namely metallic alloy (e.g., steels, Ni-base alloys), polymers (e.g., PMMA, FTE), ceramics (e.g., Si3 N4, SiC), intermetallics (e.g., TiAl), and composites (e.g. MMCs, CMCs), will be examined, specifically with respect to applications and the role of microstructure in influencing mechanical properties (strength, ductility, creep, fracture, fatigue, and wear resistance). (SP) Ritchie

C117. Properties of Dielectric and Magnetic Materials. (3) Three hours of lecture per week. Prerequisites: Physics 7A-7B-7C or Physics 7A-7B and consent of instructor: 111 is recommended. Introduction to the physical principles underlying the dielectric and magnetic properties of solids. Processing-microstructure-property relationships of dielectric materials, including piezoelectric, pyroelectric, and ferroelectric oxides, and of magnetic materials, including hard-and soft ferromagnets, ferrites and magneto-optic and resistive materials. The course also covers the properties of grain boundary devices (including varistors) as well as semiconductor devices. Conducting and mixed conducting materials for applications in various devices such as sensors, fuel cells, and electric batteries. (F) DeJonghe

C118. Biological Performance of Materials. (3) Three hours of lecture per week. Prerequisites: Engineering 45, Biology 1A-1B (may be taken concurrently). Introduction to the problems associated with the selection and function of biomedical materials and their interaction with biological systems will be addressed. Applications of the concepts. Three devices include blood-materials compatibility, biomimetic mate-
120. Materials Production, (3) Three hours of lecture per week. Significance of materials. Occurrence of raw materials. Scientific and engineering principles relevant to materials production and processing. Methods for producing major materials. (F) Evans

121. Metals Processing, (3) Three hours of lecture per week. Prerequisites: Engineering 45. The principles of metals processing with emphasis on the use of processing routes to microstructures which impart desirable engineering properties. The techniques discussed include solidification, thermal and mechanical processing, welding, working, and surface treatments. (F) Staff

122. Ceramic Processing, (3) Three hours of lecture per week. Prerequisites: Engineering 45, 115. Powder fabrication by grinding and chemical methods, rheological behavior of powder-fluid suspensions, forming methods, drying, sintering, and grain growth. Relation of processing steps to microstructure development. (F) Glasser

123. Semiconductor Processing, (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 111 or Physics 7A-7B-C and consent of instructor. Semiconductor purification and crystal growth techniques, including purity doping by diffusion, ion implantation and alloy regrowth; contact formation, mechanical and chemical processing; semiconductor analysis. (F) Staff

124. Glass and Crystalline Ceramic Materials, (3) Three hours of lecture per week. Prerequisites: 101 and Engineering 45. Introduction to noncrystalline ceramics and glass for glass formation, stoichiometric structure of glasses, phase separation mechanisms. Mechanical properties of glass, strengthening mechanisms. Control crystallization of glasses and powder fabrication of ceramic crystals. Mechanical behavior of crystalline ceramics relevant to structural applications. Ceramics for optical, magnetic, and electronic devices with emphasis on microstructure and property relationships. (F) De Jonghe, Glasser

125. Thin-Film Materials Science, (3) Three hours of lecture per week. Prerequisites: Upper division or graduate standing in engineering, physics, chemistry, and chemical engineering; Engineering 45 required; 111 or Physics 141A recommended. Deposition, processing, and characterization of thin films and their technological applications. (F) Staff

130A. Experimental Materials Science, (3) One and one-half hours of lecture and four and one-half hours of laboratory per week. Prerequisites: 102, 103, 111, 112, 113 may be taken concurrently. Engineering 45. The processing and properties of materials will be experimentally investigated using a range of tools available to materials scientists and engineers. Experiments will investigate the mechanical, electrical, and electrochemical properties of metals, ceramics, semiconductors, and thin films. Electrochemical and thin film techniques will be employed for processing of materials. (F) DeVine

C133. Microfabrication Equipment Laboratory, (2) One hour of lecture and three hours of laboratory per week. Prerequisites: Electrical Engineering 40 or 100, Mathematics 53 and 54, Physics 7B; upper division course on microfabrication technology or manufacturing is recommended but not required (e.g., Chemical Engineering 179, Electrical Engineering 143, Mechanical Engineering 101, 122, Material Science 111, 123, 125). Experiments and simulations illustrating the fundamental principles of equipment and measurement technology for microelectronic and microelectromechanical fabrication and manufacturing. The experiments involve investigation and measurements of high vacuum systems, plasma-assisted etching and film deposition, high temperature silicon oxidation, photolithography, spin coating, chemical-mechanical polishing, and wet and dry etching processes. Also listed as Mechanical Engineering C123, Electrical Engineering C133, and Chemical Engineering C133. (SP)

160. Processing of Minerals and Wastes, (3) Three hours of lecture per week. Prerequisites: Upper division standing in engineering or sciences. Formerly Mineral Engineering 160. Introduction to physical and chemical principles for the processing of mineral, metallurgical, ceramic, and nonmetallic materials in the context of concentration and extraction of valuable components and removal and containment of hazardous materials; application of the principles to the design of industrial unit operations, with examples of the processing of specific resources. (SP) Sastry, Doyle


176. Introduction to Flow and Transport in Solids and Rocks, (3) Three hours of lecture per week. Prerequisites: Mathematics 54, Physics 7C. Formerly Mineral Engineering 116. Fundamental principles governing the occurrence and movement of fluids, transport of chemicals, and accompanying deformation in geologic media. Application to earth resources and environmental problems. (F) Narasimhan

190. Field Trips, (1) Course may be repeated for credit with consent of instructor. Field trips off campus. Must be taken on a passed/not passed basis. Prerequisites: Must be taken in conjunction with Earth Resources Engineering program. Formerly Mineral Engineering 190 and 191. A number of field visits to earth resources engineering operations. Trips typically include petroleum engineering operations, extractive metallurgy operations, environmental remediation sites, and a geothermal energy plant. Written trip reports. No final examination. (SP) Staff

H194. Honors Undergraduate Research, (1-4) Course may be repeated for credit. Variable format. Prerequisites: Upper division technical GPA of 3.3 or higher and consent of instructor. Research leading to the publication of a paper. Students who have completed a satisfactory number of advanced courses with a grade-point average of 3.3 or higher may pursue an independent study under the direction of one of the members of the staff. A maximum of 3 units of H194 may be used to fulfill technical elective requirements in the Materials Science and Engineering program or 201A (up to 196 or 198, which do not satisfy technical elective requirements). Final report required. (F,SP) Staff

199. Supervised Independent Study, (1-4) Course may be repeated for a maximum of four units per semester. Independent studies. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor and major adviser. Supervised independent study. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog. (SP) Staff

Graduate Courses

200A. Survey of Materials Science, (4) Four hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. A survey of Materials Science at the beginning graduate level, intended for those who did not major in the field as undergraduates. Focus on the nature of microstructure and its manipulation and control to determine physical properties. Reviews bonding, structure and microstructure, the chemical, electromagnetic and mechanical properties of materials, and introduces student to microstructural engineering. (F) Morris

201A-201B. Thermodynamics and Phase Transformations in Solids, (4) Four hours of lecture per week (201A) or per quarter (201B). Formerly MSE 102, 103, 115, or equivalent. Prerequisite: 201A is prerequisite to 201B. The laws of thermodynamics, fundamental equations for multicomponent elastic solids, solidification, criteria of equilibrium. Application to solution thermodynamics, point defects in solids, phase diagrams. Phase transitions, Landau rule, symmetry rules. Diffusion, nucleation theory, electron microscopy: diffusion, heat, mass and charge; coupled flows. (F,SP) Chorzyn, 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; covalent, metallic bonding; structure of elements, compounds, minerals, polymers. (SP) Staff

204. Theory of Electron Microscopy and X-Ray Diffraction, (3) Three hours of lecture per week. Prerequisites: 102, 103 or equivalent. Basic principles of techniques used in the characterization of engineering materials by electron microscopy, diffraction, and spectroscopy; emphasis on details of techniques responsible for materials properties. Modern electrical, optical and particle beam techniques for characterization of bulk single crystals, thin films, and amorphous layers. Examples Hall effect, Deep Level Transient Spectroscopy, IR-Spectroscopy. (SP) Gronsalk

205. Defects in Solids, (3) Three hours of lecture per week. Prerequisites: Physics 7C or consent of instructor. Many properties of solid state materials are 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. (F) Weber

260. Dislocations and Dislocation Plasticity, (3) Three hours of lecture per week. Prerequisites: 113, 200A, or equivalent. The principles of dislocation theory and the strength and deformation of crystalline solids. Dislocation geometry, stress-strain fields, associated self-energies, and forces exerted by externally applied stresses. Dislocation structures, core models, stacking faults, and sessile and glissile configurations. Dislocation defect interactions and multiple dislocation patterns, dislocation-array descriptions of grain boundaries, and mechanisms of multiplication and hardening. (SP) Morris

2C11. 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: Graduate standing or consent of instructor. Mechanical response of materials: Simple tension in elastic, plastic and viscoelastic materials. Continuum mechanics: The, Stress, strain tensors, equilibrium, compatibility. Three-dimensional elastic, plastic and viscoelastic problems. Thermal, transformation, and deforming stresses. Applications: Plane problems, stress concentrations at defects, metal forming problems. Also listed as Civil and Environmental Engineering C231. (F) Govindjee

2C12. Deformation and Fracture of Engineering Materials, (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Civil Engineering 130, Engineering 45. Formerly 212. This course covers deformation and fracture of engineering materials for both monotonic and cyclic loading conditions. Also listed as Mechanical Engineering C225. (SP) Pruchno, Ritchie

213. Environmental Effects on Materials Properties and Behavior, (3) Three hours of lecture per week. Prerequisites: MSE 112 or equivalent. Review of electrochemical aspects of corrosion; pitting and crevice corrosion; active/passive transition; galvanic corrosion; analysis of mechanisms approach to corrosion; stress corrosion cracking; hydrogen embrittlement; liquid metal embrittlement; corrosion fatigue; testing methods. Davison

2C14. Micromechanics, (3) Three hours of lecture per week. Prerequisites: MSE 211, Civil Engineering 231, or...
consent of instructor. Basic theories, analytical tech-
niques, and mathematical foundations of microme-
chanics and physical micromechanics, such as-
monic, micromachining, processes and their appli-
cations. Application of anisotropic interface energy to
clastic theory and homogenization within a broader sci-
resence. Biochips and of Micro-Electro-Mechanical Systems for biomedical
Narasimhan
theoretical, or historical) within a broader scientific con-
chemical, solid and gas diffusion, flow in porous media,
justification and solution methods. Evolution of ideas
(3)
Principles, Processes, Materials, and Technology.
221. Fuel Cells, Batteries, and Chemical Sensors: Principles, Processes, Materials, and Technology. (3)
(3) hours of lecture per week. Prerequisites: En-
gineering or sciences, or consent of instructor. Indo-
to computational materials science. Development of atomic scale simulations for materials
science applications. Application of kinetic Monte
Carlo, molecular dynamics, and total energy tech-
niques to the modeling of surface diffusion processes,
estatic constants, ideal shear strengths, and defect
properties. Introduction to simple numerical methods
for solving coupled differential equations and for study-
ing correlations. (SP) Chrzan
220. Rate Phenomena in the Synthesis and Pro-
cessing of Materials. (3) Three hours of lecture per week.
Prerequisites: Graduate standing in the sciences or engineering; con-
sent of instructor. Formerly 220. Fourier's heat dif-
fusion model as a basis for studying diverse physical,
biochemical, and technological systems. Basic con-
cepts of heat diffusion, observability, optimization,
and optimal solutions. Evolution of ideas as repre-
sed by papers of historical significance. Heat, chemi-
cal, and physical diffusion, classification, and models
of physical and chemical systems. (SP) Grons
230. Nanoparticle Science and Technology. Three hours of lecture per week. Prerequisites: Engineering 115 or consent of
instructor. Formerly 230. Principles of nanofilters, microfabricated capsules for the im-
logicals with microfabricated surfaces. Biochips and
of Micro-Electro-Mechanical Systems for biomedical
Narasimhan
theoretical, or historical) within a broader scientific con-
chemical, solid and gas diffusion, flow in porous media,
justification and solution methods. Evolution of ideas
(3)
Principles, Processes, Materials, and Technology.
221. Fuel Cells, Batteries, and Chemical Sensors: Principles, Processes, Materials, and Technology. (3)
(3) hours of lecture per week. Prerequisites: En-
gineering or sciences, or consent of instructor. Indo-
to computational materials science. Development of atomic scale simulations for materials
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Carlo, molecular dynamics, and total energy tech-
niques to the modeling of surface diffusion processes,
estatic constants, ideal shear strengths, and defect
properties. Introduction to simple numerical methods
for solving coupled differential equations and for study-
ing correlations. (SP) Chrzan
220. Rate Phenomena in the Synthesis and Pro-
cessing of Materials. (3) Three hours of lecture per week.
Prerequisites: Graduate standing in the sciences or engineering; con-
sent of instructor. Formerly 220. Fourier's heat dif-
fusion model as a basis for studying diverse physical,
biochemical, and technological systems. Basic con-
cepts of heat diffusion, observability, optimization,
and optimal solutions. Evolution of ideas as repre-
sed by papers of historical significance. Heat, chemi-
cal, and physical diffusion, classification, and models
of physical and chemical systems. (SP) Grons
Mathematics
(College of Letters and Science)

Department Office: 970 Evans Hall, (510) 642-6550

University Professor
Alexandra J. Chorin, Ph.D. New York University. Applied mathematics, turbulence, numerical methods, nonlinear PDEs.

Professors
David Aldous, Ph.D. University of Cambridge. Theoretical and applied probability.
Robert M. Anderson, Ph.D. Yale University. Mathematical economics, financial mathematics, financial econometrics.
William A. Arveson, Ph.D. University of California at Los Angeles. Operator theory, operator algebras.
George M. Bergman, Ph.D. University of California at Berkeley. Universal algebra and category theory, countersamples.
Paul B. Chernoff, Ph.D. Harvard University. Functional analysis, operator theory.
P. R. Halmos, Ph.D. University of Chicago. Numerical analysis, partial differential equations, complex analysis in several variables.
Robert F. Coleman, Ph.D. Princeton University. $p$-adic analysis and algebraic geometry.
James W. Demmel, Ph.D. University of California, Berkeley. Numerical analysis, high performance computing.
Lawrence D. Davis, Ph.D. University of Chicago. Probability, gambling theory, geometry.
David Eisenbud, Ph.D. University of California at Berkeley. Algebraic geometry, commutative algebra, computational algebra, computer analysis.
Joseph A. Wolf, Ph.D. University of California, Berkeley. Analysis on manifolds.
Isadore M. Singer, Ph.D. Massachusetts Institute of Technology. Differential geometry, commutative algebra, computation.
Irving Kaplansky, Ph.D. University of Chicago. Algebra, semigroups, automata.
Gerard Debreu, Ph.D. University of Chicago. Mathematical economics.
Heinz O. Cordes, Ph.D. University of California, Berkeley. Analysis, operator theory.
Paul L. Chambré, Ph.D. University of California, Berkeley. Numerical analysis, high performance computing.
David Gale, Ph.D. University of California, Berkeley. Mathematical psychology, economics, social choice.
Morris W. Hirsch, Ph.D. University of California, Berkeley. Differential topology, algebraic topology, dynamical systems.
Jacob Feldman, Ph.D. University of Chicago. Ergodic theory, harmonic analysis, function theory.
David Gale, Ph.D. University of California, Berkeley. Mathematical psychology, economics, social choice.
Harry Helson, Ph.D. Harvard University. Harmonic analysis, ergodic theory, operator algebras.
Leon A. Harken, Ph.D. Princeton University. Logic and foundations of mathematics, computer science, mathematics education.
Morris W. Hirsch, Ph.D. University of California, Berkeley. Differential topology, algebraic topology, dynamical systems.
Richard H. Cameron, Ph.D. University of California, Berkeley. Algebra, functional analysis.
John L. Rhodes, Ph.D. University of California, Berkeley. Algebra, semigroups, automata.
Rainer K. Schacht (Emeritus), Ph.D. Syracuse University. Relativity, mathematical biology.
Ioannis Saitas (Emeritus), Ph.D. University of Tokyo. Symmetric spaces, automorphic functions.
M. Iwamoto (Emeritus), Ph.D. University of Chicago. Complex analysis, mathematics education.
Paul Concus, Ph.D. Harvard University. Fluid dynamics, numerical analysis, applied mathematics.

Affiliated Professors
John H. Schurman (Emeritus), Ph.D. Stanford University. Psychology of problem solving.

Professor-in-Residence
Gregory Barenblatt, Applied mechanics, mechanics of solids.

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, computer science, and industrial engineering as well as graduate study in business, education, law, and medicine. They also prepare students for the actuarial profession and careers in business, industry, teaching, government, and finance. The requirements for both majors are summarized below. More detailed information is given in the “Undergraduate Handbook,” available from the undergraduate advising office in 965 Evans Hall and at http://math.berkeley.edu/undergrad/announcements.html.

General Major Requirements. Both major programs require a lower-division base of Mathematics 1A-1B and 53 and 54. Courses 16A-16B are not an acceptable alternative. Unless Math 1A-1B is completed with average grades of C or better; Math 53 and 54 must be completed with minimum grades of C in each. Transfer students should contact the undergraduate adviser in 965 Evans Hall about requirements for admission to the major. Eight upper-division courses are required for either major. Specific course requirements follow.

Major in Mathematics. (a) Four core courses: 104, 110, 113 and 185; (b) two semi-electives: select one course from each of two of the following three subject areas: I. Computing (128A); II. Geometry (130, 140, 141, 142); II. Logic and foundations (125A, 135); (c) 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 Applied Mathematics. (a) 104, 110, 113, 125A, and 185; (b) 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. Many 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 (a) earn a grade-point average of at least 3.5 in upper division and graduate courses in the major and at least 3.5 in all courses taken at the University; (b) complete course 196 in which they will write a senior honors thesis, or pass two graduate mathematics courses with a grade of at least A; (c) receive the recommendation of their major adviser. Students interested in the honors program should consult with their major adviser in their program, preferably by their junior year.
Undergraduate Research Seminar. Math 191 is intended to initiate undergraduates into the re-
search experience. This small seminar is led by a ladder-rank faculty member, and topics vary each
semester.

The Minor Program

Students in the College of Letters and Science may complete one or more minors of their choice, nor-
maily in a major already academically and administratively distinct from their major. The minor program in
the Department of Mathematics consists of the following course work.

Prerequisites: Mathematics 1A-1B and 53 or 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 math-
ematics course. These five courses must each be taken for a letter grade, and a minimum grade-
point average of 2.0 is required for upper division years of high school math, including trigonometry and
polynomials. This sequence is intended for majors in en-
gineering and the physical sciences. An introduction to
differential and integral calculus of functions of one
variable, with applications and an introduction to tran-
scendental functions.

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 dis-
cretion of the instructor, an additional hour of discus-
sion/workshop or computer laboratory per week. Pre-
erequisites: 1A. Continuation of 1A. Techniques of integration; applications of integration. Infinite se-
quences and series. First-order ordinary differential
equations. Second-order ordinary differential equa-
tions; oscillation and damping; series solutions of or-
dinary differential equations. (F,SP)

H1B. Honors Calculus. (4) Students will receive 2
units of credit for H1B after taking 16B. Three hours of
lecture and two hours of discussion/workshop per
week; at the discretion of the instructor, an addi-
tional hour of discussion/workshop or computer laboratory per week. Prerequisites: 1A. Honors version of 1B.
Continuation of 1A. Techniques of integration; appli-
cations of integration. Infinite sequences and series.
First-order ordinary differential equations. Second-or-
der ordinary differential equations; oscillation and
damping; series solutions of ordinary differential equa-
tions. (F)

16A. Analytic Geometry and Calculus. (3) Students
will receive no credit for 16A after taking 1A. Two
hours of lecture and one hour of discussion/workshop
per week; at the discretion of the instructor, an addi-
tional hour of lecture or discussion/workshop per week.
Prerequisites: Three years of high school math, in-
cluding trigonometry, plus a satisfactory grade in one
of the following: CEEB MAT test, an AP test, the
UC/CSU math diagnostic exam, or 32. Consult the math-
ematics department for details. (F)

53M. Multivariable Calculus with Computers. (4)
Students will receive no credit for 53M 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/work-
shop or computer laboratory per week. Pre-
erequisites: 1B. Parametric equations and polar
circles. Vectors in 2- and 3-dimensional Euclidean
spaces. Partial derivatives. Multiple integrals. Vector
calculus. Theorems of Green, Gauss, and Stokes. (F,SP)

49. Supplementary Work in Lower Division Math-
ematics. (1-3) Course may be repeated for credit.
Meetings to be arranged. Prerequisites: Some units in a
lower division Mathematics class. Students with par-
tial credit in lower division mathematics courses may,
with consent of instructor, complete the credit under
this heading. (F,SP)

H53. Honors Multivariable Calculus. (4) Students
will receive 1 unit for H53 after taking 50A. Three hours of
lecture and 3 units of credit after taking 50A. Three hours of
lecture and two hours of discussion/workshop per week; at the dis-
cretion of the instructor, an additional hour of discus-
sion/workshop or computer laboratory per week. Pre-
quisites: 1B. Parametric equations and polar
circles. Vectors in 2- and 3-dimensional Euclidean
spaces. Partial derivatives. Multiple integrals. Vector
calculus. Theorems of Green, Gauss, and Stokes. (F,SP)

Courses and Seminars

Courses and seminars are listed below. More de-
tailed and up-to-the-minute information on semester offerings, instructors, textbooks, course and seminar content, teaching and grading meth-
ods, and schedules are posted on the ninth floor of
Evans Hall and are available on the web at
math.berkeley.edu/graduate/graduate.html

Graduate Programs

The department offers the M.A. degree in mathe-
matics and Ph.D. degrees in mathematics and ap-
plied mathematics. Detailed information concern-
ing admission, graduate student instructorships and
fellowships, and degree requirements is given in the
Graduate Announcement of the Department of
Mathematics, which is available upon request from
the graduate office, 910 Evans Hall and at
http://math.berkeley.edu/graduate/graduate.html

Preparation for Graduate Study

Students preparing for the Ph.D. in mathematics are
strongly advised to acquire a reading knowl-
edge of two foreign languages from among French, German, and Russian. Undergraduate students
also often take one or more of the following intro-
ducatory graduate courses: 202A-202B, 214, 225A-
225B, 228A-228B, 250A-250B.

Courses and Seminars

Courses and seminars are listed below. More de-
tailed and up-to-the-minute information on semester offerings, instructors, textbooks, course and seminar content, teaching and grading meth-
ods, and schedules are posted on the ninth floor of
Evans Hall and are available on the web at
http://math.berkeley.edu/graduate/graduate.html

Analytic geometry, plus a satisfactory grade in one
of the following: CEEB MAT test, an AP test, the
UC/CSU math diagnostic exam, or 32. Consult the math-
ematics department for details. Students with AP credit
may, with consent of instructor, complete the credit under
this heading. (F,SP)

H54. Honors Linear Algebra and Differential Equa-
tions. (4) Students will receive 1 unit for H54 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/work-
shop or computer laboratory per week. Prerequisites: 1B.
Honors version of 53. Parametric equations and polar
circles. Vectors in 2- and 3-dimensional Euclidean
spaces. Partial derivatives. Multiple integrals. Vector
calculus. Theorems of Green, Gauss, and Stokes. (F,SP)

H54. Honors Linear Algebra and Differential Equa-
tions. (4) Students will receive 1 unit for H54 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/work-
shop or computer laboratory per week. Prerequisites: 1B.
Honors version of 54. Basic linear algebra; matrix arithmetic and determinants. Vector
circles; inner product spaces. Eigenvalues and
eigenvectors; linear transformations. Homogeneous or-
dinary differential equations; first-order differential
equations with constant coefficients. Fourier series and
partial differential equations. (F,SP)

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topics as 54: basic linear algebra; matrix arithmetic and determinants. Vector spaces, inner product spaces. Eigenvalues and eigenvectors; linear transformations. Homogenous ordinary differential equations; first-order differential equations with constant coefficients. Fourier series. Second-order differential equations. No prior computer experience is necessary. (F,SP)

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 per week; at the discretion of the instructor, an additional hour of discussion/lecture per 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 graph theory and elementary number theory, combinatorics, algebraic structures, discrete probability, theory, and statistics. Emphasis on topics of interest to students in computer science. (F,SP)

74. Transition to Upper Division Mathematics. (3) Three hours of lecture 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 or an additional year of advanced study. (F,SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time of their declaration to the major until they graduate. (F,SP)

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 annual 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 on a passed/not passed basis. Directed Group Study, topics vary with instructor. (F,SP)

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. This course is intended for upper-division students in Mathematics, Statistics, the Physical Sciences, and Engineering, and for economics majors with adequate mathematical preparation. No economic background is required. Also listed as Economics C103.

104. Introduction to Analysis. (4) Three hours of lecture per week. Prerequisites: 53 and 54. The real number system. Sequences, limits, and continuous functions on \( \mathbb{R}^n \). The concept of a metric space. Uniform convergence, interchange of limit operations. Infinite series. Mean value theorem and applications. The Riemann integral. (F,SP)

H104. Introduction to Analysis. (4) Three hours of lecture per week. Prerequisites: 53 and 54. Honors section corresponding to 104. Recommended for students who enjoy mathematics and are good at it. Greater emphasis on theory and challenging problems. (F,SP)

113. Introduction to Abstract Algebra. (4) Three hours of lecture per week. Prerequisites: 53 or a course with equivalent linear algebra content. Sets and relations. The integers, congruences and the Fundamental Theorem of Arithmetic. Groups and their factor groups. Commutative rings, ideals and quotient fields. The theory of polynomials: Euclidean algorithm and unique factorization. The Fundamental Theorem of Algebra. Fields and field extensions. (F,SP)

H113. Introduction to Abstract Algebra. (4) Three hours of lecture per week. Prerequisites: 53 or a course with equivalent linear algebra content. Honors section corresponding to 113. Recommended for students who enjoy mathematics and are good at it. Greater emphasis on theory and challenging problems. (F)

114. Second Course in Abstract Algebra. (4) Three hours of lecture per week. Prerequisites: 113. Further topics on groups, rings and fields not covered in Math 113. Possible topics include: the Sylow Theorems and their applications to group theory; classical groups; abelian groups and modules over a principal ideal domain; algebraic field extensions; splitting fields and Galois theory; construction and classification of finite fields. (SP)

115. Introduction to Number Theory. (4) Three hours of lecture per week. Prerequisites: 53 and 54. Divisibility, congruences, numerical functions, theory of primes. Topics selected: Diophantine analysis, continued fractions, partitions, quadratic fields, asymptotic distributions, additive problems. (SP)

116. Waves and Signal Processing. (4) Three hours of lecture per week. Prerequisites: 53 and 54. Introduction to signal processing including Fourier analysis and wavelets. Theory, algorithms, and applications to one-dimensional signals and multidimensional images. (F,SP)

119. Introduction to Applied Mathematics. (4) Three hours of lecture per week. Prerequisites: 53 and 54. A sample of ideas important in the mathematical sciences. Topics: duality in constrained optimization, structure of equilibrium equations (both discrete and continuous), initial value problems, conservation laws, uses of (fast) Fourier transform, calculus of variations, use of complex analysis, chaos. (F)

212A-121B. Mathematical Tools for the Physical Sciences. (4-4) Three hours of lecture per week. Prerequisites: 53 and 54. Course is intended for upper division students in mathematics, physics, and engineering sciences. Fourier series, finite-dimensional linear systems. Infinite-dimensional linear systems, orthogonal expansions, special functions, partial differential equations arising in mathematical physics. Intended for students in the physical sciences who are not planning to take more advanced mathematics courses. (F,SP)

122. Ordinary Differential Equations. (4) Three hours of lecture per week. Prerequisites: 104. Existence and uniqueness of solutions, linear systems, regular singular points. Other topics selected from analytic systems, autonomous systems, Sturm-Liouville Theory. (F)

125. Mathematical Logic. (4) Three hours of lecture per week. Prerequisites: 113 or consent of instructor. Sentential logic and quantificational logic, semantics, interpretability, 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: 104. Classification of second order equations, boundary value problems for elliptic and parabolic equations, initial value problems for hyperbolic equations, existence and uniqueness theorems in simple cases, maximum principles, a priori bounds, the 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. Theory and applications of combinatorics, probability, statistics, geometry. Geometric topology to problems ranging from sequence determination to structure analysis. (F,SP)

128. Numerical Analysis. (4) Three hours of lecture and one hour of discussion per week. At the discretion of the instructor, an additional hour of computer laboratory per week. Prerequisites: 53 and 54. Programming for numerical calculations, round-off error, approximation and interpolation, numerical quadrature, and solution of ordinary differential equations. Practice on the computer. (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 of coordinates, non-Euclidean geometry, regular solids, projective geometry. (F,SP)

140. Metric Differential Geometry. (4) Three hours of lecture per week. Prerequisites: 104 or 121B. Frenet formulas, isoperimetric inequality, local theory of surfaces in Euclidean space, first and second fundamental forms. Gaussian and mean curvature, isometries, geodesics, parallelism, the Gauss-Bonnet-Von Dyck Theorem. (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, classification of compact one-manifolds, transversality and intersection modulo 2. (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, Euler characteristic, fundamental groups, plus further topics at the discretion of the instructor. (F)

150. History of Mathematics. (4) Three hours of lecture per week. Prerequisites: 53. Set and Logic. History of algebra, analytic geometry, and calculus from ancient times through the seventeenth century and selected topics from more recent mathematical history. (SP)
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170. Linear Programming, Games, Models of Exchange. (4) Three hours of lecture per week. Prerequisites: Consent of instructor. Topics include linear programming, matrix games, models of production and exchange. Treats properties of the models and methods for calculating their behavior.

172. Combinatorics. (4) Three hours of lecture per week. Prerequisites: Basic combinatorial principles, graphs, partially ordered sets, generating functions, asymptotic methods, combinatorics of permutations and partitions, and computer codes. Additional topics are at the discretion of the instructor. (F,SP) Staff

185. Introduction to Complex Analysis. (4) Three hours of lecture 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)

H184. Introduction to Complex Analysis. (4) Three hours of lecture per week. Prerequisites: 104. Honors section corresponding to Math 185 for exceptional students with strong mathematical inclination and motivation. Emphasis is on rigorous, depth, and hard problems. (SP)

187. Senior Level Analysis. (4) Three hours of lecture per week. Prerequisites: 104, 113, and 185. Course gives an overall view of analysis. Emphasis is on the interrelations among topics taken from different fields, 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, 110, 2 semesters lower division Physics. 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)

190. 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 departmental bulletins.

195. Special Topics in Mathematics. (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 good standing. Topics will vary with instructor. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Hours to be arranged. Must be taken on a pass/fail basis. Prerequisites: The standard college regulations for all 199 courses. (F,SP)

Graduate Courses


202B. Introduction to Topology and Analysis. (4) Three hours of lecture per week. Prerequisites: 202A and 110. Measure and integration. Product measures and Fubini-type theorems. Signed measures; Hahn and Jordan decompositions. Radon-Nikodym theorem. Integration on product spaces; Fubini and Tonelli theorems; closed graph theorem. Hahn-Banach theorem. Duality; the dual of Lp. Measures on locally compact spaces; the dual of C(X). Weak and weak * topologies; Banach-Alaoglu theorem. Convexity and the Krein-Milman theorem. Additional topics chosen may include compact operators, spectral theory of compact operators, and applications to integral equations. (F,SP)


205. Theory of Functions of a Complex Variable. (4) Three hours of lecture per week. Prerequisites: 185. Normal families. Riemann Mapping Theorem. Picard's theorems and related theorems. Multiple-valued analytic functions and Riemann surfaces. Further top- ics selected by the instructor may include: harmonic functions, elliptic and algebraic functions, boundary behavior of analytic functions and HP spaces, the Riemann zeta functions, prime number theorem.


209. Von Neumann Algebras. (4) Three hours of lec- ture per week. Prerequisites: 206. Basic 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.

211. Mathematical Theory of Fluid Mechanics. (4) Three hours of lecture per week. Development of the fundamental equations describing the behavior of fluid continuum followed by the study of special topics selected to exhibit different physical situations, ana- lytical techniques, and approximate methods of solu- tions.

212. Several Complex Variables. (4) Three hours of lecture per week. Prerequisites: 185 and 202A-202B or their equivalents. Power series developments, do- mains of holomorphy, Hartogs’ phenomenon, pseudo convexity, and plurisubharmonicity. The domain of the course may treat either sheaf cohomology and Stein manifolds, or the theory of analytic subvarieties and spaces.


215A-215B. Algebraic Topology. (4) Three hours of lecture per week. Prerequisites: 112 and point-set topology (e.g. 202A). Fundamental group and covering spaces, simplicial and singular homology theory with applications. Homotopy theory, fibrations, relations between homotopy and homology, obstruction theory, and topics from algebraic topology, cohomology operations, and characteristic classes. Sequence begins fall.


220. Methods of Applied Mathematics. (4) Three hours of lecture per week. Variational principles; op- timization; control; dynamical systems; stochastic or- dinary differential equations; estimation; data analysis. (F,SP)

221. Advanced Matrix Computations. (4) Three hours of lecture per week. Prerequisites: Consent of in- structor. Direct solution of linear systems, including large sparse systems: error bounds, iteration methods, least square approximation, eigenvalues and eigen- vectors of matrices, nonlinear equations, and mini- mization of functions. (F,SP)

222A-222B. Partial Differential Equations. (4) Three hours of lecture per week. Prerequisites: 105 or 202B. 185. The theory of initial-boundary value problems for hyperbolic, parabolic, and elliptic partial differential equations, with emphasis on non- linear equations. More general types of equations and systems of equations. Sequence begins Fall.

224A-224B. Mathematical Methods for the Physical Sciences. (4-4) Three hours of lecture per week. Prerequisites: Graduate status or consent of instructor. Introduction to the theory of functions of several variables and Laplace transforms. Partial differential equations. Green’s function. Operator theory, with applications to eigenfunction expansions, perturbation theory and linear and non-linear waves. Sequence begins Fall. (F,SP)


226A. Abstract Machines and Languages. (4) Three hours of lecture per week. Prerequisites: 135; 114 or 112 and 110. Finite state automata, regular sets, Tur- ing machines, recursive functions, decision problems. Context-free languages, pushdown automata, arbi- trarily, special families of languages, power series in non-commuting variables.

227A-227B. Theory of Recursive Functions. (4) Three hours of lecture per week. Prerequisites: 225B. Recursive and recursively enumerable sets of natural numbers; characterization of sets and classification. Relativization, degrees of unsolvability. The recursion theorem. Constructive ordinals, the hyperarithmetical and analytical hierarchies. Recursive objects of higher type. Sequence begins Fall.


236. Metamathematics of Set Theory. (4) Three hours of lecture per week. Prerequisites: 225B and 230A. Various set theories: comparison of strength, transitive, and natural models, finite axiomatizability. Independence and consistency of axiom of choice, Continuum hypothesis, etc. The measure problem and axioms of strong infinity.

240. Riemanian Geometry. (4) Three hours of lecture per week. Prerequisites: 214. Riemannian metric and Levi-Civita connection, geodesics and completeness, curvature, first and second variations of arc length. Additional topics such as the theorems of Myers, Synge, and Cartan-Hadamard, the second fundamental form, convexity and rigidity of hypersurfaces in Euclidean space, homogeneous manifolds, the Gauss-Bonnet theorem, and characteristic classes. (SP)

243. Complex Manifolds. (4) Three hours of lecture per week. Prerequisites: 214 and 215A. Riemann surfaces, divisors and line bundles on Riemann surfaces, sheaves and the Dolbeault theorem on Riemann surfaces, the classical Riemann-Roch theorem, theorem of Abel-Jacobi. Complex manifolds, Kahler metrics. Summary of Hodge theory, groups of line bundles, additional topics chosen by the instructor. Prerequisites: 214 and 215A. (F,SP)

245. Symplectic Geometry. (4) Three hours of lecture per week. Prerequisites: 214. Basic topics: symplectic linear algebra, symplectic manifolds, Darboux theorem, cotangent bundles, Lagrangian submanifolds, Poisson brackets, symmetry groups and momentum mappings, coadjoint orbits, Kahler manifolds. (F,SP)

245A-245B. General Theory of Algebraic Structures. (4,4) Three hours of lecture per week. Prerequisites: 113 and 135. Structures defined by operations and/or relations, and their homomorphisms. Classes of structures determined by identities. Constructions such as free objects, objects presented by generators and relations, ultraproducts, direct limits. Applications of generality to groups, rings, lattices, etc. Course may emphasize study of congruence and subalgebra-lattices, or category-theory and adjoint functors, or other aspects.

249. Algebraic Combinatorics. (4) Three hours of lecture per week. Prerequisites: 250A or consent of instructor. (I) Enumeration, generating functions and exponential structures, (II) Posets and lattices, (III) Geometric combinatorics, (IV) Symmetric functions, Young tableaux, and connections with representation theory. Further study of applications of the core material. Additional topics, chosen by instructor. (F,SP) Staff

250A. Groups, Rings, and Fields. (4) Three hours of lecture per week. Prerequisites: 114 or consent of instructor. Group theory, including the Jordan-Holder theorem and the Sylow theorems. Basic theory of rings and their ideals. Unique factorization domains and principal ideal domains. Homomorphisms and quotient rings. Classification theory and representation theory of semi-simple Lie algebras and Lie groups, further topics such as symmetric spaces, Lie transformation groups, etc., if time permits. In view of its simplicity and its wide range of applications, it is preferable to cover compact Lie groups and their representations in 261A.

250B. Linear Algebra and Further Topics. (4) Three hours of lecture per week. Prerequisites: 250A. Tensor algebra, multilinear mappings, projective and algebraic geometry, with application to linear transformations. Commutative ideal theory, localization. Elementary specialization and valuation theory. Related topics in algebra. (SP)

251. Ring Theory. (4) Three hours of lecture per week. Prerequisites: 250A. Topics such as: Noetherian rings, rings with descending chain condition, theory of the radical, homological methods.

252. Representation Theory. (4) Three hours of lecture per week. Prerequisites: 250A. Structure of finite dimensional algebras, applications to representations of finite groups, the classical linear groups. (F)

253. Homological Algebra. (4) Three hours of lecture per week. Prerequisites: 250A. Modules over a ring, homomorphisms and tensor products of modules, functors and derived functors, homological dimension of rings and modules.

254A-254B. Number Theory. (4,4) Three hours of lecture per week. Prerequisites: 250A. Valuations, units, and ideals in number fields, ramification theory, quadratic and cyclotomic fields, topics from class field theory, zeta-functions, L-series, distribution of primes, modular forms, quadratic forms, diophantine equations, P-adic analysis, and transcendental numbers. Sequence begins fall.

255. Algebraic Curves. (4) Three hours of lecture per week. Prerequisites: 250A or 250B or consent of instructor. Elliptic curves. Algebraic curves, Riemann surfaces, and function fields. Singularities. Riemann-Roch theorem. Higher-genus curves, the canonical curve and the canonical numerical. Zeta functions of curves over finite fields. Additional topics such as Jacobians or the Riemann hypothesis. (F,SP)

256A-256B. Algebraic Geometry. (4) Three hours of lecture per week. Prerequisites: 250A. Affine and projective algebraic varieties. Theory of schemes and morphisms of schemes. Smoothness and differentials in algebraic geometry. Coherent sheaves and their homology. Riemann-Roch theorem and selected applications. Sequence begins fall.

257. Group Theory. (4) Three hours of lecture per week. Prerequisites: 250A. Topics such as: generators and relations, infinite 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: 250A. Topics such as: Fourier series, convergence and summability, conjugate functions, Hardy spaces, boundary behavior of analytic and harmonic functions. Additional 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.

259. Abstract Harmonic Analysis. (4) Three hours of lecture per week. Prerequisites: 250A. Topological groups, Haar measure, Pontryagin duality, and structure theory of locally compact abelian groups. Peter-Weyl theorem for compact groups. Further topics may include finer study of harmonic analysis on commutative groups, or else head in the direction of group representations for noncommutative locally compact groups.

25A-25B, Lie Groups. (4,4) Three hours of lecture per week. Prerequisites: 214. Lie groups and Lie algebras, fundamental theorems of Lie, general structure theory; compact groups, semi-simple compact groups; classification theory and representation theory of semi-simple Lie algebras and Lie groups, further topics such as symmetric spaces, Lie transformation groups, etc., if time permits. In view of its simplicity and its wide range of applications, it is preferable to cover compact Lie groups and their representations in 261A. Sequence begins Fall.


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 in 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 in 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 in 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 in 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 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 calculations, analysis, geometry, topology, algebra, and their applications, by means of lectures and informal conferences; work based largely on original memoirs. (F,SP)

295. Individual Research. (1-12) Course may be repeated for credit. Hours to be arranged. Sections 1-30 to be graded on a satisfactory/un satisfactory basis. Find suitable Ph.D. degree candidates for the Ph.D. degree. (F,SP)

299. Reading Course for Graduate Students. (1-6) Course may be repeated for credit. Hours to be arranged. Sections 1-30 to be graded on a satisfactory/un satisfactory basis. Find suitable Ph.D. degree candidates for the Ph.D. degree. (F,SP)

600. Individual Study for Master's Students. (1-6) Course may be repeated for credit. Course does not satisfy unit or residence requirements for master's degree. Hours to be arranged. Must be taken on a satisfactory/un satisfactory basis. Prerequisites: For candidates for master's degree. Individual study for the comprehensive or language requirements in consultation with the field adviser. (F,SP)
Mechanical Engineering (College of Engineering)

Department Office: 5155 Etcheverry Hall, (510) 642-1388 www.me.berkeley.edu Chair: J. Karl Hedrick, Ph.D.

Professors
Alissa M. Aggoune (Roscoe and Elizabeth Hughes Chair in Mechanical Engineering), Ph.D. Stanford University. (Chair and James Marshall Wells Chair in Mechanical Engineering)

David M. Auslander (Associate Dean, Research and Student Affairs), Ph.D. Massachusetts Institute of Technology. Dynamic systems, automatic controls

Peter A. Beutler, Ph.D. Brown University. Fluid mechanics

David J. Boger (Siemens Distinguished Professor in Engineering), Ph.D. Brown University. Elasticity, plasticity, computer mechanics

Van P. Cook, Ph.D. St. John's University. New York, Buffalo. Transient in multiphase systems, thermophysics of phase-change processes

James Casey, Ph.D. University of California, Berkeley. Continuum mechanics

Jyh-Yuan Chen, Ph.D. Cornell University. Turbine combustion, chemical kinetics, numerical simulation

Hari Dharan, Ph.D. University of California, Berkeley. Composites material

Robert W. Dibble, Ph.D. University of Wisconsin. Combustion, gas dynamics

David A. Dornfeld (Associate Dean, Interdisciplinary Studies), Ph.D. University of Wisconsin. Manufacturing processes, robotics

Carlos Fernandez-Pello, Ph.D. University of California at San Diego. Combustion, heat and condensed hails

Michael Y. Frenkelch, Ph.D. Hebrew University. Chemical kinetics, combustion chemistry, chemical vapor deposition

Werner Goldsmith, Ph.D. Rheology

Ragh Gers, Ph.D. Harvard University. Thermal radiation, phase change

Costas Grigoropoulos, Ph.D. Columbia University. Heat transfer, laser materials processing

J. Karl Hedrick, Ph.D. Chairman, Mechanical Engineering (Emeritus)

Robert Horowitz (Vice Chair, Graduate Study), Ph.D. University of California, Berkeley. Automatic control systems design, robotics

Roger T. Howe, Ph.D. University of California, Berkeley. Microsensors and microactuators

George C. Johnson, Ph.D. Stanford University. Ultrasonic stress evaluation

Homayoon Kazerooni, D.Sc. Massachusetts Institute of Technology. Mechanical engineering

Toke Kavehne, Ph.D. Cornell University. Tissue engineering and biomechanics

Kyotake Komvouldopoulos, Ph.D. Massachusetts Institute of Technology. Tribology, contact mechanics, mechanical behavior of materials

*George Leimbach, Ph.D.

*Denis K. Liu, D. Eng. University of California, Berkeley. High-speed electromechanical devices

Fai Ma, Ph.D. Columbia Institute of Technology. Vibration and control

Arun Misra, Ph.D. University of California, Berkeley. Nanoscale thermal and biomechanical engineering, micromechanical systems

Alta Mansour, Ph.D. University of California, Berkeley. Structural mechanics and safety, probabilistic dynamics of marine structures, strength of ship and offshore structures, development of design criteria

Philip Marcus, Ph.D. Princeton University. Computational fluid dynamics

*Alessio M. Maccapani, B.Sc. University of California, Berkeley. Fluid dynamics, noise and vibration

Andrew P. Mermal, M.D., M.P.H. (In Residence)

Adjunct Professor
Klaus Weinmann, Ph.D.

Overview
Mechanical Engineering includes the science and art of the formulation, design, development, and control of systems and components involving thermodynamics, mechanics, fluid mechanics, mechanism design, and the conversion of energy into useful work. The mechanical engineer needs a broad education in mathematics, physics, chemistry, manufacturing processes, properties of materials, mechanics, fluid mechanics, thermodynamics, as well as intensive design and laboratory experience. The program of study includes basic subjects common to all engineering disciplines, as well as advanced courses important to all mechanical engineers and specialization in one or more phases of mechanical engineering.

The undergraduate program begins at the freshman level with study in the humanities, mathematics, basic sciences, and the foundation design course, Engineering 28. In subsequent years students take courses in engineering science concepts as tools for systems analysis and design. Because of the breadth and experience required for this major, mandatory courses require specialization, and the student's opportunity to develop a broad hands-on understanding of the design process involved in significant engineering systems. Undergraduate specialization is provided in the choice of technical electives which may be selected from the subject areas of applied mechanics, automatic controls, electro-mechanical systems analysis, energy conversion, fluid mechanics, heat and mass transfer, material properties analysis, mechanical design, marine architecture, nuclear engineering, cryogenics, thermodynamics, and bio-mechanical, environmental, and petroleum engineering.

Because of the wide range of technical problems and the limited amount of specialization available in the undergraduate curriculum, qualified students should consider graduate study, to enlarge their scientific and technological capability. Further details on undergraduate and graduate fields of emphasis in mechanical engineering are available in the Announcement of the College of Engineering. The department also makes available a brochure detailing the undergraduate and graduate programs in mechanical engineering.

The B.S. program is accredited in mechanical engineering by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Place, Suite 1050, Baltimore, MD 21202-4012. Telephone: (410) 347-7700.
Note: In addition to the courses listed below, the Department of Mechanical Engineering offers the following concentration in the Engineering section of this catalog: 28. Graphic Communication in Engineering; 117, Methods of Engineering Analysis; 118, Introduction to Scientific Computing; 123, Advanced Engineering Design Graphics; 133, Introduction to Bioengineering; 139, California Engineer Staff; 230A, Engineering Analysis; 230B, Engineering Analysis; 266A, Fluid Mechanics; 266B, Spectral Methods for Fluid Dynamics.

Lower Division Courses

1. Mechanical Engineering Uncovered. (2) Two hours of lecture and one hour of discussion/laboratory per week. Prerequisites: Open to lower division engineering students. An introduction to mechanical engineering, emphasizing the major areas of the field: design, materials, mechanics, thermal sciences, etc. A range of current engineering problems, and their solutions, will be addressed both qualitatively and quantitatively. (F) Poulis

24. Freshman Seminars. (1) Course may be repeated for credit as topics vary. One hour of seminar per week. Sections 1 to 4 are to be graded on a letter-grade basis. Sections 5 to 8 are graded on a pass/no pass basis. 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 topics vary. Sections 1 to 2 are to be graded on a letter-grade basis. Sections 3 to 4 are graded on a pass/no pass 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) Staff

92. Introduction to Mechanical Engineering. (1) One hour of lecture and one hour of discussion per week. Prerequisites: 102A and Engineering 28. This course introduces the fundamentals and techniques of mechanical engineering phenomena and systems. Three hours of lecture per week. (F,SP) Staff

98. Supervised Independent Group Studies. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Organized study on various topics 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: 102A 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 (MTL), economics, quality monitoring; MMLV systems fundamentals including just in time (JIT), kanban, buffers and line balancing; class project/case studies for design of competitive manufacturing systems. Three hours of lecture per week. (F,SP) Staff

102B. Mechanical Engineering Design. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: 102A and Engineering 28. Application of principles of mechanics, material science and manufacturing processes to the design of components and complete machines which must meet prescribed functional requirements. Synthesis and analysis of a major design project. (F,SP) Staff

104. Engineering Mechanics II. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Engineering 36, 77, and Mathematics 54. This course is an introduction to the dynamics of particles and rigid bodies. The material, based on a Newtonian formulation of the governing equations, is illustrated with numerous examples ranging from one-dimen- sional motion of a single particle to planar motions of rigid bodies and systems of rigid bodies. (F,SP) O’Reilly

105. Thermodynamics. (3) Students will receive no credit for 105 after taking 105B. Three hours of lecture and one hour of discussion per week. Prerequisites: Chemistry 1A, Mathematics 53, Physics 7A, and Engineering 77. This course introduces the basic principles of thermodynamics which are applied to various areas of engineering related to energy conversion and air conditioning. (F,SP) Carey, Staff

105B. Thermodynamics and Biothermodynamics. (3) Students will receive no credit for 105B after taking 105. Three hours of lecture and one hour of discussion per week. Prerequisites: Chemistry 1A, Mathematics 53, Physics 7A, and Engineering 77 (or equivalent). This course begins with introductory level coverage of basic principles of thermodynamics: conservation of mass, conservation of energy and the Second Law of thermodynamics, as well as material property relations that relate to heat, work and heat load analysis. The course follows these fundamentals with an introduction to the thermodynamics of multicomponent systems with and without reactions. The course also introduces students to non-classical aspects of small systems and nonequilibrium thermodynamics, both of which are important biological processes. The second half of the course describes the application of thermodynamics to life processes at the molecular level and at the level of organisms interacting with their environment. The use of traditional thermodynamic principles to ecosystem analysis and evolution is also discussed. Some conventional thermodynamic applications are also examined to facilitate a comparison of biological and non-biological energy conversion mechanisms. (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 describing and controlling engineering flows. Three hours of lecture per week. (F,SP) Yeung

107A. Experimentation and Measurement. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: 104, 105, 106. Electrical 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 of measurement and experimental systems. (F,SP) Johnson

107B. Mechanical Engineering Laboratory. (3) Six hours of laboratory per week. Prerequisites: 107A. Experimental investigation of engineering systems and of phenomena of interest to mechanical engineers. Design and planning of experiments; data collection and reporting of experimental results. (F,SP) Staff

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) Pagini

110. Introduction to Product Development. (3) Three hours of lecture per week. Prerequisites: 102B, 107A, which may be taken concurrently. This 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 topics. Innovative systems are preferred. Design, optimization and social, economic, and political implications are included. Both individual and group oral presentations are required, and participation in conferences is required. Sheng
C117. Structural Aspects of Biomaterials. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Biological 1A, 14, Engineering 45, and Civil Engineering 130. This course covers the mechanical and structural aspects of biological tissues and their replacements. Tissue structure and mechanical function are addressed. Natural and synthetic load-bearing biomaterials for clinical and medical applications are reviewed. Biocompatibility of biomaterials and host response to structural implants are examined. Quantitative treatment of biomechanical issues and constitutive relationships of tissues and biomaterials are covered. Material selection for load-bearing applications including reconstructive surgery, orthopedics, dentistry, and cardiology. Mechanical design for longevity including topics of fatigue, wear, and fracture. Use of biodegradable implants and hybrid materials. Directions in tissue engineering. Also listed as Bioengineering C117. (SP) Prull

119. Introduction to MEMS (Microelectromechanical Systems). (3) Three hours of lecture per week. Prerequisites: Electrical Engineering 100, Physics 7B. Fundamentals of microelectromechanical systems including design, fabrication of microstructures; surface-micromachining, bulk-micromaching, LIGA, and other micro machining processes; fabrication principles of integrated circuit devices and their applications for making MEMS devices; high aspect-ratio microstructures; scaling issues in the micro scale (heat transfer, fluid mechanics and solid mechanics); device design, analysis, and applications. (F,SP) (FSP)

122. Processing of Materials in Manufacturing. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 102A; Civil Engineering 130. Fundamental principles of metal forming (metal cutting, welding and joining and casting); analysis and selection of metals, plastics and other materials relative to the design and choice of manufacturing processes. (F) Dharan

123. Microfabrication Equipment Laboratory. (2) One hour of lecture and three hours of laboratory per week. Prerequisites: Electrical Engineering 40 or 100, Mathematics 53 and 54, Physics 7B; an upper division course on microfabrication technology or manufacturing is recommended but not required (e.g., Chemical Engineering 179, Electrical Engineering 143, Mechanical Engineering 101, 122, Materials Science 111, 123, 125). Experiments and simulations illustrating the fundamental principles of equipment and measurement technology for micro-electromechanical systems. Introduction to micromanufacturing; surface-micromachining and bulk-micromachining; scaling issues in the microscale; device design, analysis; metal cutting, welding and joining; casting; selection of metals, plastics and other materials relative to the design and choice of manufacturing processes. (F) Dharan

124. Mechanical Behavior of Engineering Materials. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Civil Engineering 130 and Engineering 45; formerly 102A and Materials Science and Engineering 113. This course covers elastic and plastic deformation under static and dynamic loads. Prediction and prevention of failure by yielding, fracture, fatigue, wear, and other failure modes are addressed. Topics include engineering materials, structure-property relationships, materials selection for design, mechanical behavior of polymers, metal- and ceramic-based composites, complex states of stress and strain, elastic deformation and multiaxial loading, plastic deformation and yield criteria, dislocation plasticity and strengthening mechanisms, mechanical properties, stress concentrations, failure, and contact stresses. Also listed as Materials Science and Engineering C113. (F,SP) Dharan, Komvopoulos, Ritchie


128. Computer-Aided Mechanical Design. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 102B, Engineering 28, Civil Engineering 130, and Mathematics 53, 54, or consent of instructor. Introduction to design (not drafting) via computers. Using MATLAB software on X-windows workstations, the student will be introduced to a variety of mechanical design techniques and apply those techniques to the design of beams, automobile engine components, plasma machines, mechanical elements, linkages, and flexure hinges. These techniques include ad-hoc methods, exhaustive enumeration, grid searches, and formal optimizations. (SP) Pisano

130. Design of Planar Machinery. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: 104. Synthesis, analysis, and design of planar machines. Kinematic structure, graphical, analytical, and numerical analysis and synthesis. Linkages, cams, reciprocating engines, gear trains, and flywheels. (SP) Pisano


133. Mechanical Vibrations. (3) Three hours of lecture per week. Prerequisites: 104. An introduction to the theory of mechanical vibrations including topics of harmonic motion, resonance, transient and random excitation, applications of Fourier analysis and convolution methods. Multidegree of freedom discrete systems including principal mode, principal coordinates and Rayleigh’s principle. (F) Tongue

134. Automatic Control Systems. (4) Three hours of lecture and one hour of discussion per week, and three hours of laboratory every other week. Prerequisites: 132. Linear control systems analysis and design in transform domain (Laplace and Z-transform functions and state equations. Frequency response and Nyquist stability. Loop shaping. State feedback controller and observer design. Applications to mechanical and mechatronics systems. Computer control. (F,SP) Tomizuka

135. Design of Microprocessor-Based Mechanical Systems. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Engineering 7. This course provides preparation for the conceptual design and prototyping of mechanical systems that use microprocessors to control machine activities, acquire and analyze data, and interact with operators. The architecture of microprocessors is related to problems in mechanical systems through study of systems including electronic-mechanical components, thermal components and a variety of instruments. Laboratory exercises lead through studies of different levels of software. (SP) Adams

136. Mechatronics and Robotics Design. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. This subject offers a mechatronics approach to the design of robotized and automated systems covering from the design of mechanical hardware to surrounding electronics and computer interface. Basic kinematics and the robotic systems, sensors, interaction of robotic systems, hydraulic and pneumatic systems, electric actuators, power transmission, sensors, control and computer interface, rule-based systems, rule representation, manufacturing, hazardous environment, and human machine systems. A control and/or design project is required. (F) Kazerooni

140. Combustion Processes. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 105 and 106. May be taken concurrently. Fundamentals of combustion, flame structure, flame speed, flammability, ignition, stirred reaction, kinetics and non equilibrium processes, pollutant formation, application to engines, energy production and fire safety. (F) Fernandez-Pello

142. Thermal Environmental Control. (3) Three hours of lecture per week. Prerequisites: 105 and 106. Formerly 102A and Materials Science and Engineering 130. May be taken concurrently. The course will focus on analysis of thermodynamics and transport phenomena associated with a broad spectrum of thermal control applications. Emphasis will be on application of theoretical concepts to the design of advanced thermal control systems. Topics covered will include enhanced vapor compression heat pumps, gas compression cycles, psychrometrics, cooling towers, desiccant cooling, absorption refrigeration, Joule-Thomson cooling, cryogenics, thermoelectric cooling, heat exchangers, and advanced insulation concepts. Applications in thermal control of buildings, automobiles, spacecraft, and electronics will be discussed. (SP) Carey

145. Computer-Aided Thermal Design. (3) Three hours of lecture and one voluntary hour of discussion per week. Prerequisites: 105, 106, and 109 or consent of instructor. This course introduces the student to modern computerized tools to model thermal performance characteristics of components and systems. It emphasizes the synthesis of thermoscientific theories with advanced computational methodologies to facilitate engineering design of components and systems. The course also will stress the use of computer graphics tools to communicate design issues. Example applications discussed in the course may include thermal control of microelectronic components, solar energy systems, combustion based power systems, cryogenics, thermal control of vehicles. Students must complete two applications-based projects that require use of theoretical tools from the thermosciences together with advanced computational methods developed in class lectures. (SP) Carey

151. Advanced Heat Transfer. (3) Three hours of lecture per week. Prerequisites: 105, 106, and 109. Basic principles of heat transfer and their application. Subject areas include steady-state and transient system analyses for conduction, free and forced convection, boiling, condensation and thermal radiation. (SP) Pagni

161. Applied Fluid Mechanics. (3) Three hours of lecture per week. Prerequisites: 105 and 106. Operating principles and characteristics of flow in conduits, lubrication systems, pumps, turbines and compressors will be described, and analyzed by application of concepts of potential flow, laminar viscous flow and turbulent flow. (F) Savas

163. Engineering Aerodynamics. (3) Three hours of lecture per week. Prerequisites: 106. Introduction to the lift, drag, and moment of two-dimensional airfoils, three-dimensional wings, and the complete airplane. Calculations of the performance and stability of airplanes in subsonic flight. (SP)

C164. Marine Statics and Structures. (3) Students will receive 2 units of credit for 164 after taking 151. Three hours of lecture per week. Prerequisites: Civil Engineering 130 or consent of instructor. Formerly Engineering 164. Terminology and definition of hull forms, conditions of static equilibrium and stability of floating submerged bodies. Effects of damage on stability, structural loads and response. Box girdler theory, inelastic and orthotropic plate bending and buckling. Also listed as Ocean Engineering C164. (F,SP) Mansour

C165. Ocean-Environment Mechanics. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: Civil Engineering 130 or consent of instructor. Ocean environment. Physical properties and characteristics of the oceans. Global conservation laws. Surface-wave generation. Gravity wave mechanics. Kinematics and dynamics. Design consider-
H94. Honors Undergraduate Research. (2-4) Course may be repeated for credit. Prerequisites: 3.3 or higher-up to 10 hours per week. Students who have completed a satisfactory number of advanced courses may pursue original research under the direction of one of the members of the staff. A maximum of 3 units of H94 may be used to fulfill technical elective requirements in the Mechanical Engineering program (198 or 199), which do not satisfy technical elective requirements. (F,SP) Staff

198. Directed Group Studies for Advanced Undergraduates. (1-4) Course may be repeated for credit. Prerequisites: Upper division standing and good academic standing. Group study of a selected topic or topics in Mechanical Engineering. Three hours for 198 or 199 courses combined may not exceed 4 units in any single term. See College for other restrictions. (F,SP) Staff

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Individual conferences. Must be taken within department's pass/no-pass option. Prerequisites: Consent of instructor and major advisor. Supervised independent study. Enrollment restrictions apply; see the introduction to Courses and Curricula section of this catalog. (F,SP) Staff

Graduate Courses

210. Biological Control Systems. (3) One and one-half hours of lecture and three hours of laboratory per week. Prerequisites: Graduate standing or permission of instructor. Emphasis on development and application of modern control theory of, complex biological systems; dynamical engineering evaluation of anatomical-physiological elements. Explicit methods applied to biological control systems in the laboratory, with specialized bioengineering transducers and online digital computers. Digital simulation to interpret experimental data and to elucidate design features of these living systems. (F) Staff

C212. Heat and Mass Transport in Biomedical Engine- 
ing. (3) Three hours of lecture per week. Prerequisites: 106 and C223, Bioengineering 214 and 212. Fundamental processes of heat and mass transport in biological systems; organic molecules, cells, biological organs, whole animals. Derivation of mathematical models and discussion of experimental procedures. Applications to biomedical engineering. Three hours of lecture per week. (F) Rubinsky

214. Structure-Function Relationships for Biological 
Tissues. (3) Three hours of lecture per week. Prerequisites: 102A, 176, 185; graduate standing or con- sent of instructor. The goal of this course is to develop a hierarchical approach to understanding and under- 
standing the structure-function relationships for tissue. A range of musculoskeletal tissues as examined in the literature. Analysis of the tissue microstructure will be used to explain and model the experimentally observed continuum-level behavior. Specific applications will include anisotropic elasticity, composite mechanics, continuum damage theory, cellular solids, biot and biphasic theories, solid- fluid interactions, viscoelasticity, and biological re- sponses to mechanical stimuli including repetitive load- 
ing. Current clinical problems in orthopedics and 
ertics will illustrate practical applications. (SP) Keaveny

C218. Introduction to MEMS Design. (3) Three hours of lecture per week. Prerequisites: Graduate standing in engineering or science, Physics, fabrica- 
ion, and design experience from Electronic Mechanical Systems. Review of IC fabrication. Surface, bulk, and non-silicon microfabrication. Integration vs. assembly. Micro-sen- 
sors and micro-actuator devices: Capacitive, piezo- 
sistive, electrostatic, thermal, magnetic, Electrical and mechanical noise. CAD for MEMS. Design project re- 
guired. Also listed as Electrical Engineering C245. (F) Pislar, Pisano

219. Microelectromechanical Systems. (3) Three hours of lecture per week. Prerequisites: Consent of in- 
spector. This course is aimed to provide basic un- 
derstanding of MEMS fabrication processes and mi- 
croelectromechanical systems (MEMS). Technologies including analyses, design, and manufacturing pro- 
cesses of MEMS will be introduced. The first part of 
the course emphasizes the design and fabrication of thin film deposition, lithography, and etching. The second part of the course deals with micromachining pro- 
cesses, involving surface and bulk-micromachining, LIGA, and other processes. (SP) Lin

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 under- 
standing of integrated circuit (IC) processes and mi- 
croelectromechanical system (MEMS). Technologies including analyses, design, and manufacturing pro- 
cesses of MEMS will be introduced. The first part of 
the course emphasizes IC processes including thin film deposition, lithography, and etching. The second part of the course deals with micromachining processes in- 
ccluding surface- and bulk-micromachining, LIGA and other processes. Also listed as Electrical Engineering C246. (SP) Lin, Pisano, Pislar

220. Precision Manufacturing. (3) Three hours of lec- 
ture per week. Prerequisites: 101, 102B, or consent of instructor. Introduction to precision engineering for manufacturing. Emphasis on performance of precision machinery for manufacturing. Topics in- 
clude machine tool elements and structure, sources of error (thermal, static, dynamic, shock), pre- 
cision machining processes and process models (di- 
amic turning and abrasive (fixed and fixed free) pro- 
cesses), sensors for process monitoring and control, measurement of machine dynamics, machine dynamics and examples of precision component manufacture. (SP) Dornfeld

221. High-Tech Product Design and Rapid Manu- 
facturing. (3) Three hours of lecture per week en- 
hanced by a semester-long "hands-on" rapid proto-
typing project. Prerequisites: 101; Recommended: Basic metal-processing, 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 (cnc, stamping, forging, extrusion, welding). The course is required for the "Management of Technology." (F) Wright

222. Advanced Manufacturing Processes. (3) Three hours of lecture per week. Prerequisites: 122 or con- 
sent of instructor. This course presents an overview of the theory of manufacturing processes, machine tool design and process issues related to part design, production rate, and flexibility of manufacturing. Nontraditional manu- 
facturing processes will be introduced. Topics covered include: powder production (sintering), metal produc- 
turing (material removal, joining, forming, and de- 
forming), elements of machine tool error and machine tool kinematics, and machine tools. Relevant to today’s production of consumer electronics and other high tech products, the course emphasizes IC processes including thin film deposition, lithography, and etching. The second part of the course deals with micromachining processes in- 
ccluding surface- and bulk-micromachining, LIGA and other processes. (SP) Chiang

223. Polymer Engineering. (3) Three hours of lec- 
ture and one hour of discussion per week. Prerequisites: Consent of instructor. Metal cut- 
ting and metal removal processes; theoretical under- 
pinnings of deformation behavior and material prop- 
erties; analysis and description of cutting tool materials; forces, temperatures, and surface finishes generated during chip formation. Analytical procedures, including upper-bound technique, slip-line field solutions, finite- 
element methods and general computational tools. Machinability of materials; modern trends in high-speed 
machining and tooling. (SP) Sheng

228. Metal Cutting. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Metal cut- 
ting and metal removal processes; theoretical under- 
pinnings of deformation behavior and material prop- 
erties; analysis and description of cutting tool materials; forces, temperatures, and surface finishes generated during chip formation. Analytical procedures, including upper-bound technique, slip-line field solutions, finite- 
element methods and general computational tools. Machinability of materials; modern trends in high-speed 
machining and tooling. (SP) Sheng

C223. Polymer Engineering. (3) Three hours of lec- 
ture and one hour of discussion per week. Prerequisites: Civil Engineering 130, Engineering 45. A survey of the structure and mechanical properties of advanced engineering polymers. Topics include viscoelasticity, mechanical properties, yielding, de- 
formation, and fracture mechanisms of various classes of polymers. The course will discuss degradation schemes of polymers and long-term performance is-
224. Mechanical Behavior of Engineering Materials. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Civil and Environmental Engineering 130; Engineering 45. 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) Pruit, Ritchie

225. Deformation and Fracture of Engineering Materials. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Civil Engineering 130; Engineering 45. 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) Komvopoulos


227. Mechanical Behavior of Composite Materials. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Formerly 292G. Rheology of composite materials (fiber reinforced particulate-reinforced materials) to static, cyclic, creep and thermomechanical loading. Manufacturing process-induced variability, and residual stresses. Fatigue behavior, fracture mechanics and damage development. Role of the reinforcement-matrix interface in mechanical behavior. Environmental effects. Dimensional stability and thermal fatigue. Application to polymer, metal, ceramic, and carbon matrix composites. (SP) Dharan

228. Computer-Aided, Optimal Mechanical Design. (3) Three hours of lecture per week. Prerequisites: Graduate standing and the equivalent of both 102B and 128. This course will cover the optimal mechanical design of structures and components. A variety of optimization techniques will be developed, applied to mechanical design, and implemented on the computer. (F) Pisanov

229. Design of Basic Electro-Mechanical Devices. (3) Three hours of lecture per week. Prerequisites: EEECS 100, graduate standing or consent of instructor. Fundamental principles of magnetics, electromagnetic structure, and magnetic materials as applied to 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. Typical applications covered will be linear and rotary actuators, stepper motors, AC motors, and DC brush and brushless motors. A design project is required. (SP) Lieu

230. Real-Time Applications of Mini and Micro Computers. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: Graduate standing or consent of instructor for advanced undergraduates. Mini and micro computers, operating in real time, have become ubiquitous components in engineering systems. The purpose of this course is to build competence in the engineering use of such systems through lectures stressing small computer structure, programming, and output/input operations. Emphasis is on laboratory work with mini and micro computer systems. (F) Auslander


233. Advanced Control Systems II. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 232. Linear Quadratic Optimal Control, Stochastic State Estimation Linear Quadratic Gaussian Problem, Loop Transfer Recovery, Adaptive Control and Model Reference Adaptive Systems, Self Tuning Regulators, Repetitive Control, Application to engineering systems. (SP) Tomizuka

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 EEC521A, as well as firm foundation in classical control. Formerly 291C. Analysis and synthesis techniques for multi-input (MIMO) control systems. Emphasis is on the fact that model uncertainty has on the design process. (SP) Packard

235. Switching Control and Computer Interfacing. (4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 230. Design and analysis of control systems utilizing switching elements. Electronic and microprocessor design in digital control systems. Application to control of mechanical systems and computer control interfacing. (SP) Auslander

237. Control of Nonlinear Dynamic Systems. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Formerly 240A. 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 compressive loads are discussed. Also listed as Ocean Engineering C240A. (FSP) Mansour

C240A. Advanced Marine Structures I. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Formerly 240B. 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 compressive loads are discussed. Also listed as Ocean Engineering C240B. (FSP) Mansour

C240B. Advanced Marine Structures II. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Formerly 240B. 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 compressive loads are discussed. Also listed as Ocean Engineering C240A. (FSP) Mansour

241A. Marine Hydrodynamics I. (3) Three hours of lecture per week. Prerequisites: C165 recommended or graduate standing. Formerly 214. Basic equations of water wave theory and ocean dynamics. Extensive hands-on experience of microcomputer interfacing. (F) Greif


251. Heat Conduction. (3) Three hours of lecture per week. Prerequisites: 151; Engineering 230A. Analytical and numerical methods for the determination of the conduction of heat in solids. (F) Grigopoulos

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 in ducts. (SP) Prud'Homme

253. Thermal Radiation. (3) Three hours of lecture per week. Prerequisites: 151. Thermal radiation properties of gases, liquids, and solids; the calculation of radiative energy transfer. Formerly 230A. (F) Fiedler


255. Energy Transfer in Gaseous and Condensed Phases. (3) Three hours of lecture per week. Prerequisites: 254 or consent of instructor. Course introduces statistical thermodynamics, kinetic theory, and reaction theories, all at the level of microscopic energy transfer processes, used for modeling of gaseous and gas-surface reactive systems. (SP) Frenklach


257. Advanced Combustion. (3) Three hours of lecture per week. Prerequisites: 256. 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) Pagni

258. Heat Transfer with Phase Change. (3) Three hours of lecture per week. Prerequisites: 151. Heat transfer associated with phase change processes. Topics include thermodynamics of phase change, evaporation, condensation, nucleation and bubble growth, two phase flow, convective boiling and condensation, melting and solidification. (SP) Carey

259. Microscale Thermophysics and Heat Transfer. (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 thermophysical and heat transfer problems in microscale systems and explores applications in which microscale transport plays an important role. (FSP) Carey

sent of instructor. Introduces the foundations of fluid mechanics. Exact flow solutions are used to develop a physical insight of the fluid flow phenomena and the impor-
tant physical mechanisms. The focus of the course is on the derivation of the equations of motion. Incom-
pressible and compressible potential flows. Canonical viscous flows. (F) Liepmann

260B. Advanced Fluid Mechanics II. (3) Three hours of lecture per week. Prerequisites: 260A. Topics include: compressible and incompressible flows, boundary layers, and stability of boundary layers. (F) Liepmann

261. Compressible Fluid Flow. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

262. Theory of Fluid Sheets and Fluid Jets. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

263. Turbulence. (3) Three hours of lecture per week. Prerequisites: 260A-260B or equivalent. Topics include: turbulence, intermittency, and coherent structures. (F) Liepmann

265. Viscous Flow. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

270. Waves in Fluids. (3) Three hours of lecture per week. Prerequisites: 260A-260B or equivalent. Waves in fluids. Fluid waves, shock waves, and turbulence. (F) Liepmann

272. Geophysical Fluid Mechanics. (3) Three hours of lecture per week. Prerequisites: 260A-260B or equivalent. Fluid dynamics of the ocean and atmosphere. (F) Liepmann

273. Oscillations in Linear Systems. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

274. Random Oscillations of Mechanical Systems. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

275. Advanced Dynamics. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Dynamics of Lagrangian systems. Legendre transformations and Hamilton's equations. Canonical and classical equations. (F) O'Reilly

277. Oscillations in Nonlinear Systems. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

280A. Introduction to the Finite Element Method. (3) Three hours of lecture per week. Prerequisites: 260A or consent of instructor. Finite element method. (F) O'Reilly

280B. Finite Element Methods in Nonlinear Continua. (3) Three hours of lecture per week. Prerequisites: 280A or consent of instructor. Finite element method. (F) O'Reilly


289. Theory of Shells. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

290A. Nonlinear Dynamics of Continuous Systems. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann

290B. Topics in Continuum Mechanics. (3) Three hours of lecture per week. Prerequisites: 185 and 186, or equivalents. Conservation laws for three dimensions for inviscid and viscous flows. Fluid waves, shock waves, and turbulence. (F) Liepmann
Lectures on special topics which will be announced at the beginning of each semester that the course is offered. Topics include transport and mixing of the physical-chemical system, biofluid dynamics, oceanography, free surface flows, non-Newtonian fluid mechanics, and other possibilities. (SP) Sizen

290D. Solid Modeling. (3) Three hours of lecture per week. Prerequisites: Computer Science E18A or equivalent, linear algebra; Computer Science 184 recommended. Graduate study 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, meshing, feature recognition, mold-making, and rapid prototyping. (F,SP) McMains, Staff


290F. Case Studies in Fire Safety Engineering Science. (3) Three hours of lecture per week. Prerequisites: Graduate standing. Fundamental physics and chemistry of fire are applied to case-study full-scale fires. Emphasis is on modeling the physical phenomena, heat transfer and combustion processes as they have occurred in these examples. State of the art computer analysis is stressed. (SP) Pagni


290M. Expert Systems in Mechanical Engineering. (3) Three hours of lecture per week. Prerequisites: 107A, 102B or equivalent. Introduction to artificial intelligence and decision analysis in mechanical engineering. Fundamentals of analytic design, probability theory, failure analysis, risk assessment, and Bayesian and logical inference. Applications to expert systems in probabilistic mechanical engineering design and failure diagnostics. Use of automated inference diagrams to codify expert knowledge and to evaluate optimal design decisions. (SP) Agapino

290P. New Product Development: Design Theory and Methods. (3) Three hours of lecture per week. Prerequisites: Graduate standing, consent of instructor. This course is aimed at developing the interdisciplinary skills required for successful product development in today's competitive marketplace. We expect students to be disciplinary experts in their own field (e.g., engineering, business). By bringing together multiple perspectives, students will learn how product development teams can focus their efforts to quickly create cost-effective products that exceed customers' expectations. (F) Agapino

290Q. Dynamic Control of Robotic Manipulators. (3) Three hours of lecture per week for five weeks, one hour of lecture per week for ten weeks, four hours of laboratory per week for full term. Prerequisites: 230, 232, or consent of instructor. Dynamic and kinematic analysis of robotic manipulators. Sensors (position, velocity, force, and vision). Actuators and power transmission lines. Direct and indirect drive (point-to-point vs. point-to-point) control. Straight and curved path following. Industrial practice in servo control. Applications of optimal linear quadratic control, preview control, nonlinear control, and adaptive controls. Force control and compliance control. Collision avoidance. Utility of dynamic controls (SP) Horowitz

C205S. 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 systems models and language descriptions. Finite-state machines and automata. Model verification and control of hybrid systems. Signal-to-symbol conversion and logic controllers. Adaptive, neural, and fuzzy-control systems. Applications to robotics and Intelligent Vehicle and Highway Systems (IVHS). Also listed as Electrical Engineering C291E.

297. Engineering Field Studies. (1-12) One to twelve hours of independent study per week. Must be taken on a satisfactory/un satisfactory basis. Supervised experience relative to specific aspects of practice in engineering. Under guidance of a faculty member, the student will work in an industry. Emphasis is to attain practical experience in the field. (F,SP) Staff

298. Group Studies, Seminars, or Group Research. (1-8) Course may be repeated for credit. Sections 4-19 to be graded on a satisfactory/un satisfactory basis. Sections 50 and above to be graded on a letter-grade basis. (F,SP) Staff

299. Individual Study or Research. (1-12) Course may be repeated for credit. Must be taken on a satisfactory/un satisfactory basis. Graduate standing in engineering, physics, or mathematics. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-8) Three hours of lecture per week. Prerequisites: Graduate standing. Supervised experience relative to specific aspects of practice in engineering. Under guidance of a faculty member, the student will work in an internship in industry. Emphasis is to attain practical experience in the field. (F,SP) Staff

297A. Physical Oceanography. (3) Three hours of lecture per week. Prerequisites: 100. Applied fluid mechanical properties of the oceans, with emphasis on large-scale motion on the continental shelf. Topics include geostrophic balance, Ekman transport, tidal waves, inertial response to wind, barotropic and baroclinic motions, sudden effects of topography, flow controlled by bottom friction oceanwide circulation. Also listed as Civil and Environmental Engineering C210. (SP) Bea

2904N. Coastal and Estuarine Analysis. (3) Students will receive no credit for 200 taken prior to Spring 2000. Three hours of lecture per week. Prerequisites: Civil Engineering 100, Mathematics 53, 54 or equivalents. Recently Civil Engineering C241A-E and CE241A-4E topics include, but are not limited to, mathematical modeling of flows, processes, and data in the coastal and estuarine environment. Linear wave theory, refraction, diffraction, breaking waves, tsunamis, harbor resonance, real sea states, spectra, wave loading, wave wave generation, Wave climatological tides, forcing, harmonic analysis, tidal propagation in estuaries, internal dynamics. Meteorological tides. Nonlinear wave theory. Also listed as Civil and Environmental Engineering C204N. (SP) Sober

C205A. Coastal Processes. (3) Three hours of lecture per week. Prerequisites: Civil Engineering 125 and 193 or equivalents and senior design experience. Processes and procedures to determine loadings to design or requalify structure and foundation systems including bridges, buildings, tank transportation, harbor, coastal, and offshore structures. Sources of loadings, load processes, loading effects. Reliability, probability, economic, and social considerations. Operating, accidental, and environmental loadings. Design due to wind, current and wave, ground movements, ice, snow, explosions, and fires. Also listed as Civil and Environmental Engineering C205B. (F) Foda

C240A. Advanced Marine Structures I. (3) Three hours of lecture per week. Prerequisites: Graduate standing, Statistics 25 or equivalent. Formerly Mechanical Engineering 240A. This course introduces a probabilistic description of ocean waves and wave loads acting on marine structures. These topics are followed with discussion of structural strength and reliability analysis. Also listed as Mechanical Engineering C240A. (F,SP) Mansour

C240B. Advanced Marine Structures II. (3) Three hours of lecture per week. Prerequisites: Graduate standing, Formerly Mechanical Engineering 240B. 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 compressive loads are discussed. Also listed as Mechanical Engineering C240B. (F,SP) Mansur

C241A. Marine Hydrodynamics I. (3) Three hours of lecture per week. Prerequisites: Civil Engineering C241A, Formerly Mechanical Engineering 244. This course presents an analysis of the fluid dynamics, wave forces, and loads acting on marine structures. Boundary-layer theory, laminar, and turbulent frictional resistance. Boundary layer over wa-


C268F. Risk Assessment and Management of Technology. (3) Three hours of lecture per week. Provide students with a broad-based understanding of primary principles, considerations, and multidisciplinary aspects of assessing and managing risks associated with technologies. Technologies include all means employed to provide objects and processes necessary for human sustenance, productivity, entertainment, health, and comfort. Quantitative and qualitative risk analyses and management strategies employed in proactive, reactive, and interactive modes will be addressed. Also listed as Civil and Environmental Engineering C268F. (SP) Bea, Roberts

C290A. Human and Organizational Factors: Risk Assessment and Management of Engineered Systems. (3) Three hours of lecture/discussion per week. Prerequisites: Graduation; design. Design engineering aspects associated with achieving desirable quality (serviceability, safety, durability, compatibility) and reliability of engineered systems. Human and organizational factors in the life-cycle (design, construction, operation, maintenance, decommissioning) capabilities of engineered systems. Approaches to improve quality and reliability are advanced; proactive, reactive, and interactive (real time) strategies and measures. Also listed as Civil and Environmental Engineering C290A. (SP) Bea

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. Practice teaching. This course is open to Teaching Assistants of Mechanical Engineering. (SP) Hurbut

Medieval Studies

(College of Letters and Science)

Program Office: CASMA, 7233 Dwinnell Hall, (510) 642-4218 http://ls.berkeley.edu/dept/medieval
Director: Niklaus Largier, Ph.D.
Graduate Adviser: Daniel Melia, Ph.D.

Professors
Robert Altar, Ph.D. (Near Eastern Studies and Comparative Literature)
Robert Russell Assol, Ph.D. (Italian Studies)
Thomas Brady, Ph.D. (History)
Robert Brentano, Ph.D. (History)
Carol J. Clever, Ph.D. (History, Axialan Studies and Rhetoric)
Joseph J. Duggan, Ph.D. (French and Comparative Literature)
Mary Kay Duggan, Ph.D. (Music)
Alan Dutcher, Ph.D. (Celtic Studies)
Charles B. Faulhaber, Ph.D. (Spanish and Portuguese)
Ralph Hether, Ph.D. (Classics and Comparative Literature)
David Hult, Ph.D. (French)
Niklaus Largier, Ph.D. (German)
John Lindow, Ph.D. (Scandinavian)
Laurent Mayali, License en Droit, M.A., Docteur d’Etat et Droit (Law)
Anne-Middelboe, Ph.D. (French)
James T. Monrooe, Ph.D. (Near Eastern Studies and Comparative Literature)
Aan Nelion, Ph.D. (English)
John Q. Niles, Ph.D. (History)
Loren Partridge, Ph.D. (Art History and Italian Studies)
Immanuel Rauch, Ph.D. (German)
Thomas P. Shannon, Ph.D. (classics and Dutch Studies)
Randolph Stimm, Ph.D. (History and Italian Studies)
Eilane C. Tennant, Ph.D. (Art History)
David H. Wright, Ph.D. (Art History)
William J. Bright, Ph.D. (Early English and Drama)
Louise George Clibbe (Emerita), Ph.D.
Gerd Hilten (Emeritus), Ph.D.
Leonard H. Johnson (Emeritus), Ph.D.
Charles E. Mihal (Emeritus), Ph.D.
John N. Snapper (Emeritus), Ph.D.
Bake Lee Sapor (Emerita), Ph.D.
Ruggiero Staffanini (Emeritus), Ph.D.
Fredric C. Taubach (Emeritus), Ph.D.

Associate Professors
Steven Bottori, Ph.D. (Italian Studies)
Carnail Ushua, Ph.D. (English)
Gusano Ehn, Ph.D. (Religious Studies and Religious Studies)
Gary B. Holland, Ph.D. (Linguistics)
Steven Just, Ph.D. (English)
Geoffrey Kokell, Ph.D. (History)
Olaj Krahms, Ph.D. (Art History)
Daniel F. Meila, Ph.D. (Rhetoric and Celtic Studies)
Ignasi Naveo, Ph.D. (Spanish and Portuguese)
Harvey Stahl, Ph.D. (Art History)

Assistant Professor
Jennifer Miller, Ph.D. (English)
Kathryn Ollivier, Ph.D. (Celtic Studies)

Lecturers
Annalee Rejnow, Ph.D. (Celtic Studies)

The Program in Medieval Studies

The Medieval Studies Program at Berkeley is an interdisciplinary group that coordinates and sponsors lectures, events, and visiting professors, promotes scholarly research on common to medievalists of different academic departments, and communicates information of interest among them. The committee on Medieval Studies hosts a Dis- tinguished Visiting Professor who is in residence for either the fall or the spring semester. Normally this is a preeminent senior scholar whose permanent residence is outside the United States. The committee offers a joint program in which candidates have both a home department and training in the core disciplines of medieval studies.

The Joint Ph.D. Degree

Graduate students must be accepted for admission to a regular department (e.g., English or History) before applying for a joint degree in medieval studies. The degree granted is the joint Ph.D. in history and medieval studies (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

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 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 in Latin, as well as Medieval studies 150 and 250, two special topics courses taught by the Distinguished Visiting Professor, and occasional courses in Medieval Latin, in Latin, or on other classical and manuscript studies. In addition, students are urged to consult the medieval offerings in the department or programs of Art History, Celtic Studies, Classics, Comparative Literature, Dramatic Art, English, French, German, History, Italian Studies, Linguistics, Music, Near Eastern Studies, Philosophy, Religious Studies, Rhetoric, Scandinavian, 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 Medieval Studies web site.

Upper Division Courses

C140. Medieval Latin. (4) Three hours of lecture per week. Prerequisites: Latin 100 or consent of instructor. Introduction to Medieval Latin: Selected readings in prose and poetry from Late Antiquity to the end of the Middle Ages, with attention to the special characteristics of the Latin language during this period. Also listed as Latin C140. (F,SP)

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 fifteen weeks. In the event that student is in residence for fewer than fifteen weeks, the course may be offered for either 2 or 3 units of credit, in proportion to the number of actual contact hours per week 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 expertise in more than one discipline (e.g., liturgy, codicology). 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. Prerequisites: Graduate standing or consent of instructor. Basic materials and resources in fields represented in the Medieval Studies program, and in some subjects involving expertise in more than one discipline (e.g., liturgy, codicology). Emphasis on research aids and critical evaluation of their use. Staff

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210. Paleography and Codicology. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. Instruction in Medieval Latin paleography and/or the paleography of one or more of the medieval vernaculars of Western Europe, emphasizing the evolution of scripts as well as practice in reading them. Ancillary instruction in the principles of codicology and attention to the process of text-making and book manufacture.

C241. 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: Classic 200 or consent of instructor. Graduate readings in Medieval Latin with attention to the evolution of literary forms and genres from Late Antiquity to the close of the Middle Ages. Students who take the course twice must enroll on a satisfactory/unsatisfactory basis. Students who take it for 4 units must enroll for a letter grade. Also listed as Classics C241.

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
(College of Natural Resources, Interdepartmental Graduate Group)

Office: 1116 Koshland Hall, (510) 642-5167
Chair: Steven E. Lindow, Ph.D.

Professors
Michael R. Botchan, Ph.D. (Molecular and Cell Biology)
Thomas D. Bruns, Ph.D. (Plant and Microbial Biology)
Bob B. Carnahan, Ph.D. (Plant and Microbial Biology)
Richard Calender, Ph.D. (Molecular and Cell Biology)
Douglas C. Clark, Ph.D. (Chemical Engineering)
Nicolás R. Cezezarli, Ph.D. (Molecular and Cell Biology)
Mary K. Chervenak, Ph.D. (Civil and Environmental Engineering)
Suzanne M. J. D Salon, Ph.D. (Optometry)
Andrew O. Jackson, Ph.D. (Plant and Microbial Biology)
David J. K. Jorgensen, Ph.D. (Plant and Environmental Engineering)
Daniel E. Koshland, Ph.D. (Molecular and Cell Biology)
Sydney G. Kustu, Ph.D. (Plant and Microbial Biology)
Terrance Leighton, Ph.D. (Molecular and Cell Biology)
Steven E. Lindow, Ph.D. (Plant and Microbial Biology)
Jere H. Lips, Ph.D. (Biological Engineering)
Terry E. Mocha, Ph.D. (Plant Pathology)
Edward E. Ponhold, Ph.D. (Public Health)
Daniel A. Portnoy, Ph.D. (Molecular and Cell Biology)
Lourie W. Ray, Ph.D. (Public Health)
Jasper D. Rine, Ph.D. (Molecular and Cell Biology)
Randall W. Schekman, Ph.D. (Molecular and Cell Biology)
George F. Sonnabend, Ph.D. (Crim. Public Health)
Brian J. Staskawicz, Ph.D. (Plant and Microbial Biology)
Richard S. Stephens, Ph.D. (Public Health)
John W. Taylor, Ph.D. (Plant and Microbial Biology)
Jeremy Thorner, Ph.D. (Molecular and Cell Biology)
Loy E. Volkman, Ph.D. (Plant and Microbial Biology)
Patricia C. Zambryski, Ph.D. (Plant and Microbial Biology)
David Zunman, Ph.D. (Molecular and Cell Biology)

Associate Professors
Lisa Alvarez-Cohen, Ph.D. (Civil and Environmental Engineering)
Gerritje C. Bluhm, Ph.D. (Public Health)
George Chaleff, Ph.D. (Nutritional Sciences)
N. Louise Glass, Ph.D. (Plant and Microbial Biology)
Jay D. Koelling, Ph.D. (Chemical Engineering)
Krishna K. Negiyi, Ph.D. (Plant and Microbial Biology)
Alan B. Sach, Ph.D. (Molecular and Cell Biology)

Assistant Professors
Ignacio H. Chapela, Ph.D. (Environmental Science, Policy, and Management)
Eva Harris, Ph.D. (Public Health)
Arith Hofmeister, Ph.D. (Plant and Microbial Biology)
Feiyong Liu, Ph.D. (Public Health)

Adjunct Professor
Caroline M. Kanes, Ph.D. (Molecular and Cell Biology)

Graduate Advisers: Mr. Bruns, Mr. Portnoy, Ms. Zambryski.

Graduate Program in Microbiology

The Graduate Group in Microbiology is composed of 41 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 Sciences and Toxicology; Optometry; and Integrative Biology) and is administered by the Department of Plant and Microbial Biology. The group awards the Ph.D. degree in microbiology. Students in the group have access to diverse disciplines through an integrated program of study that allows each student to pursue specialized interests. Students gain a breadth of understanding of microbiology from the molecular to the cellular levels of organization, as well as the interactions of microbes—beneficial and pathogenic—with other organisms.

The graduate program features an introductory seminar (Faculty Research Review), a one-semester core course, and additional special-topics courses and seminars in areas of faculty specializations. The core course, Critical Thinking in Microbiology, addresses the following areas: biochemistry, physiology, and development; genetics and genomics; population biology and evolution; ecology; and pathogenesis. Faculty in the Graduate Group in Microbiology have research interests in four broad areas: ecology and evolution, genetics and development, physiology and biochemistry, and host-microbe interactions. The research of the faculty spans more than one of these categories. In addition, the research goals vary from addressing fundamental questions in biology to applied studies in the control or use of microbes. Some faculty conduct research on both fundamental and applied topics.

Students admitted to the Graduate Group in Microbiology program are expected to demonstrate academic excellence and potential for independent scientific research and to have satisfied, or satisfy through additional course work, the curriculum required of an undergraduate in microbiology. 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 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, (510) 642-4466
Chair and Major Adviser: Nezar A. Poray; Coordinating Adviser: Laurence Michelakis

Faculty Advisers
Hamid Aljgar (Near Eastern Studies)
Nezar A. Poray (Architecture)
Daniel Bayani (Near Eastern Studies)
Kiran Chaudhury ( Political Science)
Bosnara Doumani (History)
Margaret Larkin (Near Eastern Studies)
Laurence Michelakis (Center for Middle Eastern Studies)
Stefani Pandolfo (Anthropology)
Leslie Peirce (History)
Muhammad Siddiq (Near Eastern Studies)

Program Overview

The interdisciplinary major in Middle Eastern studies (MES) provides an opportunity to study a region of historic and cultural importance whose current developments, including the application, and many other resources. MES advisers help students plan programs of study to suit their individual needs.

The MES major is not to be confused with the major in Near Eastern Studies (NES). The NES major emphasizes language and literature and includes the study of the ancient Near East. Students interested in these fields should contact the Near Eastern Studies Department in 250 Barrows Hall, (510) 642-3757.

Major Program

Lower Division Requirements. A. NES 10, Introduction to the Near East (4 units). This is a survey course introducing the fundamentals of Middle Eastern history and culture, geography and ethnology, and current economic, political, and developmental problems. This course is a prerequisite for upper division lecture courses.

B. Recommended Seminar. MES 20, perspectives on the Middle East (2 units). This is a weekly seminar of speakers reviewing approaches to the Middle East from ethnic, religious, and disciplinary perspectives. The seminar introduces students to the work of several major Berkeley Middle East-related faculty and other scholars of the region.

Language Requirement. All MES students must be able to demonstrate proficiency equivalent to four college-level semesters in a modern Middle Eastern language: Arabic, Hebrew, Persian, or Turkish. One semester must be completed before
admission to the major. The remaining three semesters may be completed any time before graduation.

Upper Division Requirements. There are eight upper division courses (totaling no less than 30 units). They include: (A) three survey courses; (B) four concentration courses; and (C) a senior thesis.

A. The survey requirement (3 courses). Students choose at least one course in each of the following three groups. The survey requirement provides a broad introduction to the geography and ethnography of the Middle East, its history and cultures, and its current political, economic, and social development.

Survey 1: Geography and ethnography of the Middle East (minimum one course). Anthro 181, the Near East; Antiquities; Geo 167; The Middle East is not offered, students may substitute Geography 66 with advisor approval.)

Survey 2: History and culture of the Middle East (minimum one course). History 109A, Islamic History; History 109B, The Middle East, 1000-1750; History 109C, The Middle East, 18th Century-present; NES 140 Topics in Islamic Thought and Institutions; Arch 175D, Islamic Architecture and Urbanism.


B. The concentration requirement. In addition to the interdisciplinary survey courses, MES students must complete a four-course concentration topic. In the concentration, students pursue advanced studies, focusing on a particular region, discipline, or thematic problem relating to the Middle Eastern region. In order to create a coherent and integrated program of study in Middle Eastern affairs, each concentration must be designed in consultation with an MES adviser. Concentration courses may be selected from the range of Middle East-related courses listed in this catalog. Students should also obtain the “Courses in Middle Eastern Studies” list available at the beginning of each semester at the Center for Middle Eastern Studies, Stephens Hall. All concentration courses must be pre-approved by an MES adviser in the IASTP office.

Concentration courses should be selected with a view toward developing in-depth knowledge of one particular aspect of the region. Specialized fields of study include religious and cultural studies, history, contemporary economic development and social change, urbanization, nation building, the impact of imperialism and colonialism on the Middle East, or a topic agreed upon between the student and an MES adviser.

Occasionally, when taught by a Middle Eastern specialist, courses may address Middle East issues to some extent. Depending on the degree to which the Middle East is treated, students may be permitted to use the course to fulfill a survey requirement or be incorporated into the concentration.

Survey courses. All students must complete a four-course concentration topic. Survey courses may be double-counted with a major program. More detailed descriptions of the MES major and minor, as well as application information, are available from the International and Area Studies Teaching Program, 101 Stephens Hall, or the Center for Middle Eastern Studies, 340 Stephens Hall.

Lower Division Courses

20. Perspectives on the Middle East. (2) Two hours of seminar per week. A weekly seminar including guest speakers (on 1) ethnic perspectives (Persians, Turks, Israelis); (2) religious perspectives (Islam, Christianity, Judaism); and (3) disciplinary perspectives (anthropology, sociology, etc.). The seminar introduces students to the work of several major Berkeley Middle East scholars. The class has no prerequisites and admission preference is given to lower division students and prospective Middle Eastern majors. (SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter grade basis. Sophomore seminar classes are open to students considering a major in the sponsoring department. There are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

98. Directed Group Study for Lower Division Students. (1-4) Course may be repeated for credit with different instructor. Three hours of lecture and one hour of laboratory per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Seminars in various fields have been designed to introduce beginning undergraduates to problems of importance to students interested in the Middle East. Topics vary from semester to semester. (F,SP)

Upper Division Courses

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 Middle Eastern Studies majors. Content and unit values vary from course to course. (F,SP)

150. Advanced Study in the Middle East. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Advanced seminars in current issues of Middle Eastern Studies. Seminars will focus on specific areas or topics with appropriate comparative material included. A major research project is required as well as class presentations. Topics vary from semester to semester. (F,SP)

190. Senior Thesis. (1-4) Individual conferences. Prerequisites: Senior standing, one year of language in the major, at least fifteen upper division units. Near Eastern Studies 10. With the guidance of a faculty advisor in the student’s area of concentration, the student prepares a thesis on an advanced topic. The thesis is written over two quarters and is due by the end of the second quarter of the senior year. (1-4 units).
Military Officers’ Education Program (ROTC)

Offices: See following listings for Aerospace Studies, Military Science, and Naval Sciences.
Chair, Advisory Committee on ROTC: Thomas G. Barnes, D.Phil.

Adjunct Professors
Randy E. Morris, M.A., Colonel, U.S. Air Force
Lee H. Rosenberg, M.S., Captain, U.S. Navy
Mark R. Stevens, M.S., Lieutenant Colonel, U.S. Army

Adjunct Associate Professor
Michael G. Brothers, M.S., Lieutenant Colonel, U.S. Marine Corps

Adjunct Assistant Professors
Brian R. Champine, B.S., Lieutenant, U.S. Navy
George L. Doucet, M.A., Major, U.S. Army Reserve
Margaret A. Hodges, M.A., Captain, U.S. Air Force
David C. Parker, B.S., Lieutenant, U.S. Navy
Joseph A. Quinn, MBA, Captain, U.S. Air Force

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 (AFROTC), Naval Reserve ROTC, and Naval ROTC. The purpose of the program is to integrate the educational offerings of the separate military services into the regular curriculum. In performing academic functions, the Military Affairs Unit operates the same as any other program within UGIS. Its military faculty members, though nominated by the three military services, are 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 http://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) 642-7602
Department of Aerospace Studies: (510) 643-9774

Military Affairs

Lower Division Courses

2. The Military in American Society. (3) Two hours of lecture and one hour of discussion per week. An introduction to the military profession, with emphasis on the relationships between the military institution and its relationship to the individual, the government, and the society. Prerequisites: Upper division and consent of instructor. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Individual conferences may be arranged. Must be supervised by a member of the faculty. Final report required. Units determined on consultation with instructor. (F,SP)

179. Field Studies. (1-4) Three hours of credit per unit of credit, plus regular meetings with adviser. Must be taken on a passed/not passed basis. Prerequisites: Upper division standing and consent of instructor. Supervised experience relevant to specific aspects of Middle Eastern Studies in off-campus organizations. Regular individual meetings with faculty sponsor and written report required. (F,SP)

197. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. One to four hours of seminar per week. Must be taken on a passed/not passed basis. Seminars for the group study of selected Middle Eastern related topics not covered by regularly scheduled courses. A written proposal must be approved by a Middle Eastern Studies faculty adviser. Final paper required. Units determined on consultation with instructor. (F,SP)

195. The History of Littoral Warfare. (3) Three hours of lecture per week. Progressive analysis of the evolution of warfare from the ancient world to the present. Emphasis placed on causes of conflicts and methods of war. (F,SP)

20. Evolution of Warfare. (3) Three hours of lecture per week. Progressive analysis of the evolution of warfare from the ancient world to the present. Emphasis placed on causes of conflicts and methods of war. (F,SP)

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. 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

Upper Division Courses

120. The Evolution of American Warfare: 1607-1900. (3) Three hours of lecture per week. Historical analysis of American theory of warfare from colonial period and Revolution through Spanish American War. Social, economic, and political factors are examined, tracing the evolution of the American military. Effects of institutions on organizational structures, technology, and the practice of warfare are emphasized. (F) Staff

121. The Evolution of American Warfare: 1900-1980. (3) Three hours of lecture per week. Military history of World War I and II, survey of modern revolutionary warfare. Influence of modern technology on American military organizations. The development of a global military strategy, imprint of the social fabric of the nation on the military as the United States evolved into a world power. Examination of historical theorists on revolutionary warfare in its contemporary form. (SP) Staff

123. Korea, Vietnam and the American Military Experience. (3) Two hours of lecture and one hour of discussion 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) Staff

144. Military Law, Ethics, and Professionalism. (2) Two hours of lecture per week. Topics to be analyzed and discussed include the court-martial system, the punitive articles of the Uniform Code of Military Justice, fundamental rights of accused persons, rules of evidence, punishment, administrative boards, and the Law of War. Survey of ethical and professional issues of the Military. (SP) Staff

Aerospace Studies

(Air Force ROTC)

Department Office: Hearst Gymnasium, (510) 642-3572
http://airforcerotc.berkeley.edu

The Department of Aerospace Studies offers students in virtually all academic areas the opportunity to qualify for a commission in the United States Air Force while simultaneously completing university graduate and undergraduate degree requirements. Eligible students must have at least two full academic years remaining in their bachelor’s or graduate degree program.

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-$300 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 program 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 such factors as 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-per-month 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 men and women undergraduate 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 AFROTAC programs emphasize student participation and involvement. Classes are conducted as seminars and call for active student discussion. In addition, there is a weekly two-hour laboratory that is mandatory for all AFROTAC cadets. In this laboratory, students become involved in the management of their own cadet organization. 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 semester in a specified course in Aerospace Studies or Military Affairs. The normal sequence for the four-year program is as follows: A1, AS 24A, AS 24B, AS 135A, AS 135B, MA 145A, MA 145B. Students enrolled in the two-year program need only take the upper division courses. All courses count for credit.

Aerospace Studies courses are open to all University students. Students from other institutions may participate in the AFROTAC 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)

Two hours of lecture/discussion per week. An introductory survey of the U.S. Air Force. Explores evolutionary factors affecting the nature and control of the military. Examines current U.S. defense needs and the Air Force in terms of theory, function, mission, and organization. Major commands are examined individually. (F) Mudge

2. Development of Air Power. (2)

Two hours of lecture per week. Introduces the student to the history of air power from the first balloons and dirigibles to the space-age global environment. Lectures are accompanied by a guided laboratory component. Students become involved in the management of their own cadet organization. (F) Mudge

3. The Evolution of U.S. Air Force Air and Space Power. (1)

One hour of lecture per week. Formerly 2. 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 earliest days of flight to the present day. Students become aware of the historical events, leaders, and technological advances from 1865 to the present are covered. Prerequisites: Consent of instructor. (F) Hodge

4. 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) Mudge

Military Science (Army ROTC)


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 practical laboratory work in practical military skills. The program provides an opportunity to examine service in the Army while training as a leader. All students participate in commission and service in the Army. After completing the program, the 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-year, three-year, or two-year program. The four-year 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 (MSL) I year, and the experiential examination of leadership, decision-making, and group process of the MSL-II year. Both Basic Course years are designed to enhance student interest in the ROTC and the Army. MSL-I lessons provide an overview of the key subjects of pre-commissioning, which will be treated in much greater depth in the Advanced Course. The MSL-II year places cadets in a variety of off-campus exercises designed to emphasize various professional leadership competencies and insights. These exercises are held both inside the classroom and in outdoor settings. The instructor, acting as facilitator, helps guide student processing, or after-action reviews, of the events to derive self-help, chain-of-command, and problem-solving lessons that the exercises of

Both the two-year and the four-year AFROTAC programs emphasize student participation and involvement. Classes are conducted as seminars and call for active student discussion. In addition, there is a weekly two-hour laboratory that is mandatory for all AFROTAC cadets. In this laboratory, students become involved in the management of their own cadet organization. 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 semester in a specified course in Aerospace Studies or Military Affairs. The normal sequence for the four-year program is as follows: A1, AS 24A, AS 24B, AS 135A, AS 135B, MA 145A, MA 145B. Students enrolled in the two-year program need only take the upper division courses. All courses count for credit.

Aerospace Studies courses are open to all University students. Students from other institutions may participate in the AFROTAC 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.
military education. Consideration is also given to the structure and missions of NATO and the structure, equipment, and command and control of the Soviet Army. (F,SP) Staff

Upper Division Courses

100. Army Management and Leadership. (2) Two hours of lecture/discussion per week. Prerequisites: Upper division standing and consent of instructor. A practical, interdisciplinary approach to contemporary civilian and army management. Military leadership is examined with an emphasis on increasing the student’s professional effectiveness on an individual, group, and organizational basis. Topics include interpersonal and organizational communication, problem-solving and decision making. Staff

Professional Courses

430A-430B. Fundamentals of Terrain Representation and Military Applications. (3,3) Three hours of lecture and two hours of laboratory per week. Prerequisites: Consent of instructor; 430A is prerequisite to 430B.

A. Introduces the categories and uses of topograph-ical maps, the military grid reference system, map sym-bols, overlays, intersection, resection, and terrain as-sociation. U.S. Army small-unit tactics will be intro-duced. Topics include operation orders, troop lead-ing procedures, preparation for combat, individual tactical techniques, tactical movement, and battle drills.

B. Devoted to applying the navigational techniques and small-unit tactics learned in 430A to more complex scenarios, principles of patrolling, squad/ platoon off ense and defense, squad/platoon sector sketches. Pertinent leadership issues will also be addressed. (F,SP) Staff

Naval Science (Naval ROTC)

http://is.berkeley.edu/dept/navsci/Intro.html

The Department of Naval Science offers several programs of instruction for men and women lead-ing to commissions in the U.S. Navy or U.S. Ma-rine Corps. Naval Science courses are open to all university students or may be taken through Uni-versity Extension.

Students enrolled in one of the four-year Naval ROTC programs will normally complete the fol-lowing course curriculum during their junior and senior years:

- NS 1, NS 2, NS 3, and NS 10.

Navy Option students enrolled in either the four-year or two-year program will normally complete the following course curriculum during their junior and senior years:

- NS 12A, NS 12B, NS 401 and NS 412.

Marine Option students will participate in a Marine seminar and complete a sequence in the History of Littoral Warfare (MA 154) and a tutorial in the Evolu-tion of Amphibious Warfare. All Navy Option scholarship students must complete one year of calculus and one year of college-based physics by the end of their sophomore and junior years re-spectively.

Students are also required to attend weekly pro-fessional development laboratories. These three-hour sessions offer the student midshipman an ac-tive role in the management and direction of the midshipman battalion and provide time for the midshipmen to explore professional topics. Student midshipmen participate in four-to-six week summer training cruises throughout the world. At sea they apply theoretical aspects of their education and training to the real world environment of a Navy ship. Marine Option midshipmen attend Marine Corps Officer Candidates School in the summer between their junior and senior year.

Currently, there are five programs available:

1. NROTC Four-Year Scholarship Program: Na-tionwide competition is open to physically qualified men and women between the ages of 17 and 21 with waivers available for physical duty to max-imum commissioning year age of 29. U.S. citi-zenship is required. High school seniors and col-lege freshmen are encouraged. Successfully. Applicants who receive full payment of tuition, fees, books and $250-$400 per month during the school year. Three summer training cruises are required. Upon graduation, the student receives a commis-sion in the Navy or Marine Corps with a four-year active duty obligation. Application deadline is nor-mally March 1 of the sophomore year.

For further information, call (510) 642-3551.

Lower Division Courses

1. Introduction to Naval Science. (2) Two hours of lecture/discussion per week. This curriculum provides guidelines for entering students to the organization of the Department of Defense and the naval service, the long-held customs and traditions of the service, basic leadership, ethics and character development, the du-ties of a junior officer, and basic information concerning shipboard procedures and safety. It is the intent of this course to stimulate the students’ interest for study and investigation in future courses. (F) Rosenberg

2. Sea Power and Maritime Affairs. (2) Two hours of lecture per week. Prerequisites: Consent of instructor. Traces the U.S. historical evolution of sea power, its concepts, theories and applications. Emphasizes the impact of world situation, U.S. national interest, chang-ing technology, and naval leadership on the evolving concept of sea power. Relates historical developments to current trends. Examines briefly the U.S. Merchant Marine’s and the former Soviet Navy’s impact on sea power policy formulation. (SP) Firoved

3. Leadership and Management I. (3) Three hours of lecture/discussion per week. Provides basic management concepts and techniques for management and leadership. The student will learn to establish meaningful goals, prioritize among competing demands, and plan and forecast in a task-centered organization. The course includes exposure to measures of organizational effectiveness, methods to overcome resistance to change, effective communications, and techniques to aid in counseling, team building, and resolution of disciplinary and personnel matters. (F) Firoved

10. Naval Ship Systems I. (3) Course may be re-peated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Mathematics 1A or 16A. Principles of design and operation of ships. Emphasis on description and analysis of major types of propulsion plants, both conventional and nuclear. Principles of thermodynamic cycles, electrical theory, power generation and distribution, auxiliary machinery systems. Ship construction, strength and stability in in-tact and damaged conditions. Factors and design cri-teria for seaworthiness, structural integrity, and oper-ational employment. (SP) Purdy

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 system, nautical charts and publications, position fixing, dead reckoning, nautical astronomy, the theory and methods of celestial navigation, and the theory and prediction of tides and current. (SP) Firoved

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 relative motion, ship behavior and characteristics in maneuvering, precise ship positioning, use of aids to navigation, meteorology, and electronic navigation. (SP) Purdy

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. The Berkeley Seminar Program has been de-signed 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 depart-ment to department and semester to semester. (F,SP) Staff
401. Naval Ship Systems II (3) Three hours of lecture per week. An introduction to the physical theory of acoustic and electromagnetic wave generation and propagation; the design and use of electronic, electro-mechanical, and pneumatic systems; and the combination of these systems to perform detection and analysis of objects sharing and traversing common environments. (F,SP,Firved)

412. Leadership and Ethics. (3) Three hours of lecture per week. An introduction to the art of leadership and the technical aspects of interpersonal course. It is intended to provide the ethical understanding of instructor.

Molecular and Biochemical Nutrition (College of Natural Resources, Interdepartmental Graduate Groups)

Office: 117 Morgan Hall, (510) 643-2863 Chair: Joseph Napoli, Ph.D.

Professors

Bruce N. Ames, Ph.D. (Molecular and Cell Biology) Professor

Locusts, Nubian, Ph.D. (Nutritional Sciences and Toxicology) Professor

Gladys Block, Ph.D. (Epidemiology) Professor

John P. Blount, Ph.D. (Emergency Science, Policy, and Management) Professor

Bonnie Combs-Orme, Ph.D. (Nutritional Sciences and Toxicology) Professor

Sharon L. DeMeng, Ph.D. (Emergency Science and Toxicology) Professor

John F. Ferro, Ph.D. (Molecular and Cell Biology) Professor

Marc Helfenstein, M.D., Ph.D. (Nutritional Sciences and Toxicology) Professor

Isao Kubo, Ph.D. (Environmental Science, Policy, and Management) Professor

Joseph L. Napoli, Ph.D. (Nutritional Sciences and Toxicology) Professor

Lester Packard, Ph.D. (Molecular and Cell Biology) Professor

Z. I. Sabry, Ph.D. (Public Health) Professor

Georg von Sensenbarg, D. Crim. (Public Health) Professor

Barry Shire, Ph.D. (Nutritional Sciences and Toxicology) Professor

Marilyn Smith, Ph.D. (Public Health) Professor

Hei Sook Suh, Ph.D. (Nutritional Sciences and Toxicology) Professor

Fernando E. Vian, M.D., D.Sc. (Nutritional Sciences and Toxicology) Professor

Karen O. Harper, Ph.D. (Emeritus) (Nutritional Sciences and Toxicology) Professor

James W. Hendrix, Ph.D. (Emeritus) (Nutritional Sciences and Toxicology) Professor

Sylvia J. Miller, Ph.D. (Emeritus) (Agriculture and Resource Economics) Professor

Angela P. Little, Ph.D. (Emeritus) (Nutritional Sciences and Toxicology) Professor

Shawn P. Lapp, M.D. (Emeritus) (Public Health) Professor

John B. Neelands, Ph.D. (Emeritus) (Molecular and Cell Biology) Professor

Alexandre V. Nichols, Ph.D. (Emeritus) (Molecular and Cell Biology) Professor

Paola Tinns, Ph.D. (Emeritus) (Molecular and Cell Biology) Professor

Mary Anne Williams, Ph.D. (Emeritus) (Nutritional Sciences and Toxicology) Professor

Associate Professors

Barbara Abrams, Ph.D. (Public Health) Professor

Nancy K. Aponte, M.D. (Nutritional Sciences and Toxicology) Professor

Gregory W. Aponte, Ph.D. (Nutritional Sciences and Toxicology) Professor

George W. Chang, Ph.D. (Nutritional Sciences and Toxicology) Professor

Susan M. Glace, Ph.D. (Nutritional Sciences and Toxicology) Professor

Assistant Professors

Sean M. Baker, Ph.D. (Nutritional Sciences and Toxicology) Professor

Marc Scheck, Ph.D. (Nutritional Sciences and Toxicology) Professor

Christopher Vulpe, Ph.D. (Nutritional Sciences and Toxicology) Professor

Adjunct Professors

Ronald M. Krauss, M.D. (Nutritional Sciences and Toxicology) Professor

Diana L. Trible, Ph.D. (Nutritional Sciences and Toxicology) Professor

Program Overview

The Graduate Group in Molecular and Biochemical Nutrition (formerly the Graduate Group in Nutrition) offers a degree program that focuses on the intersection of nutrition and metabolism. Graduate research is often conducted in collaboration with biological scientists from other departments at Berkeley including the Departments of Molecular and Cell Biology, Integrative Biology and Plant and Microbial Biology, and from the Lawrence Berkeley National Laboratory. For admission to the M.S. or Ph.D. programs, students should have a bachelor’s degree or its equivalent in nutritional sciences fields, including biochemistry and molecular biology, chemistry, or any of the biological sciences. Candidates for the Ph.D. degree complete a sequence of core graduate nutrition courses and the Ph.D. oral 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, admissions, and financial support should contact the student affairs officer in the Department of Nutritional Sciences and Toxicology.

Molecular and Cell Biology (College of Letters and Science)


Thomas A. Cabe, Ph.D. Massachusetts Institute of Technology. Protein folding, stability, and function

James P. Allison, Ph.D. University of Texas. Molecular immunology

Georg W. Arnold, Ph.D. California Institute of Technology. Molecular biology, biochemistry, carcinogenesis

Karsten Konrad, Ph.D. Berkeley, California Institute of Technology. Molecular biology of development

Cynthia Bertet, Ph.D. University of California, Berkeley. Molecular basis of cell surface interactions

Michael R. Bogen, Ph.D. University of California, Berkeley. Eukaryotic cell biology

Mark ultrasound. Characterization of disease conditions

Richard Calame, Harvard Medical School. Molecular genetics of viruses

W. Zachus Caner, Ph.D. Stanford University. Cell and developmental biology

Thomas W. Corder, Ph.D. Harvard University. Synthesis and detection in Drosophila

Nicholas R. Cuzzolillo, Ph.D. Harvard Medical School. DNA replication and recombination

Jean-Claude, Ph.D. Harvard University. Ribosomes and RNA machines

David G. Drum, Ph.D. University of California, San Francisco. Cytoskeleton and regulation of cell cycle

Peter H. Dueberg, Ph.D. University of Frankfurt. Genetic structure of recombination

Gary L. Firestone, Ph.D. University of Iowa. Molecular immunology, tumor biology

John G. Font, Ph.D. University of Pennsylvania. Membrane immunology

Walter J. Freeman, M.D. Yale University. Neurophysiology, neuroimmunology, limbic brain dynamics

John L. Gerhart, Ph.D., University of Oregon. Developmental biology

Robert Gross, Ph.D. University of California, Berkeley. Membrane proteins, structural biology

Donald A. Glaser, Ph.D. California Institute of Technology. Psychophysics of vision, bioanchor

Alexander N. Glatz, Ph.D. University of North Carolina. Macromolecular complexes, photosynthetic systems

Cory Goodman, Ph.D. University of California, Berkeley. Developmental neurobiology

Robert Harland, Ph.D. Cambridge University. Molecular biology of development

Ehud Isakov, Ph.D. McGill University. Potassium channels, synaptic plasticity

Jock F. Kreis, Ph.D. Rockefeller University. Enzymology, site-directed mutagenesis

Janet Klinman, Ph.D. University of Pennsylvania. Biochemistry and biophysical chemistry; molecular biology and genetics

Daniel E. Koshland, Jr., Ph.D. University of Chicago. Molecular biology, neurobiology, enzymology

John K. Klymkowsky, Ph.D. Massachusetts Institute of Technology. Signal transduction and DNA replication

Harlan Krum, Ph.D. California Institute of Technology. Neurobiology, pharmacology, excitability

Suzan L. Leid, Ph.D. Stanford University. Enzymology of DNA metabolism

Terry E. Macdonald, Ph.D. University of California at Los Angeles. Molecular physiology

Michael E. Marrai, Ph.D. University of California, San Francisco. Chemical biology and molecular enzymology

Marie Marqusee, Ph.D. University of California, San Francisco. Protein folding and structure

G. Steven Martin, Ph.D. University of Cambridge. Cell biology, tumor virulence

Barbara L. Mayer, Ph.D. Harvard University. Sex determination in C. elegans

Sheehan S. Miller, Ph.D. University of Michigan. Membrane biophysics, epithelial physiology

Michael H. Moore, Ph.D. California Institute of Technology. Cell biology, neurobiology

Saratana Nandi, Ph.D. University of California, Berkeley. Tumor biology and endocrinology

John Ngo, Ph.D. California Institute of Technology. Molecular mechanisms of aging

Hitoshi Nakagawa, Ph.D. University of Texas. Membrane biophysics, bacterial physiology

G. Oster, Ph.D. Columbia University. Mathematical models in cell and developmental biology

W. Geoffray Owen, Ph.D. Imperial College, London. Membrane biophysics, retinal neurophysiology

Napier Paint, Ph.D. Stanford University. Developmental genetics and evolution of segmentation and body patterning

Mu-Ming Poo, Ph.D. Johns Hopkins University. Nerve growth, synaptic formation and plasticity

David A. Portnoy, Ph.D. University of Washington. Molecular basis of host-parasite interactions

David Raulet, Ph.D. Massachusetts Institute of Technology. Differentiation and function of T lymphocytes

Lapina R. D. Rhee, Ph.D. University of California, San Francisco. Carbohydrates, lipids, cell walls

Ronald M. Krauss, M.D. University of California, Berkeley. Membrane regulation, cell biology

Robert H. Rugar, Ph.D. University of California, Berkeley. Molecular genetics

Daniel Rakoff, Ph.D. Cornell University. Theoretical modeling of complex biological systems; biostatistics

Saul M. Rubin, Massachusetts Institute of Technology. Molecular genetics, molecular neurobiology

Howard K. Schachman, Ph.D. Princeton University. Protein & carbohydrate metabolism

Robert M. Glaeser, Ph.D. University of California, Berkeley. Macromolecular complexes, photosynthetic systems

Gary L. Firestone, Ph.D. University of Iowa. Molecular biology, biochemistry

Florence S. Miller, Ph.D. University of Michigan. Membrane biophysics, epithelial physiology

Randi W. Schekman, M.D., Ph.D. Stanford University. Organelle assembly, transport protein

Knut S. Schlissel, M.D., Ph.D. Johns Hopkins University. Regulation of lymphocyte development and V(DJ) recombination

†Recipient of Distinguished Teaching Award

+Professor of the Graduate School

*Professor of the Graduate School
Department Overview

The teaching and research activities of the Department of Molecular and Cell Biology (MCB) concern 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, biophysics, molecular biology, genetics, cell biology, cell anatomy, immunology, and neurobiology. The types of living organisms from which the department faculty draws its working materials are as diverse as its disciplinary specializations, ranging from viruses and microbes through plants, roundworms, annelids, arthropods, and mollusks to fish, amphibians, and mammals. The faculty of the department is organized into five divisions: Biochemistry and Molecular Biology, Cell and Developmental Biology, Genetics and Development, Immunology, and Neurobiology.

The Undergraduate Major

http://mcb.berkeley.edu/undergrad/

The undergraduate major in molecular and cell biology is composed of two plans that encompass the diversity of scientific interests of the department's faculty. Although Plan I has a more molecular and systems biology focus, Plan II has a more cellular and systems orientation, the perspectives and content of the two plans overlap considerably. Students majoring in either plan have been highly successful in entering graduate or medical school and in other science- and medicine-related careers.

Details on the MCB major, its requirements and policies, as well as resources for students, are available in the MCB Undergraduate Affairs Office, 2083 VLSB.

Plan I. (Emphasis in Biochemistry and Molecular Biology; Emphasis in Genetics and Development; Emphasis in Immunology)

Lower Division. Chemistry 1A and 3A-3B (13 units) or Chemistry 1A-1B and Chemistry 112A-112B (18); Biology 1A-1B (8); Physics 8A-8B (8). Total lower division units: 37-42.


Plan II. (Emphasis in Cell and Developmental Biology; Emphasis in Neurobiology)

Lower Division. Chemistry 1A and 3A-3B (13); Biology 1A-1B (8); Mathematics 1A-1B (8); Physics 8A-8B (8). Lower division units: 37.


Honors Program

The MCB honors program offers exceptional senior students recognition for outstanding academic achievements. This program provides students with 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 grade-point average of at least 3.3 in all work completed at Berkeley; 3) present their research in an appropriately organized forum, such as an MCB seminar or the Undergraduate Poster Session, or other scientific meeting; and 4) write an honors thesis approved by an MCB faculty sponsor. Additional information on H196 and receiving honors is available in the Undergraduate Affairs Office.

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. 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 as a graduate student instructor for two semesters during their first three years. Students seeking detailed information about such matters as admission, curriculum, and sources of financial support should visit our website at http://mcb.berkeley.edu or contact the department by mail at Graduate Affairs Office, Department of Molecular and Cell Biology, University of California, Berkeley, 297 Life Sciences Addition #3202, Berkeley, CA 94720-3202. E-mail: mbcgao@uclink4.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. The central research program represents a multidisciplinary approach to an understanding of the mechanism of neoplastic transformation using a variety of systems. Graduate student and postdoctoral research programs are supported in various areas of tumor biology, biochemistry, cell biology, genetics, immunology, molecular biology, and tumor virology. The Cancer Research Laboratory also operates three core research facilities: 1) Flow Cytometry Facility for fluorescence activated cell sorting and analysis; 2) Molecular Imaging Facility with two-photon microscopes for imaging analysis; and 3) Gene Targeting Facility for construction of transgenic and chimeric mice. Instrumentation in the facilities is operated by highly trained staff, and training is offered in methods and techniques associated with each facility.

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 and the ability to survey large sets of genes, now allow the dissection of biological processes at unprecedented levels of detail. In particular, this research provides the infrastructure, technologies, and computational resources for the performance of DNA microarray experiments, which allow the analysis of mRNA expression from tens of thousands of genes at a time. The Functional Genomics Laboratory currently possesses all the equipment necessary for conducting DNA microarray experiments, including microarrays, scanners, fluidics robots, microarray printing robots, laser scanning microscopes for microarray scanning, and dedicated computers for data analysis and storage of databases.
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 in sample preparation and maintenance of these instruments but in standard and most specialized techniques of sample preparation. Qualified undergraduates and graduate students, postdoctoral associates, faculty, and research staff in biological and physical sciences, once trained, may make arrangements for use of the instruments in research. Instruction will be provided in the form of both classes and individual training. Training is provided as MCB 481B and/or 481C. Registered students and faculty are encouraged for training. Nominal charges are made for use of the laboratory for individual research work. With permission from the director, non-UC personnel can be accepted for training or laboratory use. Equipment can be used outside normal hours. The laboratory provides demonstrations of the electron microscope and preparative techniques for on-campus classes and can make special arrangements for tour groups.

Other specialized research facilities include those for x-ray crystallography, nuclear magnetic resonance, large-volume fermentation, culture, DNA sequencing, and DNA microarray.

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, 11; 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 an understanding of modern biochemistry and the ways we control and alter the biology of our life and environment. (SP) Apop

Upper Division Courses

100. General Biochemistry. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A, Chemistry 3B or equivalent; Chemistry 130A or equivalent (may be taken concurrently). Chemical and physical principles, concepts, and properties involved in life processes, including enzymes and enzymatic catalysis, bioenergetics, metabolic pathways and regulation of metabolism. The chemistry, structure, and function of nucleic acids, synthesis and degradation; the constituent molecules (amino acids, fatty acids, sugars, and nucleotides) and cofactors of the major biological macromolecules. Designed for majors in the biochemistry and molecular biology, genetics and development, or immunology emphases. To be followed by 101, 110, 111.

102. Survey of the Principles of Biochemistry and Molecular Biology. (4) Students will receive 2 units of credit for 102 after taking 100. No credit after taking both 100 and 110. Three hours of lecture and one hour of discussion per week. Prerequisites: Biology 1A, Chemistry 3B or equivalent course. Recommended: a course in physical chemistry. A comprehensive survey of the fundamentals of biochemical chemistry, including the properties of intermediary metabolites, the structure and function of biological macromolecules, the metabolic pathways (both degradative 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: 100, 102 or consent of instructor. This upper division course for upper division and graduate students will explore the molecular and cellular basis of microbial pathogenesis. The course will focus on models for understanding host-pathogen interactions. There will be an emphasis on experimental approaches. The course will also include some aspects of bacterial genetics and physiology, immune response to infection, and the cellular biology of pathogenesis. Also listed as Public Health C102 and Plant Biology C103. (SP) Portnoy

110. General Biochemistry and Molecular Biology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 100 or 112 or equivalent; or consent of instructor and organic chemistry (may be taken concurrently). Molecular biology of prokaryotic and eukaryotic cells and their viruses. Mechanisms of DNA replication, transcription, translation and structure of genes and chromosomes. Regulation of gene expression. (F,SP) Staff

110L. General Biochemistry and Molecular Biology Laboratory. (5) Three hours of lecture and nine hours of laboratory per week. Prerequisites: 110 (may be taken concurrently). Experimental techniques of biochemistry and molecular biology, designed to accompany the lecture. (F,SP) Staff

111. Introduction to Structural Biology. (3) Three hours of lecture per week. Prerequisites: 100 and Chemistry 130A. This course for upper division majors will teach principles of protein and nucleic acid structures and outline basic experimental methods for conformational studies. The classical problems of structural biology, thermodynamics and methods, will be emphasized. (SP) Staff

112. General Microbiology. (3) Three hours of lecture per week. Prerequisites: 100 or 102. Formerly 112. This course will explore the molecular bases for physiological and evolutionary 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 cycle, adaptive responses, metabolic capability, and macromolecular syntheses will be emphasized. Also listed as Plant Biology C112. (F) Hofmeister

112L. General Microbiology Laboratory. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: C112 or Molecular and Cell Biology C112 (may be taken concurrently). Experimental techniques of microbiology designed to accompany the lecture in C112 and C148. The primary emphasis in the laboratory will be on the cultivation and physicochemical and genetic characterization of bacteria. Laboratory exercises will include the observation, enrichment, and isolation of bacteria from selected environments. Also listed as Plant Biology C112L. (F) Kustu

113. Applied Microbiology and Biochemistry. (2) Two hours of lecture per week. Prerequisites: 112 or consent of instructor. This upper division course for upper division and graduate students emphasizing the application of the knowledge of fundamental microbiology to industrial processes. Topics include microbial metabolism, enzymes, and single-cell proteins; genetic manipulation of microorganisms; recovery of minerals; and energy production. (SP) Staff

C114. Introduction to Comparative Virology. (3) Three hours of lecture per week. Prerequisites: Introductory chemistry (1A or 3A-3B or equivalent) and introductory biology (1A-1B or equivalent) and general biochemistry (102 or equivalent—preferably completed but may be taken concurrently). Viruses will be considered as infectious agents of bacteria, plants, and animals (vertebrates and invertebrates). Several families of viruses will be compared with respect to biochemical, structural and morphological properties, and strategies of infection and replication. Also listed as Plant Biology C114 and Environ Sci, Policy, and Management C138. (SP) Volkman, Jackson

115. Molecular Biology of Animal Viruses. (2) Two hours of lecture per week. Prerequisites: Upper division or graduate status. 100 or 112 or equivalent. Structure, replication, mutations, and host cell interactions (including pathogenesis) of animal viruses. This upper division course will broaden the survey the viruses that use to propagate in eukaryotic cells, with an emphasis on vertebrate systems and disease-causing viruses. We will also discuss host mechanisms of defense against viruses. Graduate students should additionally enroll in 215. 115/215 are taught concurrently. (SP)

C116. Microbial Diversity. (3) Three hours of lecture per week. Prerequisites: Upper 112 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 diversity of microbial organisms, both prokaryote and eucaryote, using a phylogenetic framework to organize the concept of biodiversity. Emphasis will be on the evolutionary development of the many major biochemical themes, how they mold our biosphere, and the organisms that affect the global biochemistry. Molecular mechanisms that occur in different lineages will be compared and contrasted to illustrate fundamental biological strategies. Graduate students additionally should enroll in C216, Microbial Diversity Workshops. (SP) Staff

Graduate Courses

200. Advanced Biochemistry and Molecular Biology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 110 or equivalent. General course for first-year graduate students. Recent advances in the study of structural, functional, and genetic characteristics of prokaryotic and eukaryotic cells and their viruses, macromolecular syntheses, 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 restricted to 45. Auditors are not permitted in the discussion sessions. (F)

205. The Chemistry, Biochemistry, and Physical Chemistry of Nucleic Acids. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 110 or equivalent. General course for first-year graduate students. Recent advances in the study of structural, functional, and genetic characteristics of prokaryotic and eukaryotic cells and their viruses, macromolecular syntheses, 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 restricted to 45. 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

C210. Dietary Determinants of Cancer, Heart Disease, and Aging. (3) Three hours of lecture per week. Prerequisites: Biochemistry and nutrition or consent of instructor. The influence of diet on DNA damage, cancer, heart disease, and aging will be discussed. Focus on micronutrient deficiencies as a major contributor to DNA damage, cancer, and aging. The influence of diet on atherosclerotic heart disease will be discussed 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 Sciences C210. (SP) Ames

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 conformation studies. The classical problems of structural biology, as well as new advances in techniques 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

C214. Protein Chemistry, Enzymology, and Bio-organic Chemistry. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. The topics covered will include the following: protein structure, denaturation, and folding;
RNA catalysis; protein-protein and protein-nucleic acid interactions; enzyme kinetics and mechanism; catalytic antibiotics. Intended for graduate students in chemistry, biochemistry, and molecular and cell biology. (SP)

215. Molecular Biology of Animal Viruses Workshop. (1) One hour of workshop per week. Prerequisites: 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 formation of manipulative experiments pertinent to research in microbial diversity. (SP) Staff

216. Microbial Diversity Workshop. (1) One hour of workshop per week. Prerequisites: Graduate standing; 112 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 formation of manipulative experiments pertinent to research in microbial diversity. (SP) Staff

217A-217C. Selected Topics in Biochemistry and Molecular Biology. (1-11) Course may be repeated for credit in different content. Three hours of lecture per week for five weeks. Prerequisites: Consent of instructor. Recent advances. Topics changed each year. 217A, 217B, and 217C are three sections of five weeks each. The sections are taught in tandem and may be taken individually. (F,SP) Staff

218. Research Review in Biochemistry and Molecular Biology. (1-11) 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)

218A. Bacterial Viruses. (2) Initiation of DNA replication, the regulation of transcription at the initiation and termination stages, DNA packaging, interference between viruses, molecular cloning, and the heat shock response. (F,SP) Calendar

218B. Malignant Transformation. (2) Malignant transformation by retroviruses and the role of protein phosphorylation in growth regulation. Martin

218D. DNA Structure and Function. (2) DNA structure and function. Cozzarelli

218E. Viruses as Models for Eukaryote Gene Expression and Replication. (2) Recent developments in eukaryote viral and cellular regulation. New concepts in transcription and RNA replication, with particular emphasis on virus-host interactions. Botchan

218F. Protein Structure and Design. (2) Design of proteins using a combination of experimental and computational techniques. Determination of protein structure by nuclear magnetic resonance (NMR), X-ray crystallography, and nuclear magnetic resonance (NMR). Handed

218G. Mycobacterial Development. (2) Review of current literature and discussion of original research. Zasman

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 Biology. (2) Prerequisites: Consent of instructor. Transduction of cellular sequences and genetic regulation by transformation of oncogenic retroviruses as models for transformation, oncogenesis, 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, or consist of bacterial membranes. Nakoid

218M. Chemical Biology and Enzymology. (2) Topics at the interface of chemistry and biology with a particular emphasis on mechanisms of enzyme catalysis. (F,SP) Marletta

218N. Eukaryotic Transcriptional Control. (2) Nucleic acid and protein components involved in regulating gene expression from eukaryotic chromosomes. Kane

218P. Physical Optics and Crystallography. (2) A combination of didactic presentations and informal discussions of methods and theory in physical optics and diffraction, as applied to crystallography of biological macromolecules. Emphasis on new developments, with the development of suitable background. Glaser

218Q. Structural Biophysics. (2) Structural biology with emphasis on proteins and nucleic acids, cell membranes, cytoskeleton, and biological systems, and the protein folding problem. Glaser

218R. The Protein Folding Problem. (2) Protein structure, stability, design, and the pathway of protein folding. Marqusee

218S. Cryo-Electron Microscopy of Macromolecules. (2) Structure-function studies of the cytoskeleton and large molecular machines by cryo-electron microscopy and image reconstruction. (F,SP) Nagales

218T. Post-transcriptional Control in Saccharomyces Cerevisiae. (2) Prerequisites: Consent of instructor. Pray (A) tall recognition by translation and degradation enzymes in the yeast cell. Sachs

218U. Protein Folding and Stability. (2) The connection between the sequence of a protein and its three-dimensional structure. Dunaway

218W. Enzyme Catalysis. (2) Fundamental aspects of enzyme catalysis, as probed by kinetic, spectroscopic, and molecular biological approaches. Klinman

218Z. Baculoviruses. (2) Prerequisites: Consent of instructor. Insect host-virus interactions at the organisal and cellular levels with emphasis on pathogenesis, host range factors, and the role of the actin cytoskeleton in virus infection and replication. Review of literature and discussion of original research. Volkman

219. Research Review in Biochemistry and Molecular Biology. (1-11) 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)

219A. Assembly of Eukaryotic Chromosomes. (2) Biochemical and genetic characterization of proteins that assemble histones onto DNA. Analysis of the relationship of chromatin assembly to DNA replication and gene expression. Kaufman

219B. Enzyme Mechanisms. (2) Prerequisites: Consent of instructor. Enzyme mechanisms. Kirsh

219D. DNA Enzymology. (2) Prerequisites: Consent of instructor. Enzymology of DNA repair, replication, recombination, and methylation. Linn

219F. Eukaryotic Gene Expression. (2) Prerequisites: Consent of instructor. Protein-DNA interactions and the control of gene expression in eukaryotes. Tjian

219G. Mutagen Detection. (2) Prerequisites: Consent of instructor. Mutagenesis and carcinogenesis. B. Ames

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. Special topics include ribozyme mechanisms, RNA-mediated translation initiation, and protein targeting and secretion. (F,SP) Dousha

219K. Eukaryotic Transcription and Chromosome Structure. (5) Prerequisites: Consent of instructor. Relationships among transcription, chromatin, and chromosome structure. Durrway

219M. Regulatory Substances in Bacteria. (2) Prerequisites: Consent of instructor. Bacterial regulation. B. Ames

219N. Chemotaxis. (2) Prerequisites: Consent of instructor. Bacterial chemotaxis as a model sensory system. D. Koshland

219P. Secretion and Cell Membrane Assembly. (2) Prerequisites: Consent of instructor. Cell surface growth with emphasis on the unicellular eukaryote S. cerevisiae. Schekman

219Q. Structural Biology of Molecular Machines. (2) Crystallographic and biochemical studies of protein machines, focused on protein-nucleic acid interactions; analysis of chemomechanical function within multi-protein 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 structures in DNA replication and eukaryotic cell signaling. (F,SP) Kuriyan

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 response pathways, activation and inhibition of gene expression, and the biochemical basis of signal desensitization and physiological adaptation, with strong emphasis on genetic and molecular analysis of these systems, especially in the yeast Saccharomyces cerevisiae. Thorne

219U. Single Molecule Biophysics. (2) Methods of single molecule manipulation and visualization that are used to characterize the structure and chemomechanical properties of translocating DNA binding proteins such as RNA polymerase and to investigate the chemomechanical 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

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) Bertozzi

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 in discussion of current experiments in the field. Zhou

219Z. Telomere Synthesis and Dynamics. (2) Emphasizes a study of the replication of eukaryotic telomeric DNA. Special focus on techniques in protein biochemistry and molecular biology. Collins

Division of Cell and Developmental Biology

Lower Division Courses

Biology 1A. General Biology. (4) Three hours of lecture, three hours of laboratory, and one hour of discussion per week. Prerequisites: Two semesters of introductory chemistry, either Chemistry 1A-1B or 1A and 1B. Concurrent enrollment in Chemistry 3B is recommended. General introduction to cell structure and function, molecular and organism genetics, animal development, form and function. 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. Neither is a prerequisite to the other. Sponsored by Molecular and Cell Biology Gift. (SP)

Note: Biology 1A and 1B are each taught both semesters, and students may enroll in either (but not both) during either the fall or spring semester.

31. Genes, Antibodies, and Human Populations. (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 for non-majors to some important concepts of modern biology, ranging from molecules to populations of organisms. This is a science class and how does it serve as genetic material? 2) How does the immune system cope with exposure to disease-causing bacteria? 3) Can we determine the size of human population that the earth can sustain? (SP) Will
32. Introduction to Human Physiology. (3) Three hours of lecture per week. Prerequisites: One year high school biology and two years of high school chemistry. A comprehensive introduction to human cell biology. The course will concentrate on basic mechanisms underlying human life processes, including cells and membranes; nerve and muscle function; cardiovascular, respiratory, renal, and gastrointestinal physiology; metabolism, endocrinology, and reproduction. (F) Staff

22L. Introduction to Human Physiology Laboratory. Three hours of laboratory per week. Prerequisites: 12A, 12B, and sections of lecture. This laboratory is designed primarily for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scientists in that field. Laboratory sections are led by graduate students, postdoctoral fellows, and faculty members. Students present data from the time they declare the major until the time they graduate. (F,SP) Staff

84. Sophomore Seminar. One hour of seminar per week. Sections 1-2 to be graded on a pass/failed basis. Sections 3-4 to be graded on a letter-grade basis. This seminar is a seminar that meets regularly for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scientists in that field. Students will prepare a mini grant proposal. (SP) Beckendorf, Weisblat

C222. Advanced Topics in Endocrinology. (2) One hour of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Principles of an organ system will be studied from the classical and recent experimental analysis of induction, localization, patterning mutants, axis formation, regional gene expression, and cell interactions. Early development of selected vertebrates will be studied in detail. The topics will be described. Basic experimental methods and new approaches will be presented. A weekly discussion section with readings from the recent literature is required. Students will prepare a mini grant proposal. (SP) Beckendorf, Weisblat

C236. Advanced Mammalian Physiology. (3) Three hours of lecture and two hours of discussion 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 extracellular ion and nonelectrolyte transport; cell and organ system regulation; skeletal, smooth, and cardiac muscle; cardiovascular physiology; respiration; renal physiology; gastrointestinal physiology. This 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. (SP) Forte

238. Wednesday Evening Development Seminar. (1) One evening per week. Prerequisites: Consent of instructor. Formerly 290. This class consists of relatively informal weekly research presentations in the areas of developing biology, developmental neurobiology, or relevant areas of cell biology. Speakers are usually recruited from campus graduate students, postdocs, and faculty with occasional outside visitors. The instructors strive to foster extensive questions and discussions in the course of each presentation. (F) Staff

C293. Vertebrate Development. (2) Gerhart

C148. Microbial Genomics and Genetics. (3) Three hours of lecture per week. Prerequisites: 100 or 102. Formerly Plant and Microbial Biology 118. Microbial genomics emphasizes bacterial and archaeal genomics and comparative genomics. Genetics and genomic methods are used to understand processes in bacteria, archaea, and selected microbial eukaryotes. Genetic mechanisms integrated with genomic information to address integration and diversity of microbial processes. Introduction of computational tools for a comparative analysis of microbial genomics and determining relationships among bacterial, archaeal, and microbial eukaryotes. Also listed as Plant Biology C148. (SP) Brenner, Glass

Graduate Courses
356 / Molecular and Cell Biology

239CC. Cellular Recognition in the Developing Nervous System. (2) (F,SP) Seraphin

239D. Epithelial Function, Structure, and Regulations. (2) Machen

239E. Tumor Biology. (2) Nandi

239EE. Cell Morphogenesis. (2) (F,SP) Head

239F. Nucleocytoplasmic Transport. (2) Weitz

239FF. Signal Transduction and Tumor Suppressor Genes. (2) (F,SP) Luo

239G. Photoreceptor Motility and Morphogenesis. (2) Burns

239H. Cell Division. (2) Candé

239I. Cytoskeleton and Cell Motility. (2) Welch

239J. Steroid Hormone and Growth Factor Action. (2) Firestone

239M. Protein Secretion in Animal Cells. (2) Moore

239N. Biophysics of Cell Motility and Morphogenesis. (2) Oster

239P. Development and Aging. (2) Timiras

239Q. Regulation of Cell Polarity in Drosophila. (2) Mechanisms underlying the establishment and maintenance of cell-cell communication in epithelia and other cell types. (F,SP) Bátora

239R. Cell Regulation in Growth and Differentiation. (2) Steinhardt

239S. Cellular Transport Processes. (2) Forte

239T. Muscle Regulation. (2) Strohman

239W. Leech Embryology and Development. (2) Weisblat

239Y. Determination and Differentiation in Development. (2) Will

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. Damburg

Division of Genetics and Development

Lower Division Courses

41. Genetics and Society. (3) Students will receive 2 units for Molecular and Cell Biology 41 after taking 41X, Interdepartmental Studies 41X, or Plant Biology 41X. Students will receive no credit after taking Letters 41X, Interdepartmental Studies 41X, or Plant Biology 41X. This course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. This section will cover methodological background and will be based on the primary literature of the field. (F,SP) Staff

242A-242B. Advanced Topics in Genetics. (2,2) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Standing with 110 and 140 or consent of instructor. Course will cover principles and application of molecular genetics and transposition, with an emphasis on Drosophila melanogaster. (F,SP) McDonald

242L. Bioinformatics for Molecular Genetics. (1) Three hours of lecture and five hours of laboratory for the last five weeks of the semester. Prerequisites: Consent of instructor. 247L is not a prerequisite to 248L. This course will provide a practical guide to the basic tools available for the analysis of DNA and protein sequences. The underlying algorithms behind the methods, the choice of the appropriate method, and the evaluation of results will be discussed. (F) Rubin

249A. Developmental Genetics of Insect Metamorphosis. (2) Prerequisites: Consent of instructor. Gene expression and function during metamorphosis in Drosophila. (F,SP) Fristrom

249B. Metazoan Sex Determination. (2) Molecular and genetic aspects of Metazoan sex determination, with emphasis on Drosophila melanogaster. Cline

249C. Nuclear Acid-Protein Interactions and Control of Gene Expression. (2) Biochemical and molecular genetic aspects of eukaryotic messenger RNA splicing and transposition, with an emphasis on Drosophila melanogaster as an experimental system. (F,SP) Rios

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. (F,SP) G. Rubin

249F. Neuronal Development. (2) Molecular and genetic approaches to the problem of how neurons develop, with emphasis on Drosophila melanogaster and Caenorhabditis elegans. (F,SP) Garega

249G. Developmental Genetics of Drosophila. (2) Prerequisites: Consent of instructor. Experimental approaches to Drosophila embryogenesis, ranging from classical embryology and classical genetics to molecular genetics and biochemistry. (F,SP) Anderson

249H. 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

249I. 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 invertebrates. (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. Research Review in Human Genetics. (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

249P. Mesodermal Patterning and Segmentation. (2) Genetic, molecular, and embryological aspects of mesodermal patterning and segmentation, with emphasis on the vertebrate, zebrafish. (F,SP) Amacher
Division of Neurobiology

Lower Division Courses

61. Brain, Mind, and Behavior. (3) Two hours of lecture and one hour of discussion per week. Introduction to human brain mechanisms of sensation, motivation, perception, thinking, learning, memory and emotion in terms of anatomy, physiology, and chemistry of the nervous system in health and disease. Intended for students in the humanities and social sciences and others not majoring in the biological sciences. (SP) Presti

64. Exploring the Brain: Introduction to Neuroscience. (3) Students will receive 2 units for 64 after taking 61 and will receive no credit for 64 after taking 160. Two hours of lecture and one hour of mandatory discussion per week. Prerequisites: High school chemistry or Chemistry 1A; high school biology or Biology 1A. This course will introduce lower division undergraduates to the fundamentals of neuroscience. The course will cover varied topics in neuroscience including 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) Schlisel

Upper Division Courses

160. Introduction to Neurobiology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 102 or 100, Biology 1A, Physics 8A-BB. An introductory course designed to provide a general understanding of the nervous system including how it functions, how it develops, and how it changes with learning and memory. Analysis from the level of molecules to cells to simple circuits to complex networks to higher brain functions. Staff

160L. Neurobiology Laboratory. (4) Eight hours of laboratory and one hour of lecture per week. Prerequisites: 102 or 100, Biology 1A, Physics 8A-B; Molecular and Cell Biology 160 (or equivalent). Experimental analyses of properties and interactions of molecules, cells, and systems. Studying principal features and current methods. Techniques employed include computer simulation of neuron properties, electrophysiological recording and stimulation of nerves and cells, digitally enhanced video imaging of outgrowth, fluorescence immunocytochemistry, analysis of sensory, CNS mapping, human-evoked potential recording, sensory psychophysics. (SP) Staff, Zucker

162. Developmental Neurobiology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 130, 160 or equivalent. Overview of genes and processes of nervous system development, including generation of diverse nerve cell types, guidance of growing nerve fibers, axon guidance and cell death in the maturation of synaptic connections, plasticity, and genetic and molecular mechanisms. Offered even-numbered years. (SP) Staff

163. Mammalian Neuroanatomy. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Biology 1A. Development, structure (gross and microscopic), and functional relationships of the mammalian nervous system. (F) Winer

164. Sensory and Integrative Neurobiology. (3) Three hours of lecture per week. Prerequisites: 160. Transduction, coding and information processing in a variety of sensory systems including vision, audition, olfaction and others. Neural circuitry, modulation of synaptic transmission, integrative mechanisms at different levels of sensory processing. Analysis of findings and principles from neurophysiology and psychophysics. Offered even-numbered years. (SP) Staff

165. Molecular Neurobiology. (3) Three hours of lecture per week. Prerequisites: 102 or 110, 160. The molecular and biochemical aspects of the structure and function of the nervous system, including ion channels, neurotransmitters and their receptors, second messenger systems, and molecular mechanisms of development and plasticity. (SP) Presti
166. Biophysical Neurobiology. (3) Three hours of lecture per week. Prerequisites: Biology 1A, Physics 8A-8B, Chemistry 1A, 3A-3B, and consent of instructor. Formerly 115. Biophysical properties of ion channels and excitability, ion selectivity, membrane transport processes, sensory transduction, optical, morphological measurements and microscopy. Cellular networks as computational devices, information processing and transfer. (F) Lecar

Graduate Courses

260. Principles of Neuroscience. (4) Four hours of lecture per week. Prerequisites: 162 or equivalent or consent of instructor. Comprehensive survey of current state of knowledge in molecular, cellular, integrative and behavioral aspects of neurobiology. (F) Staff

261. Advanced Cellular Neurobiology. (3) Three hours of lecture per week. Prerequisites: 160. Physical-chemical basis of membrane potentials, electrotonus, action potential generation, propagation, synaptic transmission, sensory receptor function, and volume conductor potentials. (SP) Isacoff, Ngai, Zucker, Lecar

262. Advanced Topics in Systems Neuroscience. (3) Three hours of lecture/discussion per week. Prerequisites: 160 or equivalent. Formerly IDS 200B. Advanced coverage of current research problems in systems biology, neuroscience, and experimental and computational techniques used for these studies. Offered odd-numbered years. (F) Staff

263. Advanced Developmental Neurobiology. (3) Three hours of lecture per week. Prerequisite: Consent of instructor. The course will present basic material on the retina and visual pathways, psychophysical measurements, visual sensitivity, color vision, and the estimation of disparity and motion. Introduction to front-end visual processing in mammalian visual system. Basic optics, anatomy and physiology of retina, lateral geniculate nucleus, and primary visual cortex. Psychophysics of color, light and dark adaptation, spatial contrast sensitivity, spatial resolution, spatiotemporal contrast sensitivity, motion and disparity measurements. Connections between psychophysics and physiology. Relevant modeling techniques such as linear systems, visual signal detection, and information theory and applications. Three-hour training session that focuses on laboratory techniques, instructional aids, and problem solving, plus an additional three-hour weekly laboratory where the UGSI is required to assist a GSI in the instruction of the course. (F) Staff

264A. Vision A: Quantitative, Perceptual, and Physiological Aspects. (2) Three hours of lecture per week for seven and one-half weeks. Prerequisites: Consent of instructor. The course will present basic material on inferring 3d from visual information. This will include disparity, motion, texture, shading, and occlusion. Introduction to the psychophysics and mathematical analysis underlying the inference of 3D scene properties from 2D retinal images. Psychophysics of various cues to 3D shape and spatial layout such as texture, contour, shading, stereopsis, and structure from motion. Geometrical analysis of these cues. Probabilistic or optimal combination of cues and estimation of scene properties. Relevant physiology of V1, V2, V4, and higher areas. Also listed as Psychology C260A, Computer Science C293B, and Vision Science C290B. (F) Banks, Malk

264L. Vision Laboratory: Quantitative, Perceptual, and Physiological Aspects. (1) Course may be repeated for credit. One hour of laboratory per week for seven and one-half weeks. Prerequisites: Consent of instructor. Quantitative analysis of psychophysical properties of spatial, color, temporal and binocular vision, perception, adaptation, and adaptation and their underlying physiological mechanisms. Also listed as Psychology C215L, Computer Science C293L, and Vision Science C290L. (F) Banks, Dan, Malik

265. Advanced Topics in Neurobiology. (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. Review of current literature. (F,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) Staff

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. Somatic Transcription and Neurodemodulation. (2) (F,SP) Zucker

269C. Neurodynamics. (2) (F,SP) Freeman

269D. Signaling Within and Between Neurons. (2) Review of recent research in molecular mechanisms involved in intracellular signaling in the nervous system. (F,SP) Kramer

269E. Auditory Neuroscience. (2) (F,SP) Winer

269F. Retinal Signal Processing. (2) (F,SP) Owen

269G. Neural Systems. (2) (F,SP) Westheimer

269H. Recent Advances in Retinal Neurobiology. (2) (F,SP) Werblin

269I. Psychophysical and Computational Studies of Vision. (2) (F,SP) Glaser

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) Chern

269M. Insect Neurophysiology. (2) Drosophila mutants that have behavioral abnormalities to unravel new and basic features of nervous system structure and function. (F,SP) Tanouye

269N. Molecular Genetic Analysis of Pathway and Target Recognition. (2) (F,SP) Goodman

269R. Potassium Channels and Synaptic Plasticity. (2) (F,SP) Isacoff

269S. Molecular Mechanisms of Olfaction. (2) (F,SP) Ngai

269T. Processing of Visual Information in the Mammalian Brain. (2) (F,SP) Dan

All Divisions

Lower Division Courses

15. Current Topics in the Biological Sciences. (2) Course may be repeated for credit as topic varies. Two 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 investigation 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

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 are limited to 12 students per 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; topics vary from department 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. (1)

91E. Neurobiology. (1)

C69. Studying the Biological Sciences. (1) Two hours of lecture per week. Must be taken on a pass/don’t pass 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 role of the university as they relate to majoring in biology. Students will learn concepts, skills, and information that they can use in their major course, and as future science professionals. Restricted to freshmen in the biology scholarly program. Also listed as Plant Biology C69 and Integrative Biology C69. (F) Kane

98. Directed Group Study. (1-4) Course may be repeated for credit. One hour of lecture per week in maximum. Must be taken on a pass/don’t pass basis. Prerequisites: Consent of instructor. Freshmen and sophomores only. Lecture 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 four units. Supervised research. Must be taken on a pass/don’t pass basis. Prerequisites: 3.3 GPA and consent of instructor. (F,SP) Staff

Upper Division Courses

180. Undergraduate Teaching of Biology 1A, 1B. Course may be repeated for a maximum of 8 units. Conference with instructor and teaching hours as assigned per week. Prerequisites: Biology 1A, with a minimum grade of B. Appointment as a UGSI in biology by consent of instructor. Course consists of a weekly three-hour training session that focuses on laboratory techniques, instructional aids, and problem solving, plus an additional three-hour weekly laboratory where the UGSI is required to assist a GSI in the instruction of laboratory (answering questions, providing demonstrations, etc.). (F,SP) Staff

190. Proseminar. (1) Course may be repeated for credit. Two hours of seminar for ten weeks. Must be taken on a pass/don’t pass basis. Prerequisites: Consent of instructor. Formerly 119. Upper division undergraduate seminars based on particular topics from current molecular and cellular biological literature. Four to six sections offered each semester with different topics in each section. (F,SP) Molecular and Cell Biology Graduate Student Instructors

H196. Honors Research. (1-4) Course may be repeated for a maximum of 8 units. Laboratory research, conferences. Prerequisites: 199 or equivalent; consent of instructor; enrollment in honors program. Individual research projects under the supervision of a faculty member. A thesis and presentation for at least 4 units are required for honors in the major. GPA restrictions apply. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. One hour of lecture per week in maximum. Must be taken on a pass/don’t pass basis. Prerequisites: Upper division standing. Lectures and small group discussions focusing on topics of interest, varying from semester to semester.
Graduate Courses

290. Graduate Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Prerequisites: Graduate standing in the department or consent of instructor. Graduate student presentations on selected topics in molecular and cell biology. Several sections offered each semester, covering different topics. Concurrent enrollment in more than one section prohibited. List of topics to be announced in advance of 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. 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. (F) 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) Two hours of seminar per week. Credit and grade to be awarded on completion of sequence. Prerequisites: Consent of instructor. Two-hour seminar on preparation and evaluation of results in area of student’s individual research interests. (F) Staff

293B. Research Seminar. (2) Two hours of seminar per week. Credit and grade to be awarded on completion of sequence. Prerequisites: 293A: consent of instructor. Two-hour seminar on preparation 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 credit and one-half 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 drawing 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 students and postdoctoral students funded on NIH training grants. One session will probably feature a guest lecturer on a topic relevant to the course. (SP) Staff

295. Careers for Life Sciences Ph.D.’s. (1) One hour of lecture and one-half hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Open to graduate and postdoctoral 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 are invited; Topics may include academia; job searches; setting up a laboratory; patent law/technology transfer; public policy/regulatory affairs; bioinformatics; science writing; technical support; 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 precisely what constitutes an important paper. 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 the themes of a series of papers first by themselves (with assistance of a faculty member) and then participate in an in-depth discussion led by the staff. (SP) Botchman, Meyer, Rine

601. Individual Study for Master’s Students. (1-6) 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 field advisor. (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: Restricted to Ph.D. candidates. Individual study in consultation with the major field advisor. 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 six contact hours as assigned. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as graduate student instructor or consent of instructor. Teaching laboratories and/or discussions for Molecular and Cell Biology courses: analysis of specific format and problems. Two units of credit for those with 50% teaching appointment, one unit of credit for those with 25% teaching appointment. (F,SP) Staff

481. Instrumentation in Molecular and Cell Biology. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing; consent of instructor and sponsorship of a faculty member. Individual laboratory instruction. (F,SP) Staff

481B. Transmission Electron Microscopy. (1-4) Prerequisites: Graduate standing; consent of instructor and sponsorship of a faculty member. (F,SP) Cande

481C. Scanning Electron Microscopy. (1-4) Prerequisites: Graduate standing; consent of instructor and sponsorship of a faculty member. (F,SP) Cande

481E. Principles and Operation of the Light Microscope. (1-4) Prerequisites: Graduate standing; consent of instructor and sponsorship of a faculty member. Staff

Interdepartmental Studies Courses

Upper Division Courses

IDS 114A-114B. Advances in Aging. (2,2) Course may be repeated for credit. Two hours of lecture per week. Prerequisites: High school biology and chemistry. This interdisciplinary course will single out specific topics in aging of great current interest and present lectures on several aspects of each topic (biomedical, health, socio-economic, legal, and ethical). Each semester a different topic will be presented. Invited speakers with special expertise in these areas will participate. Sponsoring departments: Molecular and Cell Biology, Optometry, Public Health, and Social Welfare. (F,SP) Timiras

Graduate Courses

IDS 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. Reviews and reports of current research in tumor biology. Sponsoring department: Integrative Biology and Molecular and Cell Biology.

Music / 359

Music (College of Letters and Science)

Department Office: 104 Morrow Hall, (510) 642-2678 http://LIS.Berkeley.edu/dept/music
Chair: Wye Allanbrook, Ph.D.

Professors
Wye J. Allanbrook, Ph.D. Stanford University. Late 18th-century music Mary Kay Duggan, Ph.D. University of California. History of book, music and technology Annalee Glibault, Ph.D. University of Michigan. Caribbean music, popular music, cultural studies Jorge Lidster, Ph.D. University of Chicago. Composition, analysis, theory

Emeritus
Antoniu Newcomb (Gladyce Arata Terrill Chair), Ph.D. Princeton University. Italian madrigal, 19th-century music
John Roberts, Ph.D. University of California, Berkeley. Handel, 19th-century opera
Richard Water (Mary J. Coe Chair), Ph.D. Columbia University. Renaissance period, Russian music, Russian harpsichord
John Thow, Ph.D. Harvard University. Composition, 20th-century music
Bonnie C. Wade, Ph.D. University of California. Ethnomusicology, South and East Asia

Associate Professors
David Wessel (Avery and Evelyn Hemmings Chambers Chair in Music), Ph.D. Stanford University. Computer music, music perception
Richard Crocker, Ph.D. (Emeritus)
Alan Curtis, Ph.D. (Emeritus)
Edwin Dugger, M.F.A. (Emeritus)
Richard Fiskine, Ph.D. (Emeritus)
Daniel Heartz, Ph.D. (Emeritus)
Andrew W. Irvine, M.A. (Emeritus)
Joseph Karman, Ph.D. (Emeritus)
Lawrence H. Moe, Ph.D. (Emeritus)
Joaquin Nin-Culmell (Emeritus)
Michael Sebert, Ph.D. (Emeritus)
Dily Wilson, Ph.D. (Emeritus)

Acting Professor
David Moroney, Ph.D. University of California, Berkeley. Baroque period, performance practice, harpsichord, organ

Assistant Professors
Kathina Bergeron, Ph.D. Cornell University. Cultural criticism, comparative musicology
Benjamin Briner, Ph.D. University of California, Berkeley. Ethnomusicology, Indonesian music, Middle Eastern music
Edmund Campion, M.A. Columbia University. Composition, computer music
John Cox, M.A. Indiana University. Composition
Manika Kuzma (Virginia Chan Law Chair in Music), Ph.D. Indiana University. Choral conducting
David Milnes, M.A. Yale University. Director, University Symphony, orchestral conducting technique
Mary Ann Smart, Ph.D. Cornell University. Gender issues, 19th-century opera

Assistant Professor
Kate van Orden, Ph.D. University of Chicago. French Renaissance, modernism

Senior Lecturer
Christy Dana, M.M.A. (Musicianship, jazz)
Scott Anderson, B.A. (Clarinet)

Lecturers
Gianna Abondolo, M.M. (Vocalnoise, chamber music)
Virginia Baker (Violin)
Deborah Benedit, M.A. (Voice)
Elizabeth Blumenstock (Baroque violin)
Charlene Brentler, M.M. (Harpsichord, fortepiano)
David Bragdon, M.A. (Wind ensemble)
Richard Cheatham, B.M. (Fibbean)
Joceline Cheew, M.M. (Piano)
Scott Cremez, B.M. (Viola)
Natalie Cox, B.A. (Harp)
Andrew Cripe, M.F.A. (Music)
Jeff Davis, M.M. (Carillon)
Anna Carol Dubsky, M.A. (Voice)
Lawrence Ferrara, M.M. (Guitar)
Leighton Fong, M.M. (Vociconello)
Hodiny Gehra, M. (Ogian)
Deni Gianopoulous (Piano)
Laurette Goldberg, B.Mus. (Harpsichord)
David Granger, M.A. (Bassoon)
Susan Gundunas, B.A. (Violin)
Peter Hallifax, M.M. (Viola da gamba)
Eric Hanson, M.A. (Violin)
Heather Haughn, M.A. (Violin)
Katherine Heimbichner, M.F.A. (Harpsichord, fortepiano)
Syvester Henderson, M.A. (Gospel choir)
Mackadow Kornay, D.M.A. (Flute)
Jonathan Khuner, Ph.D. (Opera workshop)
C.K. Kim (Korean music)
Pre Janet Maestri, B.Mus. (Piano)
Reid Martens, M.M. (Jazz piano)
Anthony Martin, M.M. (Banjo violin)
Robin May, LL.B. (Oboe)
Lauris McGaw, M.A. (Trumpet)
The 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 Herzl Memorial Hall, Morrison Music Building, and elsewhere. For undergraduates the Department offers a major in music, as well as numerous nonmajor courses for the student with little or no previous experience in music. A minor in music introduces students to either majors or nonmajors, depending on student qualifications. For graduate students the department offers programs leading to the M.A. and Ph.D. degrees in musical composition and in research. 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 provide 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 orchestra, chorus, and various ensembles) offer the opportunity to perform a varied repertory, and are open by audition to all students and to auditors.

All students who wish to audit or to enroll in performance courses should consult the Schedule of Classes for information on audition appointments.

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 in the week before instruction begins. See the department web site under Degree Programs for details. The examination may be taken on an advisory basis. Prospective music majors are encouraged to begin the music program early, preferably in their freshman year. Pre-major advisers and all members of the faculty are available throughout the academic year to consult with students interested in the music program. During the summer, please consult the student affairs officer in the department office.

The Center for New Music and Audio Technologies (CNMAT) provides computer and interdisciplinary research in applications of computer technology to sound. Courses 106, 108M, 158, 201, 209A, and 209B are held at CNMAT, 1750 Arch Street, Berkeley.

The Major

Lower Division

49A Introduction to Criticism

Musicianship 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 in their program with Music 49, an introduction to a discipline that combines critical listening, (49A) with musicianship (49B) and harmony (49C). At this time, students will be assigned an adviser who will help them program in future semesters. Students who place out of 49B or 49C must still take 49A at the beginning of their program.

Upper Division

6 units of performance ensemble as follows:

• 4 units from 140-145, 147-149
• 2 units from 140-149

One seminar from the 170-189 series

A minimum of 15 units of music major electives from 130-189 and other upper division music courses with an M suffix.

Performance courses may be taken at any point in the student’s career. Four units must be in any of the department’s large performing ensembles (at 2 units per course). The remaining 2 units may be taken in a large ensemble or in chamber music ensembles (at 1 unit per course).

Students are expected to shape their programs according to their particular interests, using the 15 units of music major electives as a guideline. They must either complete additional courses from both within and outside the department. Suggested areas of specialization include composition, music of the world, western music history, conducting, performance, musical theater, improvisation, theory and analysis, cognitive science, and music technology. At least every semester, students will see their advisers to discuss their programs and have their elective credits approved.

Honors Program. The Department of Music offers an individualized program leading to the A.B. degree with honors. Students with a grade-point average 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 course work 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.

Teaching Training. Consult major advisers.

The Minor

Lower Division

Two courses in musicianship and two courses in harmony: either the major series 50A-50B and 60A-60B, or the nonmajor series 220A-220B and 25A-25B; either Introduction to Music (27) or History of Western Music (75 or 76) or Music in American Culture (26AC).

Upper Division

A minimum of five courses. At least two must be taken from courses numbered in the 120s and 130s and at least two must be taken from courses numbered in the 140s. A course numbered between 151 and 179 may be substituted for a course in the 120s and 130s on completion of the prerequisites and with the instructor’s approval. All courses taken in the minor must be taken for a letter grade. The College of Letters and Science requires a final overall grade-point average of 2.0 in upper division courses applied to the minor program. 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.

Music minors who wish to take the harmony and musicianship courses numbered in the 120s and 130s on completion of the prerequisites and with the instructor’s approval. All courses taken in the minor must be taken for a letter grade. The College of Letters and Science requires a final overall grade-point average of 2.0 in upper division courses applied to the minor program. 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. and Ph.D. degrees in composition and scholarship, 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 for the fall semester; the deadline for application is December 15.

Lower Division Courses

20A-20B. Basic Musicianship. (2,2) Three hours of lecture per week. Fundamentals of music, including notation, sight singing, ear training, and beginning linear analysis. For general students. (F.S.P)

23. Music Culture and the Digital Multimedia Environment. (3) Two hours of lecture and one hour of laboratory per week. Prerequisites: Reading, knowledge of music, basic familiarity with computers and the web. Survey of music cultures in a digital multimedia environment of performance, composition, and listening. Analysis of music resource on the Internet. Examination of software for design of web sites, creation and manipulation of music as sound and notation in MIDI and other digital formats. Includes discussion of digital composition and performance, music copyright, music sound and print publishing, and music in conjunction with digital images, with occasional guest lectures. Focus on music culture varies.

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/no pass 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 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. (F.S.P) Staff

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. (F.S.P) Staff

26A. Music in American Culture. (3) Three hours of lecture 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.

27. Introduction to Western Music. (3) 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. Bergeron, Smart, Van Orden

28. Listening to Many Musics. (3) Hours of lec-
ture on a semester devoted to performance.
workshops and discussion. This course offers a variety of cultures, including Western, Middle East-
ern, and Southeast Asian traditions (specific traditions may vary, depending on instructor). While the theory of music is focused on music, students will become familiarly involved through hands-on workshops.

39. Freshman/Sophomore Seminar. Course may be repeated for academic credit. 50A and 60A. Formerly 171A. Studies in Medieval and Renaissance music. An intro-
duction to music history and criticism, and practice in analytical methods for music of all periods, with em-
phasis on listening, exercises, and papers. (SP)

75. History of Western Music: The 18th and 19th Centuries. (4) Three hours of lecture and one hour of discussion per week. Course may be repeated for a maximum of 2

41. Private Vocal and Instrumental Instruction. (1) May be repeated for credit once for the same level of proficiency on their instrument. Group classes to focus on voice, strings, winds, and piano. (F,SP) Staff

49A. Introduction to Music Criticism. (2) Hours of lecture per week. Prerequisites: Department placement exam; 49B-49C (to be taken concurrently). In-
troduction to basic music and genres of many musics drawn from the repertoires of Western Europe, America, and other world cultures. Explores ideas and concepts that shape the interpre-
tation and the formal analysis of music. Repertoire drawn from a reserve of circa 100 pieces available for study on a department's digital music network. (F,SP) Staff

49B. Musicianship. (3) Hours of lecture per week. Prerequisites: Music Placement Examination. 128A, and 128B. A review of keyboard harmony, and analysis.

50. Musicianship. (3) Hours of lecture per week. Prerequisites: Advanced Placement in Music Placement Examination, 49B, or 50A. Formerly 50B. con-
tinuation of diatonic sight singing and ear training, in-
strumental music, and score reading. (F,SP) Staff

51. Musicianship. (3) Hours of lecture per week. Prerequisites: Advanced placement in Music Placement Examination or 50A. Formerly 60A. Studies in keyboard harmony, and score reading involving increasing chromaticism. (F,SP) Staff

60. Harmony. (3) Hours of lecture per week. Prerequisites: Advanced placement in Harmony Place-
ment Examination or 50A. Formerly 61A, Advanced di-
atonic harmony, advanced modulation, altered chords, chromatic harmonies, and analytic studies. Emphasis on written exercises. (F,SP) Staff

74. Survey of Selected Music. (4) Course may be re-
peated for credit. Three hours of lecture and one hour of performance laboratory per week. Focus on per-
formance practice, forms, styles, instruments, and meanings of students' experiences of music from a variety of cultures, including Western, Middle East-
ern, and Southeast Asian traditions (specific traditions may vary, depending on instructor). While the theory of music is focused on music, students will become familiarly involved through hands-on workshops.

75. History of Western Music: The 18th and 19th Centuries. (4) Three hours of lecture and one hour of discussion per week. Course may be repeated for a maximum of 2

77. History of Western Music: The 20th Century. (4) Three hours of lecture and one hour of discussion per week. Formerly 170. Music of the 20th century. (SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/no pass basis. Sophomore seminars are designed for s-
declared majors beginning instruction or with a beginning level of proficiency on their instrument. Group classes to focus on voice, strings, winds, and piano. (F,SP) Staff

98. Directed Group Study for Freshmen and Sopho-
more. (1-4) Course may be repeated for credit. Two contact hours per unit per week. Must be taken on a pass/no pass basis. Prerequisites: Lower division standing and consent of instructor. Group study in a field that may not coincide with that of any regular course. See the Introduction to Courses and Curricula section of the General Catalog for en-
rollment restrictions. (F,SP) Staff

99. Independent Study for Freshmen and Sopho-
mores. (1-4) Course may be repeated for credit. Two contact hours per unit per week. Must be taken on a pass/no pass basis. Prerequisites: Lower division standing and consent of instructor. Directed individual study in a field that may not coincide with that of any regular course. See the Introduction to Courses and Curricula section of the General Catalog for enrollment restrictions. (F,SP) Staff

108. Music Perception and Cognition. (3) Three hours of lecture per week. Prerequisites: consent of in-
structor. Formerly 115. A review of the sensory, per-
ceptual, and cognitive foundations of listening, com-
posing, and performing. Topics include relations among various musical and perceptual character-
izations of sound; perception of pitch, temporal rela-
tions, timbre, stability conditions, and auditory space; auditory scene analysis and perceptual group-
ing mechanisms; perceptual principles for melodic, rhyth-
mic, and harmonic organization; orchestration as spec-
tral composition. The course requires independent reading.

108M. Music Perception and Cognition. (3) Three hours of lecture per week. Prerequisites: consent of instructor. 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, time,
131A. Music of India. (4) Three hours of lecture and one hour of laboratory per week. Includes the classical music traditions of both North and South India (Hindustani and Karnatak musics). Also listed as South and Southeast Asian Studies C113. (F,S,P)

131B. African American Music. (4) Three hours of lecture per week. Prerequisites: 27 or consent of instructor. A survey of the African American music tradition from its West African origins to the various forms at the end of the 19th century. (F)

130A. African American Music. (4) Three hours of lecture and one hour of discussion per week. Study of the African American music tradition from its West African origins to the various forms at the end of the 19th century. Analytic studies and a term paper required. (F,SP)

130B. African American Music. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Restricted to music majors; 51B and 51A. Study of the African American music tradition from its West African origins to the various forms at the end of the 19th century. Analytic studies and a term paper required. (F,SP)

131A. Music of India. (4) Three hours of lecture and one hour of laboratory per week. Formerly 133B. Includes the classical music traditions of both North and South India (Hindustani and Karnatak musics). Emphasis on class listening.

131B. African American Music. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Restricted to music majors; 51B and 51A. 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. Analytic study and term paper required. (F,SP)

132A. Music of the Southeast Asia Tradition. (4) Three hours of lecture and one hour of laboratory per week. Surveys the music of Indonesia (Java and Bali), Thailand, Cambodia, Laos, Malaysia, and the Philippines—music that has developed distinctive musical styles. Three hours of lecture and one hour of laboratory per week. (F,SP)

132B. History of Jazz in America. (3) Three hours of lecture per week. Prerequisites: 27 or equivalent or consent of instructor. A survey of jazz music from the 1920's through the 1980's covering the major stylistic periods, including the New Orleans and Chicago styles of the 1920's, big band jazz, bebop, hardbop, free jazz, fusion, and neo-classicism. Major innovations to be studied in depth include Louis Armstrong, Duke Ellington, Lester Young, Billie Holiday, Charlie Parker, Thelonious Monk, Miles Davis, John Coltrane, and Ornette Coleman. Milnes

133C. Music and Theater in Southeast Asia. (3) Three hours of lecture and one hour of laboratory (devoted to playing Balinese and Javanese Gamelan) per week. Formerly 133A. Surveys musical traditions of Indonesia and mainland Southeast Asia with special emphasis on the role of music in society and its influence on culture. (F,SP)

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, and important instrumental idioms, modal practice and improvisation in current practice and in historical perspective. (F,SP)

134A. Music of the East Asia Tradition. (4) Three hours of lecture and one hour of laboratory per week. Surveys the music of China, Tibet, Korea, Vietnam, and Japan—cultures which share instrument types but have developed distinctive musical styles. (F,SP)

134B. Music of Japan. (4) Three hours of lecture and one hour of laboratory per week. Traditional classical music of Japan; Shinto ritual music, the imperial court orchestral music and dance, biwa and shakuhachi forms, chamber music for shamisen and koto, the arhati music of kubuki and no. Reading in music and pertinent Japanese literature in translation. (F,SP)

135. Music of Latin America and the Caribbean. (4) Three hours of lecture and one hour of laboratory per week. Traditional and contemporary music of Latin America, with a focus on performance practices, forms, styles, instruments, and meanings. (F,SP)

139A. Topics in Musics of the World. (3) Course may be repeated for credit. Three hours of lecture and one hour of laboratory per week. Surveys the music of different world 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. A performing course for the study and practice of Indonesian music and instruments. (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. A performing course for study and practice of contemporary and traditional wind band repertoire. (SP) Calonico

143. Gospel Chorus. (2) Course may be repeated for credit. Three hours of sectionals per week. A course that will focus on the performance of choral music of the African American gospel music tradition with particular emphasis on contemporary performance techniques. The Gospel Chorus, as 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 rehearsal 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. An a cappella choir designed to prepare music that aims at a professional standard of ensemble singing and explores the lesser-known choral repertoire. (F,SP) Kuzma

146. Chamber Music Ensemble. (1) Course may be repeated for credit. One hour of coaching and two hours of ensemble rehearsals per week. Chamber music for strings, winds, piano, percussion, and voice. (F,SP) Potulski, Simon, Abondolo, Orland

147. Contemporary Chamber Music Ensemble. (2) Course may be repeated for credit. Four hours of rehearsal per week. The particular culture to be studied will vary. Group organized to perform and study compositions representing recent developments in music. (F,SP)

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) Ladzekpo

150. Advanced Vocal and Instrumental Instruction. (1) One hour of laboratory per week. May be repeated for credit if student maintains ‘B’ average. Prerequisites: Restricted to music majors by audition. Advanced private instruction in keyboard, stringed, woodwind, brass, and percussion instruments and in voice. (F,SP) Staff

151. Twentieth-Century Harmony. (3) Three hours of lecture per week. Prerequisites: Advanced placement in Harmony Placement Examination or 61. Formerly 61B. Advanced chromatic harmony, early 20th-century harmony, and analytic studies. Emphasis on written exercises. (F,SP) Staff

152. Advanced Musicianship. (3) Three hours of class per week. Prerequisites: 51, 61, and 405D. Continuation of the skills acquired in prerequisite courses, with an emphasis on score reading skills (including use of the staff) and the realization of 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 18th-century 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. A study of various analytical techniques and their application to important works of music.

157A-157B. Orchestration. (3) Three hours of lecture per week. Prerequisites: 61, 151, and 154A. The study of various analytical techniques and their application to important works of music.

157A-157B. Orchestration. (3) Three hours of lecture per week. Prerequisites: 61, 151, and 154A. The study of various analytical techniques and their application to important works of music.
mentation—the construction capabilities and idiomatic qualities of all of the individual instruments which comprise the contemporary symphony orchestra followed by a study of the 18th-, 19th-, and 20th-century orchestral technique. Analysis of scores and assignments in scoring of selected instrumental combinations.

158. Musical Applications of Computers and Related Technologies. (4) Three hours of lecture and four hours of laboratory per week. Basic concepts and techniques into computer-based music research, composition, and performance. Essentials of digital audio signal processing, musical acoustics and psychoacoustics, sound analysis and synthesis, musical databases, use of MIDI, computer programming for music, and computer-aided music analysis. Works from the computer music repertoire will be examined.

160. Introduction to Conducting. (3) Three hours of lecture per week. Prerequisites: 51, 61, and 4050 or consent of instructor; 151 and 152 recommended. A study of the basic elements of conducting: physical gesture, score reading, and score analysis. (F,SP)

161. Instrumental Conducting. (3) Three hours of class per week. Prerequisites: 160 or consent of instructor; 151 and 152 recommended. Continued development of skills introduced in 160 with emphasis on conducting and rehearsal techniques applicable to orchestral literature in various musical styles. Preparation of selected works for rehearsal and performance in class.

162. Choral Conducting. (4) Four hours of class per week. Prerequisites: 160 or consent of instructor; 152 and 156 recommended. Continued development of skills introduced in 160 with emphasis on conducting and rehearsal techniques applicable to choral literature in various languages and musical styles. Preparation of selected works for rehearsal and performance in class.

164A-164B. Jazz Improvisation. (3,3) Three hours of lecture per week. Prerequisites: 160 or consent of instructor; 151 and 156 recommended. Continued development of skills introduced in 160 with emphasis on conducting and rehearsal techniques applicable to choral literature in various musical styles. Preparation of selected works for rehearsal and performance in class.

170D. Schubert to Brahms. (3) Three hours of lecture per week. Prerequisites: 61, and 76 or consent of instructor. A study of the four operas of Wagner’s Ring cycle. Newcomb

173F. Verdi and Wagner. (3) Three hours of lecture per week. Prerequisites: 61 and 76 or consent of instructor. A study of the contrasting styles represented by Verdi and Wagner, and through selected operas, literary works, and the composers’ writings. Smart

174A. Debussy and Mahler. (4) Three hours of lecture per week. Prerequisites: 61B, 170, or consent of instructor. A comparison of selected works of Debussy and Mahler. 

174C. Stravinsky. (3) Three hours of lecture per week. Prerequisites: 61 and 76 or consent of instructor. A course designed for performers who wish to develop improvisational techniques, and to the writing of complete fugues. Regular written assignments required.

179. Topics in History, Culture, and Analysis. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: All lower division music major requirements. A seminar for upper division music majors. Topics will change each semester, but will always represent a fairly narrow focus on a single issue in the history, interpretation, or social meaning of music. The course provides students with an opportunity to go deeply into one subject, to discuss their ideas in a seminar setting, and to carry out a substantial independent research project.

189. Topics in Research and Performance. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: All lower division music major requirements. A seminar for upper division music majors. The specific topic covered will change each time the course is offered.

199. Topics in Research and Performance. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: All lower division music major requirements. A seminar for upper division music majors. The specific topic covered will change each time the course is offered.

H195. Special Study for Honors Candidates in Music. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites:Restricted to seniors by instructor permission. Taruskin

199. Supervised Individual Study and Research. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass basis. Not to serve in lieu of regular courses of instruction. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog. (F,SP)

Graduate Courses

200A. Music Scholarship I. (4) Three hours of sem-ester requirement of students. Group discussion and criticism. (F,SP)

200B. Introduction to Music Scholarship II. (4) Three hours of semester requirement of students. Group discussion and criticism. (F,SP)

Field experiences—performances in settings where the music is performed, from the perspective of the musicians themselves—will be an integral part of the program. The second semester is designed for the intermediate level and progress through more complex material. The major styles of modern jazz will be explored. Analysis of recorded and live performances; 3) in-class presentation of results in written and oral forms. (F)

Detailed analysis of specific genres of music from the Renaissance to the present. 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: 154F. A study of subjects, answers, countersubjects, expositions, episodes and their streets, leading to the writing of complete fugues. Regular written assignments required.

206. Seminar in 12-Tone Practice. (4) Three hours of seminar per week. A study of the techniques and practices of the 12-tone works from the Viennese school to the present.

207. Advanced Problems in Orchestration. (4) Three hours of seminar per week. Formerly 208A. A study of advanced problems in orchestration including developments since 1950. Analysis and discussion of relevant passages in the literature and preparation of individual projects.

208A. Advanced Music Perception and Cognition. (4) Three hours of seminar per week. Formerly 208A. A study of advanced problems in orchestration including developments since 1950. Analysis and discussion of relevant passages in the literature and preparation of individual projects.

208B. Advanced Music Perception and Cognition. (4) Three hours of seminar per week. Formerly 208B. A study of advanced problems in orchestration including developments since 1950. Analysis and discussion of relevant passages in the literature and preparation of individual projects.

209. Advanced Topics in Computer Music. (4) Course may be repeated for credit. Three hours of seminar per week. Experimental studies in Music Perception and Cognition. Research projects required.

212. Seminar in Medieval Studies. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized study of medieval music. The topic will change each time the course is offered.

216. Seminar in Baroque Music. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized study of 17th-century music. The topic will change each time the course is offered.

212. Seminar in Medieval Studies. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized study of medieval music. The topic will change each time the course is offered.

216. Seminar in Baroque Music. (4) Course may be repeated for credit. Three hours of seminar per week. A highly specialized study of 17th-century music. The topic will change each time the course is offered.

217. Seminar in Classical Music. (4) Course may be repeated for credit. Three hours of seminar per week. Studies in 20th-century music.
seminar per week. A highly specialized study 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 study 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 study of Jazz. The topic will change each time the course is offered.

220. Seminar: Problems in 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.

223. Studies in 20th-Century Music: 1900-1950. (4) Course may be repeated for credit with consent of instructor. Three hours of seminar per week.

229. Seminar: Popular Music and Popular Culture. (4) Three hours of seminar per week. Problems in the analysis of popular music as culture and subculture. Focus on America, though consideration may also be given to popular music in the Third World. Readings in cultural studies and music criticism. Ethnographic projects.

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, Guilbaut, 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. Brinner

242. Ethnomusicology Analysis Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Prerequisites: Consent of instructor. Critical analysis of historical sources for ethnomusicological surveys in various musical traditions. Students present analyses based on their individual areas of specialization.

243. Transcription and Analysis in Ethnomusicology. (3) Three hours of seminar per week. Formerly 234. Methods 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.

246. Theory and Method in Popular Music Studies. (4) Three hours of seminar per week. Critical survey of the major issues raised and methodologies used in the study 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. Formerly 248. A highly specialized course focusing on aspects of music in Asia. The topic will change each time the course is offered.

248B. Topics in Caribbean Music. (4) Course may be repeated for credit. Three hours of lecture per week. A highly specialized course in ethnomusicology focusing on selected musical practices from the Caribbean.

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. Guibault

290. Colloquium. (1) Course may be repeated for credit. About five meetings per semester. Must be taken on a satisfactory/unsatisfactory basis. Meetings for the presentation of original work by faculty, visiting lecturers, and advanced graduate students. Assigned readings. In rotation members of the class will be appointed as respondents for the papers.

C291A. Oral Performance: Noetics and Poetics. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Consent of instructor. Formerly 291A. This seminar will explore how oral performance traditions organize and manage knowledge. Emphasis will be placed upon the totality of the performance, with a focus upon music as a code determinant of the meaning and a catalyst for composing the text. Also listed as Rhetoric C291A and Southeast Asian C291A.

298. Group Special Studies. (2-6) Course may be repeated for credit. Three meetings will 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)

299. Special Study. (2-12) Course may be repeated for credit. Meetings to be arranged according to units taken. Open to properly qualified graduate students for research or creative work, including work on the doctoral dissertation. Such work shall not serve in lieu of regular courses of instruction. (F,SP)

601. Individual Study for Master’s Students. (1-6) 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 teaching the undergraduate courses in music. (F,SP)

405A-405B. Elementary Piano. (1:1) One hour of class per week. Must be taken on a passed/not passed basis. Prerequisites: Open only to majors in music. Required of music majors who do not pass the entrance examination in piano. (F,SP)

405C-405D. Elementary Piano. (1:1) One hour of class per week. Must be taken on a passed/not passed basis. Prerequisites: 405B is prerequisite to C; C is prerequisite to D; open only to majors in music. Required of music majors who do not pass the entrance examination in piano. (F,SP)

410. Vocal Technique. (1) Course may be repeated for credit. One hour of lecture per week. Prerequisites: Restricted to music majors or those enrolled in the University Choruses and consent of instructor. Formerly 410A-D. A course in basic vocal techniques, primarily for students in the University Choruses, covering techniques of breathing, pronunciation, and articulation. (F,SP)

Native American Studies

(College of Letters and Science)

Program and Major Office: 506 Barrows Hall, (510) 642-7676
Chair: To be announced
Professor
Patricia Penn Hilden, Ph.D.
Terry Wilson (Emertius), Ph.D.
Assistant Professors
Nimachi Hernandez, Ed.D.
Darren Ranian, Ph.D.
Lecturer
Joseph Myers, J.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 studies 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

The major in Native American studies consists of 12 courses for a total of 48 units.

Lower Division. Ethnic Studies 10A, 10B; Native American Studies 20A, 20B.

Upper Division. Ethnic Studies 101A, 101B, 103; Native American Studies 110; completion of three courses from Native American Studies 100, 120, 151, and 178; Native American Studies 197 (4 units cumulative).

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: The minor in Native American studies consists of five upper division courses for a total of 20 units: Ethnic Studies 101A or 101B; Native American Studies 110; completion of three of the following courses listed in the major’s requirements (not including Native American Studies 197). Lower Division Courses

R1A. Native American Studies Reading and Composition. (4) Three hours of lecture and one hour of writing workshop per week. Prerequisites: Satisfaction of Subject A requirement. Formerly 1A. This course introduces students to the genres of Native American literatures and oral traditions, provides historical and cultural frameworks for understanding, 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. Staff

R1B. Native American Studies Reading and Composition. (4) Three hours of lecture and one hour of writing workshop per week. Prerequisites: 1A. Formerly 1B. Course examines Native American written and oral traditions in historical and cultural contexts. Emphasis on literary creation and creative and analytical writing. Students must complete their writing requirement. Staff

20A. Introduction to Native American Studies. (4) Three hours of lecture and one hour of tutorial per week. This course explores the interactions, from friendship treaties and land deals to contemporary governmental policies, between America’s original inhabitants with Europeans and Euro-Americans. Emphasis will be placed on how tribal peoples continued to react to the nation’s myths and policies created by Europeans and Euro-Americans. (F) 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 focuses on 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

24. Freshman Seminar. (1) Course may be repeated for credit for different topics. 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/no pass basis. The Freshman Seminar Program has been designed to enable 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 of the college’s departments and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP) Staff

71. Native Americans in North America to 1900. (4) Three hours of lecture and one hour of discussion per week. Formerly 71A and 71B. An ethnohistorical analysis of America’s original inhabitants and their interactions with Europeans and Euro-Americans emphasizing an Indian perspective. (F) Hilden

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 shape federal-Indian relations and tribal sovereignty. (SP) Hilden

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/no pass basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major as their major, but not required. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminars will become faculty mentors for the students from the time they declare the major until the time they graduate. (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 methods for search methods for studying the history of Indian tribes. (SP) Staff

98. Supervised Group Study and Research. (1-3) Course may be repeated for credit as hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Limited to freshmen and sophomores. Supervised research under lower division student. (F,SP) Staff

Upper Division Courses

100. Native American Law. (4) Three hours of lecture per week. Prerequisites: 71, 72, or consent of instructor. Historical background of the unique 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 lives. (F)

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, legislation 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. (SP) Staff

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 on Native American communities and resources. Examination of the effect of federal legislation, Bureau of Indian Affairs regulations, and corporate interests on tribal economic development. Consideration of alternative strategies of development. (F)

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 useful in the study of Native American literature, history and contemporary tribal groups. Course will develop skills in information gathering and development of theories that structure information. (SP)

120. Topics in Native American Arts. (4) Three hours of lecture and one hour of discussion per week. This course explores Native American art forms from the perspective of Native American artists and scholars. Focused on specific art forms such as dance, pottery, masks, 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. (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) Hilden

149. Gender in Native American Society. (4) Three hours of lecture per week. Prerequisites: 71 or 72 or consent of instructor. This course examines 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. (SP) Staff

150. Native American Narratives. (4) Three hours of seminar per week. Prerequisites: Junior or senior standing and completion of 11A-1B. This workshop provides intensive study of the craft of writing in relation to various Native American genres as well as writing and discussion of student work. (SP) Staff

151. Native American Philosophy. (4) Three hours of lecture per week. Prerequisites: 71, 72, or consent of instructor. A study of the philosophical and metaphysical aspects of Native American world views, with emphasis on systems of knowledge, explanations of natural phenomena, and relations between nature and cultural ceremonial observances. (SP) Staff

C152. Native American Literature. (4) Three hours of lecture per week. Prerequisites: 72. Critical interpretations of Native American Indian literature. Also listed as American Studies C152. (F) Vizenor

154. Mythic Tribal Literature. (4) Three hours of lecture per week. Prerequisites: 72. Chronicles and commentaries on published texts and the problems of tribal literature in translation. The cult of cultural tribal artification and the preservation of traditions and telling mythic tales. Perusal of historic speeches, trickster narratives, oratorical and prophetic tribal epics. (SP)

155. Native American Medicine. (4) Three hours of seminar per week. Prerequisites: 71, Anthropology 3, or consent of instructor. Theories of health and illness, curing practices, including herbal medicines, ceremonies, and physical techniques, among Native American groups in North America. (F)

156. Native American Autobiographies. (4) Three hours of lecture per week. Prerequisites: 152 or consent of instructor. Native American Indian autobiographies as literature and comparative cultural histories. Representational and interpretative, with critical and theoretical attention to tribal hermeneutics. (SP)

157. Native American Simulations. (4) Three hours of seminar per week. Prerequisites: 72 or consent of instructor. This course will analyze the sociological, psychological, and literary aspects of Hollywood moviemakers’ stereotyping of the Indian through the history of film. The format will include representative Indian films, lectures, and guest speakers from the movie industry.

175. History of Native Americans in California. (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. Staff

177. Plains Indian History. (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. 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 histories and communities in the context of the United States which was formerly “Indian Country.” We will read works of literature, philosophy, history, fiction, and primary documents primarily from the perspective of
Native American, African American, and Black-Indian scholars and writers. This course satisfies the American Council on Education (ACE) General Education Program (GEP) Requirement.

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 in Native American Studies with topics to be announced at the beginning of each semester.

H195. Native American Studies Honors Course. (4) Course may be repeated for credit. Hours 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. Field Work in the Native American Community. (1-3) Course may be repeated for credit as project varies. Must be taken on a pass/No Pass basis. Prerequisites: Consent of instructor and upper division standing preferred. Individual conferences to be arranged. Supervised experience relevant to specific aspects of the Native American community in off-campus settings. Regular individual meetings with faculty advisor and written reports required. (F,SP)

198. Supervised Group Study. (1-3) Course may be repeated for credit as project varies. Must be taken on a pass/No Pass 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. (F,SP)

199. Supervised Independent Study and Research. (1-3) Course may be repeated for credit as project varies. Must be taken on a pass/No Pass basis. Prerequisites: Upper division standing 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. (F,SP)

Natural Resources (College of Natural Resources)

Office of Instruction and Student Affairs: 245 Mulford Hall, (510) 642-0542
Office of the Dean: 101 Giannini Hall, (510) 642-7171
http://nature.berkeley.edu/
Dean: Paul Ludden, Ph.D.
Executive Associate Dean: Barbara Allen-Diaz, Ph.D.
Associate Dean of Academic Affairs: Jon Huntsinger, Ph.D.
Associate Dean—Academic Affairs: Lewis Feldman, Ph.D.
Associate Dean—Forestry and Capital Projects: Richard Standiford, Ph.D.

Overview

The mission of the College of Natural Resources is to promote the sustainable use of natural resources and to provide the foundation for responsible environmental stewardship. We do this through teaching, extension, basic research, and applied research that integrates the natural and social sciences. Agriculture and food safety, watersheds and forests, landscapes and urban landscapes, and biogeochemistry and atmospheric science are some of the topics of college research and teaching, examined from microbial to global scales. Graduates of the college pursue careers in fields such as environmental planning and management; research in the public and private sectors in fields such as biotechnology, ecology, and rural sociology; teaching in high school and college classrooms; medicine, veterinary medicine, and other areas in the health sciences; public service, professional natural resource management, and law.

The college has four departments:

Agriculture and Resource Economics (ARE) provides a basic foundation in economics and policy analysis, as applied to the conservation and management of natural and environmental resources. Environmental Science, Policy, and Management (ESPM) brings diverse expertise to bear on environmental problems from molecular to global scales.

Environmental Science, Policy, and Management (ESPM) brings diverse expertise to bear on environmental problems from molecular to global scales.

Nutritional Science and Toxicology (NST) focuses on research in nutrition function, metabolism, and molecular toxicology.

Plant and Microbial Biology (PMB) centers on plant biology from the molecular to organizational levels, with a direct connection to plant biotechnology. Each department offers graduate and undergraduate programs, and faculty participate in numerous interdisciplinary graduate groups.

Organizational Units

Agricultural and Resource Economics Department Office: 207 Giannini Hall, (510) 642-3345
Chair: Anthony C. Fisher, Ph.D.

Environmental Science, Policy, and Management Department Office: 140 Mulford Hall, (510) 643-2626
Chair: Steve Beissinger, Ph.D.

Environmental Sciences Department Office: 252A Mulford Hall, (510) 643-4647
Co-Director: J. Keith Gilless, Ph.D.
Co-Director: Wayne Boura, Ph.D.

Nutritional Sciences and Toxicology Department Office: 119 Morgan Hall, (510) 642-6490
Chair: Leonard Bjeldanes, Ph.D.

Plant and Microbial Biology Department Office: 111 Koshland Hall, (510) 642-5167
Chair: Andrew Jackson, Ph.D.

Undergraduate Majors

Since its origin as one of the cornerstones of the University of California, the College of Natural Resources has developed multidisciplinary programs that encompass the physical, biological, and social sciences, with a direct connection to undergraduate teaching. The college is small enough to provide individual focus and attention through faculty advising, small class size, and dedicated faculty. Undergraduate programs include professional programs designed for students with interests in careers like forest management, fisheries management, and agricultural research project. (Interdisciplinary program offered by the College of Natural Resources.)

Forestry prepares students to manage forests and wildlands to produce wood, water, forage, wildlife, recreational opportunities, and other environmental benefits. Graduates are employed by various international, federal, state, local, and private agencies and organizations. (Offered by the Department of Environmental Science, Policy, and Management.)

Genetics and Plant Biology (GPB) combines traditional plant sciences—physiology, biology, and Anatomy of plant species and their environmental interactions, including gene expression and developmental biology. (Offered by the Department of Plant and Microbial Biology.)

Microbial Biology (MB) is for students interested in research positions in government, industry, and academia. It is excellent for pre-med and pre-vet students, those interested in research in biological and environmental science, for those interested in pursuing graduate education in biology, and for those interested in teaching biology. One to four hours of seminar per week. (Offered by the Department of Plant and Microbial Biology.)

Molecular Environmental Biology (MEB) introduces students to the organization and function of biological organisms at the molecular, cellular, organ, and ecological levels, in order to understand how organisms function in their environment. This major is a good choice for pre-med and pre-vet students, and students interested in graduate education in a biological area. Three majors are available in the field of Nutritional Sciences: the major in Food Science, the major in Nutritional Sciences, and the major in Nutritional Sciences and Toxicology.

Resource Management (RM) incorporates social sciences and public policy into a strong science curriculum. The interdisciplinary major trains students to make decisions about the management of ecosystems in the face of changing demographics and societal values. Undergraduates take an eight-week summer field program in the Sierra. They analyze an ecosystem and its historic and current use, make decisions about its management, and create a workable management plan. (Offered by the Department of Environmental Science, Policy, and Management.)

Major Requirements. Detailed course requirements for each major, along with college requirements for the B.S. degree, are available on the Office of Instruction and Student Affairs, University of California, Berkeley, web site.
of California, Berkeley; 245 Mulford Hall #3100, Berkeley, CA 94720-3100. For further information, call the Office of Instruction and Student Affairs at (510) 642-0542, or go to http://nature.berkeley.edu/ or e-mail cnrinfo@nature.berkeley.edu.

Minor Programs. The college offers minors in conservation and resource studies (Dept. of ESPM), environmental economics and policy (Dept. of ARE), forestry (Dept. of ESPM), nutritional sciences (Dept. of NS&T), and toxicology (Dept. of NS&T). For information, please contact the appropriate departmental office.

Undergraduate Advisers. Undergraduate advisers in each major serve as a crucial link between students and the college. Advisers are available throughout the year to assist students in planning a program best suited to their needs and interests. All students must see their adviser at least once each semester for advice in planning their academic programs.

Tele-BEARS Registration. Students must have adviser approval before filing their Tele-BEARS registration forms. The minimum course load is 13 units. Exceptions require (1) an employment verification form on file, (2) a part-time status form on file, or (3) authorization from the dean’s office.

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 Environmental Chemistry

113 Koshland Hall, (510) 642-5167
Head Adviser: Benito O. de Lumen, Ph.D.

Agricultural and Resource Economics

203 Giannini Hall, (510) 642-3347
Head Adviser: Jeffrey LaFrance, Ph.D.

Comparative Biochemistry

117 Morgan Hall, (510) 642-2863
Head Adviser: John Kortright, Ph.D.

Environmental Science, Policy, and Management

133 Mulford Hall, (510) 642-6410
Head Adviser: Rick Mills, Ph.D.

Forestry (M.F.)

133 Mulford Hall, (510) 642-6410
Head Adviser: Kevin O’Hara, Ph.D.

Microbiology

111 Koshland Hall, (510) 642-5167
Head Adviser: Tom Bruns, Ph.D.

Molecular and Biochemical Nutrition

117 Morgan Hall, (510) 643-2863
Head Adviser: Joseph Napoli, Ph.D.

Molecular Toxicology

117 Morgan Hall, (510) 642-2863
Head Adviser: Leonard Bjeldanes, Ph.D.

Plant Biology

111 Koshland Hall, (510) 642-5167
Head Adviser: Tom Bruns, Ph.D.

Range Management (M.S.)

133 Mulford Hall, (510) 642-6410
Head Adviser: Barbara Allen-Diaz, Ph.D

Wood Science and Technology

Building 478, Richardson Field Station, (510) 231-9455
Head Adviser: Frank Beall, 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 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 credits. This course varies. Sections 1-8 to be graded on a letter-grade basis. Sections 5-8 to be graded on a passed/not passed basis. Prerequisites: Prior to 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)

Near Eastern Studies

(College of Letters and Science)

Department Office: 250 Barrows Hall, (510) 642-3757
http://socrates.berkeley.edu/~neareast
Chair: Daniel Boyarin, Ph.D.

Professors

Hamid Algar, Ph.D. Cambridge University. Islamic and Persian studies.
Robert B. Alter (Class of 1937 Professor), Ph.D. Harvard University. Jewish literature and biblical studies.

Daniel Boyarin (Herman P. and Sophia Taubman Professor of Talmudic Culture), Ph.D. Jewish Theological Seminary. Talmud, Midrash, gender and sexuality, hermeneutics, ancient Judaism and Christianity.

Ronald S. Hendel, Ph.D. Harvard University. Hebrew bible and northwest Semitic philology.


Leslie Peirce, Ph.D. University of California. Ottoman history.

Martin Schwartz, Ph.D. University of California. Old Middle Iranian, Indo-European, Zoroastrianism, Semitics and Semitic epigraphy.

David B. Stnelman, M.A. Cambridge University. Near Eastern art and archeology.

Guilty Azapary (Emeritus), Ph.D. University of California, Berkeley. Near Eastern art.

Ariel J. Bloch (Emeritus), Ph.D. Münster University. Arabic and Semitics, Arabic dialectology.


Wolfgang J. Heimpel (Emeritus), Ph.D. University of Heidelberg. Mesopotamian cultures, Sumerian.

Anne D. Kilmer (Emeritus), Ph.D. University of Pennsylvania. Assyriology, Ancient Mesopotamian culture, literature, art.


RUGGERO STANZAN (Emeritus), Professor of the Graduate School. Hebrew, Talmud. Talmudic culture.

Associate Professors

Kathleen A. Keller, Ph.D. University of California, Berkeley. Ancient Egyptian language and art.

Margaret La follic, Ph.D. Columbia University. Arabic literature.

Ardon Redmount, Ph.D. University of Chicago. Egyptian archaeology and culture, Syro-Palestinian and biblical archaeology.

Muhammad Siddiq, Ph.D. University of California, Berkeley. Comparative literature, Arabic and Hebrew literature.

Assistant Professors

Shahwali Ahmad, Ph.D. University of California, Berkeley. Arabic language and literature.

Sanjyot Mehendale, Ph.D. University of California, Berkeley. Modern Iranian history, Persian literature.

Sonia S’hir (Coordinator of the Arabic Language Program), Ph.D. University of Edinburgh. Arabic language and literature.

Department Overview

Instruction in the Department of Near Eastern Studies is concerned with the languages and civilizations of the ancient, medieval, and modern Near East. The department offers specialized training in archaeology, art history, Assyriology, Egyptology, Historiography, Iranian studies, Judaic and Islamic studies, Turkish, Hebrew, Arabic, and Persian. For students in other disciplines, the department provides a wide variety of courses to supplement such required fields as anthropology, linguistics, art history, history, political science, comparative literature, and folklore. Lecture courses offered by the department present a comprehensive body of information on past and present Near Eastern civilizations. Many of the courses taught in the department are restricted to a small number of students and thus afford an opportunity for close interaction with the instructing staff.

For a description of interdisciplinary graduate programs in which the department participates, please see the Graduate Education section.

Cooperative arrangements between the University and the nearby Graduate Theological Union enable students in the department to use the extensive library holdings of the Union to supplement their programs with selected courses in Palestinian archeology, Biblical studies, and Semitic epigraphy and philology.

The Majors

Note: The Near Eastern Studies majors were undergoing extensive revisions when this catalog went to press. Please check the online catalog for current information on the revised programs.

The Major in Near Eastern Studies

Major guidelines for each discipline are available in the departmental office. With the consent of the department, portions of the requirements may be fulfilled by related courses in other departments.

In Arabic, Hebrew, Persian, and Turkish: Preliminary courses in the elementary courses of a language, or their equivalents. It is recommended that these be taken beginning in the freshman year.

The major requires from 21 to 25 upper division language units, depending upon the language undertaken, plus 6 upper division lecture units and NES 10.

In Assyriology and Hittitology, Old Iranian Studies, and Egyptology: A basic reading knowledge of German is recommended. The major requires from 22 to 26 upper division language units, depending upon the language undertaken, plus 6 upper division lecture units or 8 in Egyptology and NES 10.

The Major in Ancient Near Eastern Archaeology and Art History

Mesopotamian Archaeology. Three lower division courses are required inclusive of NES 10. For 15 or 25: 16 or 18. The student must complete 28 upper division units from the following list: NES 120A-120B, 121A-121B, 122A-122B, 123A-123B, 124A-124B. If, and only if, the courses listed above are not available during the student’s junior and senior years, the student may select any language or lecture course in the field of ancient Near Eastern Studies.

Egyptian Archaeology. This option requires that students take NES 10, 18, or 40 to take 1028, and Egyptian 100A-100B, 101A-101B. NES 15, 20, and An...
The Minor in Persian, Option A. Required courses: Turkish 1A-1B. Five upper division courses: Turkish 100A-100B; Turkish 102A-102B; a one-semester course in Turkish culture/history.

The Minor in Turkish, Option A. Required courses: Turkish 1A-1B. Five upper division courses: Turkish 100A-100B; Turkish 102A-102B; a one-semester course in Turkish culture/history.

The Minor in Hebrew, Option A. Required courses: Hebrew 100A-100B; Hebrew 104A-104B; a one-semester course in Hebrew culture/history.

The Minor in Hebrew, Option B. Required courses: Seven upper division courses: five one-semester courses in Hebrew language or literature (in Hebrew); 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 courses: Seven upper division courses: five one-semester courses in Persian language (in Persian); two one-semester courses in Persian culture/history.

The Minor in Turkish, Option B. Required courses: Seven upper division courses: five one-semester courses in Turkish literature (in Turkish); two one-semester courses in Turkish culture/history.

The Minor in Ancient Egyptian and Near Eastern Civilizations. Required courses: NES 18 or 20; five semesters of upper division courses chosen from a list available at the department office.

Graduate Programs

Graduate programs leading to the M.A. and Ph.D. degrees are offered in the following languages and literatures: 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. Students of Hebrew Bible whose training and interests are strictly philological and historical will find other programs in Bible studies more appropriate at present.

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 course work 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, study must also be based on 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 course work. 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 than 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 three semesters must be drawn from NES 220A-220B, 221A-221B, 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 be substituted on approval of the graduate adviser). Two scholarly papers written independently or in connection with course work will also be required. Written comprehensive examinations are of all students to test (a) working knowledge of pertinent languages; (b) general knowledge of the history 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. For candidacy for the Ph.D. degree depends on successful completion of the following requirements: (1) Ph.D. course work; (2) reading examinations in French and German (proficiency in a European or other modern language) which may be taken to fulfill the minor emphasis; (c) knowledge of the history and civilization of area of specialization (2) reading examinations in French and German (proficiency in a European or other modern language) which may be taken to fulfill the minor emphasis; (c) knowledge of the history and civilization of area of specialization. The Program in Near Eastern Religions, is a flexible course of study, probing in depth the areas of study and historical patterns of the ancient Near East and Egypt, with emphasis on the various forms of religious expression indigenous to their cultures. Applicants must have the Ph.D. degree as their goal. They should possess an M.A. or the equivalent in Near Eastern Studies or a related field and should have proficiency in two or more appropriate ancient languages equivalent to that obtainable through an undergraduate degree in those languages. Applicants must be admitted into both the Graduate Program in Near Eastern Religions and the University of California, Berkeley; the degree is conferred jointly by the two institutions.

The Graduate Program in Ancient History and Mediterranean Archaeology (see index for the location of a full description of this program) is available to students with backgrounds in ancient history and archaeology. The ancient studies faculty of the Department of Near Eastern Studies are members of the faculty group for this program.

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.
Lower Division Courses

R1A-R1B. Reading and Composition in Ancient Near Eastern Texts. (4,4) Three hours of lecture and one hour conference per week. Prerequisites: Subject A examination or course. 1A is a prerequisite to 1B. Expository writing is based on the analysis of selected masterpieces of the ancient Near East in translation, such as 1001 Nights, an Egyptian Childhood, and Mid- day Dream. (F,SP) Staff

2A. Composition in Connection with Reading Arabic Literature. (4) Three hours of lecture and one hour of conference per week. Prerequisites: Subject A examination or course. Training in expository writing based on the analysis of selected classical and modern Arabic literature in translation, such as Arabic, Hebrew, Persian, Turkish prose and/or poetry. Satisfies the first half Reading and Composition requirement. (F,SP) Staff

R2A. Reading and Composition in Modern Middle Eastern Texts. (4) Three hours of lecture and one hour conference per week. Prerequisites: Subject A examination or course. Expository writing based on analysis of selected Modern Middle Eastern literature in translation, such as Arabic, Hebrew, Persian, Turkish prose and/or poetry. Satisfies the first half Reading and Composition requirement. (F,SP) Staff

R2B. Reading and Composition in Modern Middle Eastern Texts. (4) Three hours of lecture and one hour conference per week. Prerequisites: Passing grade in Subject A examination or course. 1A or equivalent course is prerequisite to 2B. Expository writing based on the analysis of selected Modern Middle Eastern literature in translation, such as Arabic, Hebrew, Persian, Turkish prose and/or poetry. Satisfies the second half Reading and Composition requirement. (F,SP) Staff

10. Introduction to the Near East. (3) Three hours of lecture and one hour of discussion per week. The background and present status of the ethnic and religious groups in the Arab states, Turkey, Israel, and Iran. (F)

15. Introduction to Near Eastern Art and Archaeology. (4) Three hours of lecture and one hour of discussion per week. The civilizations of Western and Central Asia from prehistoric times to the Persian Empire.

C16. Introduction to Islamic Art. (4) Three hours of lecture and one hour of discussion per week. An introduction to the art and architecture of Islamic lands from the seventh to the 17th centuries and to the practice of art history. Also listed as History of Art C16.

18. Introduction to Ancient Egypt. (4) Three hours of illustrated lecture and one hour of museum section per week. An introduction to the art and architecture of Islamic lands from the seventh to the 17th centuries and to the practice of art history. Also listed as History of Art C16.

24. Freshman Seminars. (Course may be repeated for credit as topic varies. One hour of seminar per week. A-1 to B-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/not 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 all campus departments, and topics vary from department to department and semester to semester.

25. Ancient Babylonian Legends and Myths. (3) Three hours of lecture per week. Lectures on and readings of the Gilgamesh Epic, Creation and Flood Mythology, and other Mesopotamian literary texts in translation.

C26. Introduction to Central Asia. (3) Three hours of lecture per week. Formerly 26. This course will introduce the student to the ancient and modern Central Asia, but also to the role played by the region in the shaping of the history of neighboring regions and regimes. Themes include the history, languages, ethnicities, religions, and archaeology of the region and will acquaint the student with the historical foundations of some of the political, social, and economic challenges for contemporary Central Asian and Eastern European, Central Asian re- publics. Also listed as Geography C55.

34. Hebrew Bible in Translation. (3) Three hours of lecture per week. Readings from the Hebrew Bible in English translation. (F,SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Section of a seminar that is passed/not passed basis. Section 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

C92. Imaging Arab Civilization. (3) Three hours of lecture and one hour of discussion per week. Formerly 92. This course examines major aspects of Arab culture through literature, art, film, and other media. Questions of religious, political, and philosophical nature co-exist in Arab culture with literary conventions and aesthetic norms. The course explores the dynamic interrelationship among the various concerns of Arab culture from pre-Islamic times to the present. Also listed as Undergraduate Interdisciplinary Studies C92.

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 pass/credit basis. Upper division standing and instructor must submit a written proposal with consent of instructor to the department chair for approval. Topics vary.

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 pass/credit basis. Prerequisites: Lower division standing; 3.0 GPA and consent of instructor. Students must submit a written proposal to the chair of the department for approval. Topics vary.

Upper Division Courses

102A-102B. Archaeology of Ancient Egypt. (4,4) 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 Egyptian culture and society. A. Early prehistory through the First Intermediate Period. B. The Middle and New Kingdoms. Special emphasis will be given to current archaeological theories and interpretations. Extensive use will be made of the Hearst Museum collection.

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 upon literary and other written sources. Also listed as Religious 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 Religious Studies C104.

105A-105B. Ancient Mesopotamian Documents and Literature. (3) Three hours of lecture per week. A representative survey of original 3rd-1st millennium Cuneiform texts in translation. A. The Sumerian religious and scholastic tradition; myths of creation, hymns, epics and early historical literature. B. Assyrio-Babylonian historical and legal documents and private and royal correspondence; kingship and the cult; divination, astrology and magic; the classic literary works.
phasis on the development of visual narrative, the use of art in the expression of authority and legitimacy, and artistic trends between cultures. Collections on campus or in the area will be incorporated when ever possible. Also listed as History of Art C120B. (SP)

121A. Topics in Islamic Art. (4) Course may be re peated 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 topics in Islamic art. Subjects addressed may include painting, calligraphy, and book production. Also listed as History of Art C121A.

121B. 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 topics in Islamic art. Subjects addressed may include painting, calligraphy, and book production.

122A-122B. Iranian Archaeology. (4,4) Three hours of lecture and one hour of discussion per week. A survey of the archaeology of Iran from Paleolithic times down to the Sasanian period.

123A-123B. Mesopotamian Archaeology. (4,4) Three hours of lecture and one hour of discussion per week. A survey of the archaeology of Mesopotamia.

124A-124B. Archaeology of the Southern Levant, (3,3) 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) from Natufian through Prehis torian times. The course will be emphasized, along with the major theoretical and interpretative frameworks and issues affecting our understanding of the archaeological record. (F,SP)

125. Archaeology and the Bible, (4) Three hours of seminar and one hour of section per week. This seminar-type class explores the continually evolving and sometimes contentious relationship between archaeology and the Hebrew Bible/Old Testament. It begins with a broad overview of the characteristics of archaeology, biblical archaeology, history, the biblical text, and biblical studies, and then considers specific topics of current research and debate, focusing on how particular theoretical and interpretive concerns relate to specific archaeological finds (and vice versa). The class employs a combination of pedagogical approaches, including traditional lectures (with and without slides), illustrated group presentations and/or debates, discussions, videos, and, where relevant, one or more field trips to relevant museum collections. (F,SP) Redmount

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 5th century BCE to the 10th century CE. A number of specific sites located along the Silk Roads will be selected and explored in detail, 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. (F,SP)

127. Land of Civilizations: The Art and Archaeology of Ancient Syria, (4) Three hours of lecture per week. The course provides 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 cultural contexts. (F,SP) Staff

128. The Art and Archaeology of Ancient Turkey, (3) Three hours of illustrated lecture per week. This course explores the art and archaeology of ancient Turkey from the Neolithic period to the time of Alexander’s conquest of the Near East (330 BCE). The survey will include geographic and historical considerations and will focus in particular on the ancient sites and monuments. Topics of discussion may include the Anatolian mother goddess, resource procurement, trade contacts, the Trojan war, and the rise of Phrygia and Lydia. A primary goal of the course is the issue of defining indigenous, regional cultures and the ways in which they interacted with the broader ancient world. (F,SP) Staff

130A. History of Ancient Israel. (3) Three hours of lecture per week. The course will outline art and one hour of discussion per week. The course will explore the material culture of the region within its social and cultural contexts. (F,SP) Staff

131. Aspects of Biblical Religion, (3) Three hours of lecture per week. The course will outline art and one hour of discussion per week. The course will explore the material culture of the region within its social and cultural contexts. (F,SP) Staff

133. Judaism in Late Antiquity, (3) Three hours of lecture per week. The function of religious institutions, the elaboration of the ritual features; the relationship between Judaism and literature, especially poetry; the principal Sufi groups; 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 medieval West. (F,SP)

140. Topics in Islamic Thought and Institutions. (3) Three hours of lecture and one hour of discussion per week. The course will outline art and one hour of discussion per week. The course will explore the material culture of the region within its social and cultural contexts. (F,SP) Staff

150A. Arabic Literature in Translation. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. No knowledge of Arabic is required.

A. Survey of Arabic literature from its origins in pre-Islamic poetry through its historical development during the Umayyad, and Abbasid periods.

B. Survey of Arabic literature in its development from the post-Abbasid period to the present.

151. Folktales of the Middle East, (4) Three hours of lecture and one hour of discussion per week. An introduction to the art of the folktale as practiced in the folk narrative traditions of the Middle East. This course will focus on the cultural dynamics of the Arabic folktale: its portrayal of women, social conflicts and gender roles; its use of imagery, symbolism and the supernatural; and its translation of cultural themes and concerns into plot motifs. We will then compare the Arabic folktale as an oral genre with tales from other traditions including Turkish and Persian.

152. Cultural Encounters in Modern Arabic Literature, (3) May be repeated for credit when subject matter varies. Three hours of lecture per week. This course is organized around two broad but inter-related issues: the quest for identity and the representation of the “other” in modern Arabic literature. Central to both concerns is the treatment of colonialism, nationalism, and gender in modern Arabic literature and Arab culture in general. (F,SP)

153. The Medieval Framentale Genre: Its Hispano-Arabic Roots. (4) Three hours of lecture per week. The art of inserting stories within stories is typical of certain Oriental literatures and was widely cultivated in Arabic. Via Spain, the Arabic tradition developed this form of writing to medieval Europe. A masterpiece such as the Libro del buen amor, which stands as an isolated work in Spanish literature, nevertheless bears comparison with certain Arabic works that preceded it. This course will study the structure, meaning, and function of the framentale genre, using examples from Arabic, Spanish, and English, including animal fables, romances, mir rors for princes, and picaresque narratives. It will ex aminate the Arabic literature Spain borrowed, and show how, from Spain, individual tales found their way into the medieval West.
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 the Nights was creatively manipulated by Western writers will be studied, as will the influence of these tales on modern Arabic literature itself. Several examples of how the Nights have been reimagined in Western films will be considered. All work will be read in English translation.

160. Religions of Ancient Iran. (3) Three hours of lecture per week. Principally devoted to Zoroastrianism and Islamic mysticism but with some attention to Indo-Iranian origins, and relevance of Iranian religion for the history of Hellenistic Gnosticism, Judaism, and Islam.

162A-162B. History of Persian Literature. (3:3) Three hours of lecture per week.
A. Classical Persian literature from Firdawsi to the 15th century.
B. Persian literature from the 15th century to the contemporary period. (F,SP)

173A-173B. Topics in the History of Central Asia and the Turks. (3:3) Course may be repeated for credit as topics vary. Three hours of lecture per week. A survey of the main themes in the cultural, ethnic, and linguistic history of Central Asian and adjacent regions, principally from the rise of Islam down to the present. The first half of the course will deal with the Iranian element in Central Asia, and particularly with the Tajiks. 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 Europe.

174. Law and Society in the Early Modern Middle East. (3) Three hours of lecture per week. This course examines the social and religious lives of women and men through the lens of the law. A major concern is the relationship between law and culture, namely, the ways in which the law reflected ideals and tensions ranging from ideological competition between states to the problems of ordinary townswomen and peasants. In analyzing actual court cases, we will ask how individuals participated in the life of the court, and how they used the court to articulate their own self-interest and sense of moral worth. Readings will be in English. Students wishing to work with sources in the original Ottoman Turkish should also enroll in Turkish 104 (1 unit).

175. History and Culture of Afghanistan. (3) Three hours of lecture per week. This course will discuss Afghanistan from ancient times to the present, including the emergence of Afghanistan as a modern nation-state and its geo-strategic importance. The Soviet invasion and withdrawal will be emphasized, along with issues of state and society, ethnic diversity and tribal structure, challenges of modernization, and nationalism and identity. The role of religion and mystical orders and the role of art, music, and literature will also be discussed. (F,SP)

190. Special Topics in Fields of Near Eastern Studies. Course may be repeated for credit. Three hours of lecture per week. Topics explore themes and problems in the various fields of Near Eastern studies. They often reflect the research interests of the instructor and supplement regular curricular offerings. Specific descriptions of current offerings in this series are available through the department. (F,SP) Staff

190A. Ancient Near Eastern Studies. (4) (F,SP)
190B. Egyptian Studies. (4) (F,SP)
190C. Jewish Studies. (4) (F,SP)
190D. Islamic Studies. (4) (F,SP)
190E. Arabic. (4) (F,SP)
190F. Cuneiform. (4) (F,SP)
190G. Egyptian. (4) (F,SP)
190H. Hebrew. (4) (F,SP)
190I. Persian. (4) (F,SP)
190J. Semitics. (4) (F,SP)
190K. Turkish. (4) (F,SP)

192. Undergraduate Seminar: Problems and Research in Near Eastern Studies. (2,4) Course may be repeated for credit. Three hours of seminar plus extensive outside work. Prerequisites: Consent of instructor. This series is designed to acquaint upper division students with advanced research strategies in specific areas of Near Eastern studies. The course may focus current research and interests of the instructors and will introduce students to specialized problems in the field. Two units for presentation; four units for paper and presentation. (F,SP) Staff

192A. Ancient Near Eastern Studies. (2,4) (F,SP)
192B. Egyptian Studies. (2,4) (F,SP)
192C. Jewish Studies. (2,4) (F,SP)
192D. Islamic Studies. (2,4) (F,SP)
192E. Arabic. (2,4) (F,SP)
192F. Cuneiform. (2,4) (F,SP)
192G. Egyptian. (2,4) (F,SP)
192H. Hebrew. (2,4) (F,SP)
192I. Persian. (2,4) (F,SP)
192J. Semitics. (2,4) (F,SP)
192K. Turkish. (2,4) (F,SP)

H195. Senior Honors. (2-4) Must be taken on a passed/not passed basis. Prerequisites: Limited to senior honors candidates. Students may enroll in the seminar only with permission of the instructor and preparation of an honors thesis.

198. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Variable meetings. Must be taken on a passed/not passed basis. Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. Topics vary and are announced at the beginning of each semester. (F,SP)

200. Graduate Proseminar. (1) One to two hours of seminar per week. Introduction to the academic profession of Near Eastern studies. This course will survey the various subfields of Near Eastern studies under this rubric, including their developmental histories, methodologies, and primary and secondary data sources. Enrollment in this course is required of all graduate students during their first year of study. (F,SP)

220A-220B. Seminar in Near Eastern Art. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. Seminar on specific aspects of the arts of Western and Central Asia. Topics to be announced at first seminar meeting. Students who take two semesters in succession may be assigned credit and grade at the end of the sequence.

223A-223B. Seminar in Near Eastern Archaeology. (4) Course may be repeated for credit. Three hours of seminar per week. Research into a major aspect or problem of Mesopotamian archaeology.

290. Special Courses. Course may be repeated for credit. Prerequisites: Consent of instructor. Students may enroll in more than one section of 290, but total number of units of Special Study in any one semester may not exceed 12.
290A. Near Eastern Studies. (1-5)
290B. Arabic. (1-5)
290C. Cuneiform. (1-5)
290D. Egyptian. (1-5)
290E. Hebrew. (1-5)
290F. Iranian. (1-5)
290G. Semitics. (1-5)
290H. Turkish. (1-5)

292. Museum Internship. (4) Course may be repeated for credit. Ten to fifteen hours per week of curatorial work. Must be taken on a satisfactory/unsatisfactory basis. Jointly supervised by a professional staff of a participating museum and a faculty member in the Art and Archaeology division of the Department of Near Eastern Studies.

295. Supervised Field Research in Archaeology. (2-12) Course may be repeated for credit as topics vary. Three hours of fieldwork per week. Full time participation in an archaeological excavation or exploratory survey, preceded by three hours of seminar per week for one half of one semester, at the discretion of the instructor. Students will participate in all aspects of the operation and will be responsible for preparing a written report on some specific part of the work. Geographical areas and sites to be determined each year. Students taking the seminar only will receive 2 units only.

297. Topics in Ancient Ceramics of Egypt and the Levant. (2) Course may be repeated for credit as topics vary. Three hours of seminar per week. Two units to be graded on a satisfactory/unsatisfactory basis. Four units to be graded on a letter-graded basis. Prerequisites: 102A or 106A-B or consent of instructor. Changing topics involving ancient Egyptian and Levantine cultures. Focus may be regional, chronological, methodological, and/or thematic. (F,SP)

299. Individual Research. (1-12) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Near Eastern Studies. Topics vary and are announced at the beginning of each semester. (F,SP)

308. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Near Eastern Studies. Topics vary and are announced at the beginning of each semester. (F,SP)

309. Individual Study for Doctoral Students. (1-8) 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 advisor. Units may not be used to meet either unit or residence requirements for a master’s degree. (F,SP)

Privileges of the Graduate School

Recipient of Distinguished Teaching Award
Arabic

Lower Division Courses

1A-1B. Elementary Arabic. (5-5) Five hours of recitation per week. Prerequisites: 1A or equivalent. 1B is a prerequisite to 1B. This course emphasizes the functional usage of Arabic in the four language skills: listening, speaking, reading, and writing. Authentic audio, video, and reading materials are presented from the beginning, and students are encouraged to be creative with the language in and out of class.

15B. Spoken Arabic. (3) Course may be repeated for credit if different dialect is offered. Three hours of recitation per week. Prerequisites: 1A. Formerly 101B. Practice in speaking an Arabic dialect.

20A-20B. Intermediate Arabic. (5-5) Five hours of recitation per week. Prerequisites: 1B 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 grammatical and stylistic rules are emphasized. Students deliver oral presentations and write academic papers in Arabic.

Upper Division Courses

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 different genres. Guest lectures, films, documents, oral presentations, research papers. Formal and informal styles of writing and correspondence. Extensive vocabulary building.

104A. Modern 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 contemporary prose. Reading and analysis of modern Arabic fiction, including short stories, drama, the novel, and expository prose.

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.

105A. Modern Arabic Poetry. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 20B or equivalent. Readings and analysis of 20th-century Arabic poetry.

105B. Classical Arabic Poetry. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 20B or equivalent. Readings and analysis of poetry from the pre-Islamic through the classical periods.

107. Arabic Historical and Geographical Texts. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 20B or equivalent. Readings from the classical historians and geographers and from contemporary scholarship. Development of historiography.

108. Islamic Religious and Philosophical Texts in Arabic. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 20B or equivalent. Readings in the basic texts of Islam (Quran, Hadith, Sira, commentary) and in theological, mystical, and philosophical texts.

111B. Survey of Arabic Literature (in Arabic). (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100A. This course is designed primarily for majors and prospective majors in Arabic studies.

A. The Classical Periods: A literary-historical survey of Arabic literature from pre-Islamic times to the middle of the thirteenth 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 thirteenth century to the present.

120A-120B. Styles of Arabic. (3-3) Course may be repeated for credit when subject matter varies. Three hours of lecture per week. Prerequisites: 20B. A survey of Arabic writing styles from pre-Islamic times to the present. Through representative selections from pre-Arabic poetry, the Qur’an, Hadith, medieval and modern literary and non-literary texts, this course introduces the student to the conventions of Arabic composition. Regular readings drawn from the Arabic press will complement the chronological/ stylistic survey and add a comparative perspective to it.

198. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Must be taken on a pass/not pass basis. Prerequisites: Limited to senior honors candidates. Directed study centered upon preparation of an honors thesis.

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a pass/not pass basis. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog. (F,SP)

200. Directed Study for Upper Division Students. (1-4) Course may be repeated for credit as topic varies. Three hours of seminar per week. Prerequisites: Consent of instructor. Directed study centered upon preparation of an honors thesis.

201. Arabic Dialectology. (3) Prerequisites: 201A and 201B. Comparative analysis of the Arabic dialects; their relationship to Classical Arabic and the Semitic languages; sociolinguistics of diglossia; the emergence of Educated Spoken Arabic and the future of Arabic.

202. History of Arabic. (3) Course may be repeated for credit when topic varies. Three hours of lecture per week. Prerequisites: 20B or its equivalent or consent of instructor. This course surveys and adds a comparative perspective to it.

205A-205B. Readings in the Qur’an. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 105 or its equivalent. Study of selected grammatical phenomena of Arabic based on readings from the classical Arabic grammarians, on the modem Arabic language and on the Arabic worldview and on the Western grammatical tradition.

206A-206B. Advanced Hittite. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 106A or equivalent. This course introduces the student to the major conventions of Hittite grammatical tradition.

209A-209B. Readings in the Qur’an. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 20B or its equivalent or consent of instructor. Comparative analysis of the Arabic dialects; their relationship to Classical Arabic and the Semitic languages; sociolinguistics of diglossia; the emergence of Educated Spoken Arabic and the future of Arabic.

210A-210B. Seminar in Classical Arabic Literature. (3) Three hours of lecture per week. Prerequisites: 101A-101B. This course investigates the origins, status, and function of literary theory in the making of modern Arabic literature. Questions of cultural influence, literary genres, forms, modes, and techniques of representation are all central to the interests of this course.

299. 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.

Professional Courses

301A-301B. Teaching Arabic. (3-3) One hour of lecture per week plus participation 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 contrastive 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. Prerequisites: Background in German and French recommended. Introduction to Cuneiform script and grammar, reading of selected Cuneiform texts. Sequence begins in fall. Offered alternate years.

101A-101B. Intermediate Akkadian. (3-3) Three hours of lecture per week. Prerequisites: 100A-100B, background in German and French recommended. Reading of selected texts, including law codes, letters, myths, and epics. Sequence begins fall. This course will be offered in alternate years.

102A-102B. Elementary Sumerian. (4-4) Three hours of lecture per week. Prerequisites: 102A-102B, background in German and French recommended. Introduction to Sumerian grammar and writing.

103A-103B. Intermediate Sumerian. (3-3) Three hours of lecture per week. Prerequisites: 102A-102B, background in German and French recommended. 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 Hittite language and grammar and reading of selected historical and religious texts. Must be taken on a pass/not pass 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 pass/not pass 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 pass/not pass basis. Enrollment is restricted by regulations shown in the General Catalog.

Graduate Courses

200A-200B. Advanced Akkadian. (3-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. Reading of a variety of genres of Akkadian documents and literature. Texts selected are based on the individual needs of participating students.

206A-206B. Advanced Hittite. (3-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 106A-106B. Reconstruction and critical reading of Hittite texts belonging to different literary genres (epics, mythology, annals, law codes, political
treaties, rituals, etc.) or introduction to Hieroglyphic Luwian.

210A-210B. Advanced Sumerian. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 103A-103B. Reading of selected texts with the purpose of initiating students into the diverse genres of Sumerian literature.

298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Cuneiform. Topics vary and are announced at the beginning of each semester.

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.

102B. Elementary Coptic. (4) Three hours of lecture per week. Prerequisites: German and Greek recommended. A. Introduction to Sahidic dialect. B. Readings in Sahidic, other dialects.

H195. Senior Honors. (2-4) Must be taken on a passed/not passed basis. Prerequisites: Limited to seniors 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 the General 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.

209. Seminars. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Egyptian. Topics vary and are announced at the beginning of each semester.

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.

102A-102B. 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. Texts from the rabbinic period (Mishnah, Tosofa, Talmud, and Midrash) and an introduction to the languages of rabbinic texts.

104A-104B. Modern Hebrew Texts. (3;3) Course may be repeated for credit with the consent of instructor. Three hours of lecture per week. Prerequisites: 100A-100B or equivalent. An introductory study of selected topics in Hebrew literature from the European Enlightenment to contemporary Israeli poetry and fiction.

105A. The Structure of Modern Hebrew. (3) Course may be repeated for credit. Three hours of lecture per week. An analysis of grammar, syntax, semantics, morphology, history of the language, fixed expressions, discourse analysis, contrastive features of Hebrew and English in the context of contemporary linguistic theories.

106A-106B. Elementary Biblical Hebrew. (3;3) Three hours of lecture per week. Formerly 2A-2B. An introduction to the language of the Hebrew Bible. (F,SP) Staff

107A-107B. Biblical Hebrew Texts. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 20A-20B. Formerly 101A-101B. The tools and procedure of biblical exegesis applied to simple narrative texts. (F,SP) Staff

148A-148B. The Art and Culture of the Talmud: Advanced Textual Analysis. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 202A-202B or consent of instructor. In this course, we will read and analyze closely talmudic texts in the original languages—Hebrew and Aramaic—together with selected medieval commentaries. The primary focus of the course will be on the acquisition of facility in reading the Talmud, comprehension of philological and historical-cultural issues and methods of study, as well as understanding the formative relation of the Talmud to the structures and practices of traditional Jewish culture. (F,SP) Staff

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 the General 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: 101A-101B. Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 102A-102B.

206. Ancient and Modern Hebrew Literary Texts. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 100A-100B or consent of instructor. Focus on biblical texts seen from a literary point of view, attempting to establish connections with later Hebrew literature.

298. Seminar. (1-4) Course may be repeated for credit. Prerequisites: Consent of instructor. Special topics in Hebrew. Topics vary and are announced at the beginning of each semester.

Professional Courses

301A-301B. Teaching Hebrew in College. (3,3) One hour of lecture per week plus participation in demonstration classes and colloquia. Must be taken on a satisfactory/unsatisfactory basis. Prerequisite: Graduate Standing. The methodology 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.

Persian and Iranian

Persian

Lower Division Courses

1A-1B. Elementary Modern Persian. (5;5) Five hours of lecture per week.

Upper Division Courses

100A-100B. Intermediate Modern Persian. (5;5) Five hours of lecture per week. Prerequisites: 1A-1B or equivalent. Sequence begins Fall.

101A-1B. 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 equivalent. Readings in both prose and poetry, drawn chiefly from modern Persian literature, designed to increase reading skills and vocabulary and to provide a transition to the study of more difficult texts.

102A-102B. Readings in Classical Persian Prose. (3;3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101A-101B or equivalent. Systematic study of representative selections from all periods of classical Persian literature, with attention to the historical and intellectual context.

103A. Classical Persian Poetry. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101A-101B or equivalent. Systematic study of poems belonging to all genres of classical Persian poetry, with consideration of the questions of prosody, rhetoric and style.

104B. Contemporary Persian Literature. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 101A-101B or equivalent. This course will deal with significant works of Persian prose and poetry from the beginning of the nineteenth century down to the present. Complete works or extracts from them will be read in the original as a preliminary to their analysis in terms of literary and stylistic development, as well as the changing role of literature in society.

A. The works of the 19th century and the period of the Constitutional Revolution (1905-1911).

B. The literature of the rest of the 20th century.

106A-106B. Reading and Composition for Students with Knowledge of Spoken Persian. (3;3) Three hours of lecture per week. Prerequisites: Knowledge of spoken Persian and consent of instructor. Designed to promote advanced literacy skills in students with different levels of spoken Persian but little or no reading and writing skills in the language. This course will prepare students to take advanced literature courses in the Persian program. (F,SP)

H195. Senior Honors. (2-4) Must be taken on a passed/not passed basis. Prerequisites: Limited to seniors honors candidates. Directed study centered upon preparation of an honors thesis.
**Semiotics**

**Upper Division Courses**

100B. Aramaic. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Hebrew 100A-100B. Biblical and Ancient Aramaic, including study of the Aramaic parts of Daniel and Ezra and the inscriptions and papyri from Syria, Egypt, Mesopotamia, and the Persian Empire. Sequence begins.

Graduate Courses

200A-200B. Studies in Comparative Semitics. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Twelve upper division units in Semitics or consent of instructor; 200A is prerequisite to 200B. Comparative Semitic phonetics, morphology, and lexiconography within the wider context of Afro-Asiatic linguistics. Late in the course, concentration on the evolution of one particular Semitic language. Sequence begins.

**Turkish**

**Lower Division Courses**

1A-1B. Elementary Modern Turkish. (5-5) Five hours of lecture per week. Enrollment begins fall.

Upper Division Courses

100A-100B. Intermediate Modern Turkish. (5-5) Five hours of lecture per week. Prerequisites: 1A-1B or equivalent. Enrollment begins fall.

101A-101B. Readings in Modern Turkish. (3-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 1A-1B or equivalent. Includes reading assignments in the original texts of the course.

102A-102B. Ottoman Turkish Texts. (3-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 208B or consent of instructor. Study of Turkish literary and historical texts in Arabic script, from the 13th to the 20th century.

104. Law and Society in the Early Modern Middle East: Sources in Ottoman Turkish. (1) One hour of discussion per week. Prerequisites: Consent of instructor. This course is to be taken concurrently with Near Eastern Studies 174 by those students who wish to supplement the readings assigned for 174 with additional readings of primary sources in the original Ottoman Turkish.

H195. Senior Honors. (2-4) Must be taken on a pass/no pass basis. Prerequisites: Limited to seniors who are in good academic standing. Open to students who wish to prepare an honors thesis. Open to upper division students.

198. Directed Group Study for Upper Division Students. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass basis. Prerequisites: Requisite: Advanced standing 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 pass/no pass basis. Prerequisites: Twelve upper division units in Semitics or consent of instructor; 200A is prerequisite to 200B. Comparative Semitic phonetics, morphology, and lexiconography within the wider context of Afro-Asiatic linguistics. Late in the course, concentration on the evolution of one particular Semitic language. Sequence begins.

Graduate Courses

200A-200B. Advanced Turkish. (3-3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Twelve upper division units in Semitics or consent of instructor; 200A is prerequisite to 200B. Comparative Semitic phonetics, morphology, and lexiconography within the wider context of Afro-Asiatic linguistics. Late in the course, concentration on the evolution of one particular Semitic language. Sequence begins.

289. 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: 349 Mulford Hall, (510) 642-8915
Director: Robert T. Knight, M.D.

**Professors**

Mark D’Esposito, M.D. State University of New York Health Science Center at Syracuse, College of Medicine
Russell De Valois, Ph.D. University of Michigan (Psychology)
Terrence W. Deacon, Ph.D. Harvard University (Biology)
John Flannery, Ph.D. University of California, Santa Barbara (Optometry)
Ralph O. Freeman, O.D., Ph.D. Ohio State University, Ph.D. University of California, Berkeley (Optometry)
Ethel Isaacoff, Ph.D. McGill University (Molecular and Cell Biology)
Richard Ivory, Ph.D. University of Oregon (Psychology)
Stanley A. Klein, Ph.D. Brandeis University (Optometry)
Robert T. Knight, Northwestern University Medical School (Psychology)
Harold Lacer, Ph.D. Columbia University (Molecular and Cell Biology)
Dennis M. Levi, Ph.D. University of Houston (Optometry)
John Nagi, Ph.D. California Institute of Technology (Molecular and Cell Biology)
Ma-ming Poo, Ph.D. Johns Hopkins University (Molecular and Cell Biology)
Arthur P. Shimamura, Ph.D. University of Washington (Psychology)
Richard A. Steinhardt, Ph.D. Columbia University (Molecular and Cell Biology)
Mark A. Tanyu, Ph.D. Yale University (Environmental Science, Policy, and Management)
Frank S. Webbin, Ph.D. Johns Hopkins University (Molecular and Cell Biology)
Jeffrey A. Winer, Ph.D. University of Pennsylvania (Molecular and Cell Biology)
Irvin Zucker, Ph.D. University of Chicago (Psychology)
Robert S. Zucker, Ph.D. Stanford University (Molecular and Cell Biology)

**Associate Professors**

Yang Dan, Ph.D. Columbia University (Molecular and Cell Biology)
Jack Gallant, Ph.D. Yale University (Psychology)
Gian Garriga, Ph.D. St. Louis University (Molecular and Cell Biology)
Lucia Jacobs, Ph.D. Princeton University (Psychology)
David Kuhlman, Ph.D. University of California, Berkeley (Molecular and Cell Biology)

**Assistant Professors**

Jack Gallant, Ph.D. Yale University (Psychology)
Gian Garriga, Ph.D. St. Louis University (Molecular and Cell Biology)

**Professors**

Michal S. Berger, M.D. University of Miami School of Medicine (University of California, San Francisco)
Beth Budd, Ph.D. University of Texas, Austin (Molecular and Cell Biology)
Karen De Valois, Ph.D. Indiana University (Psychology)
Mariann C. Diamond, Ph.D. University of California, Berkeley (Integrative Biology)
Sheldon S. Miller, Ph.D. University of Michigan (Optometry)
Hiro-Ping H. Moore, Ph.D. California Institute of Technology (Molecular and Cell Biology)
W. Geoffrey Owen, Ph.D. Imperial College, London (Molecular and Cell Biology)
Daniel S. Rehnsk, Ph.D. Cornell University (Physics)
Walter J. Freeman (Emeritus), Ph.D. Yale University (Emeritus, Ph.D. California Institute of Technology (Emeritus)
Gunnar S. Stent (Emeritus), Ph.D. University of Illinois (Emeritus)
Robert T. Knight (Emeritus), Ph.D. Ohio State University (Emeritus)

**Adjunct Professors**

Lynn C. Robertson, University of California, Berkeley (Psychology)

**Head Adviser:** Mr. Ngai

**Undergraduate Program**

Consult the Department of Molecular and Cell Biology for information about the current undergraduate program in neurobiology.
Graduate Program

The Neuroscience Graduate Program is an integrated interdisciplinary graduate program offering study venues leading to a Ph.D. degree in neuroscience. The program includes, in addition to faculty from the Helen Wills Neuroscience Institute, approximately 40 faculty members in the Departments of Molecular and Cell Biology; Psychology; Integrative Biology; Chemical Engineering, Physics; Environmental Science, Policy, and Management; and in the School of Optometry/Program in Vision Science. The 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, receptors, and signal transduction mechanisms; formation, function, and plasticity of synapses; control of neural cell fate; and formation of nerve growth cone guidance and target recognition; mechanisms of sensory processing in the visual, auditory, and olfactory systems; development and function of neural networks; motor control; and the neural basis of cognition. The preparations in use range from reductionist models to complex neural systems and include cells in culture, simple invertebrate and vertebrate organisms, model genetic systems, the mammalian cerebral cortex, and human brain imaging.

Faculty in the Neuroscience Institute are involved in five broad research areas: molecular neuroscience, cellular neuroscience, developmental neuroscience, neuropsychology, and cognitive neuroscience. 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. Applicants are required to submit GRE General Test scores as well as one GRE Subject Test score (in biochemistry and cell biology, chemistry, psychology, computer science, or physics). Graduate students are required to take only a modest number of courses during their first two years, and they are free to choose among a wide range of special topics courses. Graduate student advisors help students tailor their course work to their individual needs and interests. To ensure breadth in didactic course work, 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 neuroscience; and cognitive neuroscience). Note that students, with approval from the graduate advisor, may take courses in other specialized areas for the purpose of developing research foundations, such as biochemistry, genetics, statistics, physics, bioengineering, etc. Independent research in different laboratories starts at the beginning of the first year.

Graduate students are 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 their first three years of study. Graduate students are required to take only a modest number of courses during their first two years, and they are free to choose among a wide range of special topics courses. Graduate student advisors help students tailor their course work to their individual needs and interests. To ensure breadth in didactic course work, 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 neuroscience; and cognitive neuroscience). Note that students, with approval from the graduate advisor, may take courses in other specialized areas for the purpose of developing research foundations, 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. For detailed information on the graduate program, see http://neuroscience.berkeley.edu, or e-mail neuroscience admissions@berkeley.edu, or read your inquiries to Graduate Student Affairs, Neuroscience Institute, 349 Mulford Hall #3190, University of California, Berkeley, CA 94720-3190. The Neuroscience Institute has no designated level courses, but the various affiliated departments offer a wide range of neuroscience graduate courses. A selection is listed below. (For more details, see individual course descriptions.)

General Survey Courses: Advanced Principles of Neuroscience (MCB 260), and Ethics in Scientific Research (MCB 293C).

Cellular, Molecular, and Developmental Neuroscience Courses: Advanced Cellular Neurobiology (MCB 261), Cellular and Molecular Biology of Ocular Disease (Vision Science 212B), and Advanced Developmental Neurobiology (MCB 263).


Other selected seminar courses include Graduate Seminar on Specialized Neuroscience Topics (MCB 290), Issues in Cognitive Neuroscience (Psychology 218), and Graduate Seminar on Specialized Topics in Biological and Cognitive Psychology (Psychology 290).

The Helen Wills Neuroscience Institute also sponsors an annual campuswide Neuroscience retreat, a weekly seminar series, and a Neuroscience Journal Club.

Nuclear Engineering (College of Engineering)

Department Office: 4153 Etcheverry Hall, (510) 642-5010 www.nucleareng.berkeley.edu
Chair: Per F. Peterson, Ph.D.

Professors: Paul L. Chambri, Ph.D. University of California, Berkeley. Numerical and analytical methods
T. Kenneth Fowler, Ph.D. University of Wisconsin at Madison. Applied plasma physics and fusion
William L. Kastenberg (Daniel M. Tellep Distinguished Professor), Ph.D. University of California, Berkeley. Nuclear reactor safety, risk assessment and risk management.
Edward C. Morse, Ph.D. University of Illinois. Applied plasma physics.
Donald R. Olander, Sc.D. Massachusetts Institute of Technology. Nuclear materials
Per F. Peterson (Chair), Ph.D. University of California, Berkeley. Thermal hydraulics and nuclear materials management
Thomas H. Pigford, Sc.D. Massachusetts Institute of Technology. Nuclear safety, waste management
Stanley G. Pluss, Ph.D. University of Michigan. Nuclear radiochemistry and its applications
Virginia E. Schock, M.S., M.E. University of California, Berkeley. Reactor thermal hydraulics, safety
Lawrence M. Grossman (Emeritus)
Selig N. Kaplan, Ph.D. (Emeritus)
Lawrence Ruby, Ph.D. (Emeritus)

Associate Professors: Joopchon Ahn, Ph.D. University of California, Berkeley; D.Eng. University of Tokyo. Nuclear waste management
Daniel M. Kamm, Ph.D. University of California, Berkeley. Renewable energy systems, health and environmental impacts of energy generation
Jasmina L. Vujic, Ph.D. University of Michigan. Numerical methods in particle transport theory and reactor physics

Assistant Professor
Brian D. Wirth, Ph.D. University of California, Santa Barbara. Effects of radiation on metals.

Professors
Dan Gabriel Cacuci, Ph.D. (Adjunct) (In Residence) (Daniel M. Tellep Distinguished Professor)
Shucheng Gao, Ph.D. (In Residence)
Bruce Hasegawa, Ph.D. (In Residence)
Ke-Ngo Leung, Ph.D. (In Residence)
Keith T. Thomassen, Ph.D. (In Residence)

Associate Professor
John Verbicurz, Ph.D. (In Residence)

Department Overview

Nuclear engineering is concerned with the applications of nuclear reactions and radiation to biomedical devices, energy systems, and environmental control. The nuclear engineering field includes the design, analysis, and operation of nuclear reactors and their nuclear fuel cycles, devices for the treatment of disease, and systems for the treatment and disposal of high-level radioactive waste. The principles taught in the nuclear engineering courses are applicable both to nuclear fission reactors and to the development of nuclear fusion as an energy source. The nuclear engineering courses deal with the physical principles of nuclear reactions, the interactions of nuclear materials, and operations and processes in nuclear fuel cycles, reactor design, and thermonuclear fusion. These subjects are taught in courses at the undergraduate and graduate levels. Other courses include radiation protection, environmental effects, nuclear safety, risk analysis, high-level radioactive waste disposal, medical imaging, biophysics, and biomedical devices.

Undergraduates can major in general nuclear engineering, biocatalytic engineering, radioactive waste management, nuclear engineering double major programs. Students can major in the double major programs beginning in their junior year. The double major programs are jointly offered through nuclear engineering and the following fields of engineering: mechanical, electrical, materials science, and chemical. The department also supports the bioengineering program by offering courses in biocatalytic engineering and radiological physics.

Graduate programs leading to the master's and doctoral degrees involve advanced course work in nuclear engineering and in allied fields and direct participation in research under supervision of the nuclear engineering faculty.

The B.S. program is accredited in nuclear engineering by the Engineering Accreditation Commission of the Accreditation Board for Engineering and Technology, 111 Market Street, Suite 10, Baltimore, MD 21202-4012, (410) 347-7700.

Curriculum for the Bachelor's Degree

General Nuclear Engineering Program: A total of 120 units is required, including:

Lower Division. Required: Mathematics 1A-1B, 53, 54; Chemistry 1A-1B; Physics 7A-7B-7C; Engineering 77, 45; Electrical Engineering and Computer Science 100, Electronics Techniques for Engineering (may also be satisfied by EEC5 40); electives.


Note: Electives must include (a) units to meet the humanities and social studies requirement, and (b) at least 6 units of upper division NE courses.

Bionuclear Engineering Program: A total of 120 units is required, including:

Lower Division. Required: Mathematics 1A-1B, 53, 54; Chemistry 1A; Physics 7A-7B-7C; Engineering 45; Biology 1A; Electrical Engineering and Computer Science 100, Electronics Techniques for Engineering (also may be satisfied by EEC5 40); electives.

Upper Division. Required: Electrical Engineering and Computer Sciences 145B; Engineering 115 or Chemical Engineering 141; Engineering 117; Nuclear Engineering 101, 104A, 107, 155, 162, 170B; Physics 137A; advanced biology core (Molecular and Cell Biology 102, 130); electives.

Note: Electives must include (a) units to meet the humanities and social studies requirement, and (b) at least 9 units of upper division NE courses.

Radioactive Waste Management Program: A total of 120 units is required, including:

Lower Division. Required: Mathematics 1A-1B, 53, 54; Chemistry 1A; Physics 7A-7B-7C; Engineering 45, 77; Electrical Engineering and Com-
purer Sciences 100, Electronics Techniques for Engineering (also may be satisfied by EECS 40); ESPM 2, electives.

Upper Division, Required: Engineering 115, 117, Nuclear Engineering 101, 104A-104B, 120, 124, 150, 155, 162, 170A or 170B; Materials Science 176; Energy and Resources Group 102; Nuclear Engineering 175 or Civil Engineering 193; electives.

Note: Electives must include (a) units to meet the humanities and social studies requirement, and (b) at least 6 units of upper division GE courses.

Humanities and Social Studies Requirement. Six courses of at least 3 units each in humanities and social studies selected from an approved list of courses will be required of single major students and five such courses will be required of double major students. Please see the "Humanities and Social Studies" section of the Announcement of the College of Engineering.

For details on double major degree requirements, please consult the Announcement of the College of Engineering.

Note: In addition to the courses listed under the Department of Nuclear Engineering, the department offers the following courses found in the Engineering section of this catalog: 115, Engineering Thermodynamics.

Graduate Study

Admission to the graduate program in nuclear engineering is available to qualified individuals who have obtained a bachelor's degree from a recognized institution in one of the fields of engineering or the physical sciences. For all programs, required preparation in undergraduate course work includes mathematics through partial differential equations and advanced analysis, nuclear reactions, and thermodynamics. Admission is granted on the basis of undergraduate and graduate records (if any), statement of purpose, record of work experience and professional activities, letters of recommendation, and the GRE and TOEFL (if applicable). There are eight graduate program areas, each representing an important aspect of nuclear technology. Applied Nuclear Reactions and Instrumentation, Biomedical and Radiological Physics, Chemistry and Materials in Nuclear Technology, Fission Reactor Analysis, Fusion Reactor Engineering, Neutron Interactions and Engineering, Radioactive Waste and Materials Management, and Risk Analysis. Course work and research opportunities are available in each area.

A program of study is selected for each individual student; the student is chosen so that qualified students make maximum progress in preparation for the doctoral examinations while gaining valuable engineering research experience for both the master's (M.S. or M.Eng.) and doctoral (Ph.D. or D.Eng.) programs. Further information may be obtained from the Department of Nuclear Engineering Graduate Office, 4149 Etchepare Hall.

Lower Division Courses

24. Freshman Seminars, (1) Course may be repeated for credit as topic varies. One hour of seminar per week. The Berkeley Seminar Program has been designed for entrance students with the opportunity to learn 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. Issues in Nuclear Science and Technology, (2) Two hours of lecture per week. Introduction to technical, societal, and ethical issues in nuclear engineering, nuclear reactions and radiation, radiation protection and control, nuclear 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 Upper Division Courses

101. Nuclear Reactions and Radiation, (4) Four hours of lecture per week. Prerequisites: Physics 7C. Kinetics and nuclear reactions and reactions of low-energy neutrons; properties of the fission products; and the actinides; nuclear models and transition probabilities; interaction of radiation with matter. (F) Prussin

104A. Radiation Detection and Nuclear Instrumentation Laboratory, (3) Two hours of lecture and four hours of laboratory per week. Prerequisites: 101 or equivalent or consent of instructor; 150 or equivalent recommended. Basic science of radiation measurement, nuclear instrumentation, neutronics, radiation dose; interaction of nuclear and non-nuclear research, medicine, environment science and technology, and a variety of other technologies. (F) Led- ener, Lim, Vujic

104B. Nuclear Engineering Laboratory, (2) One hour of lecture and four hours of laboratory per week. Prerequisites: 120 and 180 recommended; 104A not required. Nuclear materials and reactions at high temperatures; thermal-hydraulics and two-phase flow; diode diagnostics of plasma and fusion neutrons. (SP) Winp

107. Introduction to Imaging, (3) Three hours of lecture per week. Prerequisites: 101 and 104A or consent of instructor. Introduction to medical imaging physics and systems, including x-ray computed tomography (CT), nuclear magnetic resonance (NMR), positron emission tomography (PET), and SPECT; basic philosophy of tomography and an introduction to unfolding methods; resolution effects of counting statistics; inherent system resolution and human factors. (SP) Prussin, Vujic

120. Nuclear Materials, (3) Three hours of lecture 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. Thermal expansion and swelling; re-lease; neutron damage to nuclear and non-nuclear fabrication and properties of uranium dioxide fuel. (F) Olander

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, sources of radioactive wastes, chemicals, radioactivity and heat generation; treatment technologies; waste management and disposal; safety assessment of waste disposal. (F, SP) Ann

135. Nuclear Reactor Operations. (3) Three hours of lecture per week and a one-week field trip at semester ends. Prerequisites: Consent of instructor. Nuclear reactor operations. Operation of reactor core and plant components; thermal and structural mechanics and heat transfer; junior-level course in ther- modynamics. Energy conversion in nuclear power systems; design of fission reactors; thermal and structural analysis of reactor core and plant components; ther- mal-hydraulic analysis of accidents in nuclear power plants; safety evaluation and engineered safety systems. (SP) Peterson

162. Radiation Biophysics and Dosimetry, (3) Three hours of lecture per week. Prerequisites: 101 or con- sent of instructor. Interaction of radiation with matter; physical, chemical, and biological effects of radiation on human tissues; dosimetry units and measurements; external and internal radiation fields and dosimetry; ra- diation exposure regulations; sources of radiation and radioactivity; basic shielding concepts; Monte Carlo modeling of radiation transport for dosimetry and shielding calculations; elements of radiation protection and control. (SP) Vujic

170A. Nuclear Design: Design in Nuclear Power Technology and Instrumentation. (3) Three hours of lecture per week. Prerequisites: 161 or consent of instructor. Operation of nuclear power plants and other nuclear power systems and their physically based ap- plications. Each semester a topic will be chosen by the class as a whole. In addition to the design, the course will address issues relating to economics, the en- vironment, and risk assessment. (SP) Ahn, Vujic

170B. Nuclear Design: Design in Biomedical, Nuclear Medicine, and Radiation Therapy. (3) Three hours of lecture per week. Prerequisites: 207, 161, or consent of instructor. Formerly 167. A systems ap- proach to the development of procedures for nuclear medicine and radiation therapy. Each semester a specific procedure will be studied and will entail the de- velopment of the biological and physiological systems for a procedure, the chemical and biochemical character- istics of appropriate drugs, dosimetric requirements and limitations, the production and distribution of radionuclides and/or radiation fields to be applied, and the characteristics of the instrumentation to be used. (SP) Ahn, Vujic

175. Methods of Risk Analysis, (3) Four hours of lec- ture 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) Kas- tenberg

180. Introduction to Controlled Fusion, (3) Three hours of lecture per week. Prerequisites: Physics 7C. Introduction to energy production by controlled ther- monuclear reactions, Nuclear fusion reactions, nuclear 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 pass/not pass basis. Prerequisites: Upper division standing. Group studies of selected top- ics. (F, SP)

199. Supervised Independent Study. (1-4) Course may be repeated for credit for a maximum of 4 units per semester. Individual conferences. Must be taken on a pass/not pass basis. Prerequisites: Consent of instructor and major advisor. Independent study. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog. (F, SP) Graduate Courses

201. Nuclear Reactions and Interactions of Radi- ation with Matter, (4) Four hours of lecture per week. Prerequisites: 101. Interaction of gamma rays, neu- trons, and charged particles with matter; nuclear struc- ture and radioactive decay; cross sections and ener- getics of nuclear reactions; nuclear fission and the
fission products; fission and fusion reactions as energy sources. Offered even-numbered years. (SP) Prussian

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. Stressing, blistering, and hydrogen behavior in fusion reactor materials. Offered odd-numbered years. (SP) Olander

221. Corrosion in Nuclear Power Systems. (3)
Three hours of lecture per week. Prerequisites: 120, Materials Science and Mineral Engineering 112 rec-
ommended. Structural metals in nuclear power plants; properties and fabrication of Zircaloy; aqueous cor-rosion of fuel components; structural integrity of re-
corder components under combined mechanical load-
ing, neutron irradiation, and chemical environment. Offered even-numbered years. (SP) Olander

224. Safety Assessment for Geological Disposal of Radioactive Wastes. (3) Three hours of lecture per week. Prerequisites: 124 or upper division course in differential equations. Multi-barrier concept; ground-water hydrology, mathematical modeling of mass transport in heterogeneous media, source term for far-field model; near-field chemical environment, rad-
ionuclide transport from waste solids, modeling of rad-
dioneutron transport in the near field, effect of tempera-
ture on repository performance, effect of wa-
ter; long-term geological conditions, effect of en-
gineered barrier alteration; overall performance as-
sessment, performance index, uncertainty associated with assessment, regulation and standards. (AP) Ahn

250. Nuclear Reactor Theory. (4) Four hours of lec-
ture per week. Prerequisites: 101, 150; Engineering
117 recommended. Fission characteristics; neutron chain reactions, neutron transport and diffusion theory; reactor kinetics; multiplegroup methods, fast and thermal spectrum calculations, inhomogeneous reactor design, effects of poisons and fuel depletion. Offered odd-num-
bered years. (F) Greenspan

255. Numerical Simulation in Radiation Transport. (3) Three hours of lecture per week. Prerequisites: 150. Computational methods used to analyze nuclear reactor systems described by various differential, in-
tegral, and integro-differential equations. Numerical methods include finite difference, finite elements, dis-
crete ordinates, and Monte Carlo. Examples from neu-
tron and photon transport, heat transfer, and thermal hydraulics; overview of optimization techniques for solving the resulting discrete equations on vector and parallel computer systems. (F) Vujic

260. Thermal Aspects of Nuclear Reactors. (4) Four hours of lecture per week. Prerequisites: Mechanical Engineering 106 and 109 or Chemical Engineering 150B. Fluid dynamics and heat transfer; thermal and hydraulic analysis of nuclear reactors; two-phase flow and compressible flow analysis; stress analysis; energy conversion methods. Offered even-numbered years. (F) Peterson

265. Design Analysis of Nuclear Reactors. (3) Three hours of lecture per week. Prerequisites: 150 and 161. Principles and techniques of economic analysis to de-
termine capital and operating costs; fuel management and fuel cycle optimization; thermal limits on reactor performance; offsite and on-site emergency plans; and fast breeder control and transient problems; reactor safety and li-
censing; release of radioactivity from reactors and fuel processing plants. Offered even-numbered years. (F) Greenspan

267. Nuclear Reactor Safety. (3) Three hours of lec-
ture per week. Prerequisites: 150 and 161. Principles and methods used in the safety evaluation of nuclear power plants. Safety philosophies, design criteria and regulations. Deterministic and probabilistic models, re-
liability analysis, nuclear and thermal-hydraulic tran-
sients, 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) Kastenberg

275. Principles and Methods of Risk Analysis. (4)
Four hours of lecture per week. Prerequisites: Consent of instructor. Civil Engineering 193 and Industrial En-
gineering 116 recommended. Principles and method-
ological approaches for the quantification of technol-
ogy’s risk 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. Engi-
neering and design of fusion systems. Introduction to controlled thermonuclear fusion as an energy ac-
omy, from the standpoint of the physics and technol-
gy involved. Case studies of fusion reactor design. Engineering principles of support technology for fusion systems. Offered even-numbered years. (SP) Moore

281. Fully Ionized Plasmas. (3) Three hours of lec-
ture per week. Prerequisites: Consent of instructor. Formerly Electrical Engineering 239B. Introduction to warm and hot magnetized plasmas. Single particle mo-

dion in electric and magnetic fields. Collective particle oscillations, waves and instabilities. Magnetohydro-
dynamic equilibria, stability and transport. Magnetically confined plasmas for controlled fusion. Space plas-
mas. Offered even-numbered years. (SP) Morse

290A. Ion Source and Beam Technology. (2)
Two hours of lecture per week. Prerequisites: Graduate standing, 180, or equivalent. Topics in this course will include the latest technology trends in positive and neg-
ative ion sources, extraction and formation of ion beams, computer simulation of ion beam propagation, diagnostics of ion source plasmas and beams, and the inte-
gration of ion sources into post-acceleration sys-
tems. Ion source operation and beam diagnostics will be demonstrated practically. Offered even-
numbered years. (F) Leung, Morse

290B. Subsurface Nuclear Technology. (3) Three hours of lecture per week. Prerequisites: 155, 162 and graduate standing. This course will cover the funda-
mentals of subsurface nuclear technology and its ap-
lications 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 4) perform borehole diagnostics, using neutron and pho-
ton measurement and simulation techniques. Ap-
lication of computational methods will also be covered. (F,SP) Badruzaman, Vujic

295. Nuclear Engineering Colloquium. One and one-half hours of lecture per week. Must be taken on a satisfactory/un satisfactory basis. Presentation on current topics of interest in nuclear technology by experts from government, industry and universities. Open to the campus community. (F,SP) Peterson

299B. Group Research Seminars. (1) Course may be repeated for credit. One and one-half hours of seminar per week. Must be taken on a satisfactory/un-
satisfactory basis. Seminars in current research topics in nuclear engineering: Section 1–Fusion; Section 2–Nuclear Waste Management; Section 3–Nuclear Thermal Hydraulics; Section 4–Nuclear Chemistry; Section 6–Nuclear Materials; Section 7–Fusion reaction de-
sign; Section 8–Nuclear Instrumentation. (F,SP) Staff

299. Individual Research. (1-12) Course may be re-
pealed for credit. Must be taken on a satisfactory/un-
satisfactory basis. Prerequisites: Graduate standing. In-
vestigation of advanced nuclear engineering problems. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral de-
gree. Must be taken on a satisfactory/un satisfactory basis. Prerequisites: For candidates for doctoral de-
gree. Individual study in consultation with the major field adviser, intended to provide an opportunity for qualified students to provide for themselves for the vari-
ous examinations required of candidates for the Ph.D. (F,SP)

Nutrition
(College of Natural Resources)
(See Molecular and Biochemical Nutrition)

Nutritional Sciences and Toxicology
(College of Natural Resources)

Department Office: 119 Morgan Hall, (510) 642-6490
http://nutrition.berkeley.edu
Chair: Leonard Bjeldanes, Ph.D.

Professors
Leonard F. Bjeldanes, Ph.D. University of California at Los Angeles. Food toxicology, chemical carcinogenesis.
John E. Casida, Ph.D. University of Wisconsin Madison. Insecticidal chemistry and toxicology.
Bente O. de Lumen, Ph.D. University of California at Davis. Food chemistry, molecular biology of legumes as food source.
Marc Helfferich, M.D., Ph.D. Massachusetts Institute of Technology. Neurotransmitter-regulated nutrition and inflammation.
Isao Kudo, Ph.D. Osaka City University, Japan. Natural products.
Burry Shane, Ph.D. University of London. Regulation of vitamin metabolism.
Hei Sook-Sil, Ph.D. University of Wisconsin Madison. Lipid metabolism, adipose cell differentiation.
Kenneth J. Carpenter, Ph.D. (Emeritus).
James C. King, Ph.D. (Emeritus).
Angela C. Little, Ph.D. (Emeritus).
Mary Ann Williams, Ph.D. (Emeritus).

Associate Professors
Nancy K. Amy. Ph.D. University of Virginia. Regulation of trace element metabolism.
Gregory W. Saposnik, Ph.D. University of California at Davis. Gasotransient peptides and nutrient assimilation.
George W. Chang, Ph.D. University of California, Berkeley. Nutrition and resistance to infection.
Susan M. Oace, Ph.D. University of California, Berkeley. Nutrient bioavailability; vitamin metabolism.

Assistant Professors
Sean M. Baker, Ph.D. University of Liverpool, England. DNA mismatch repair, cancer and fertility.
Jean-Marc Schwartz, Ph.D. University of Lausanne, Switzerland. Diabetes, hormone metabolism.
Christopher Vype, Ph.D. University of California, San Francisco. Genetic approaches to study of mammalian copper and iron metabolism.

Adjunct Professors
Diane L. Tribe, Ph.D. Emory University School of Medicine. Gastrointestinal peptides and nutrient assimilation.
George Wolf, Ph.D. Oxford University. The influence of Vitamin A on carcinogenesis.

Lecturers
Mark Hudes, Ph.D.
Nancy Hudson, M.S. R.D.
Joanne Jedda, M.A., R.D.
Mary Moal, M.Ed., R.D.

Director, Clinical Dietetics Program
Nancy Hudson, M.S., R.D.

Education Goals and Major Requirements

The Department of Nutritional Sciences and Toxicology offers a graduate program leading to the B.S. degree. Courses that fulfill the lower divi-

sion prerequisites for junior standing include Biological 1A, Chemistry 1A, 3A-3B, English 1A-1B or

equivalent; Mathematics 16A: Molecular and Cell Biology 32, 32L: Nutritional Sciences 10; Physics BA: 1A and Statistics 2 or 2. There are three tracks within the nutritional sciences degree:
Track I, Physiology and Metabolism

Track I combines a strong foundation in the biological sciences with advanced course work in nutrition, the biochemical and physiological study of nutrition, and food science, the processing and processing of food materials. Graduates often pursue further study in the biological sciences, either in professional programs in health sciences, or in seek employment in research laboratories, government agencies, or in the food industry.

Track II, Dietetics

Track II is currently granted accreditation as a Didactic Program in Dietetics by the Commission on Accreditation for Dietetics Education of the American Dietetic Association, 120 South Riverside Plaza, Chicago, IL 60606, (312) 899-5400. At the junior and senior levels students take course work emphasizing degrees programs in academic, government knowledge through didactic practice. Graduates of a didactic program in dietetics are eligible to apply to supervised dietetic internship programs, and a postbaccalaureate supervised practice program, students are eligible to take the nationally administered registration examination to become a registered dietitian. Registered dietitians find employment in health care, government, industry, community agencies, educational institutions, and research laboratories, and in the public health area. Graduates pursue further professional of graduate studies in nutrition, health sciences, or related fields. Additional courses which fulfill the lower division prerequisites for junior standing in nutrition and clinical dietetics include Economics 1; Psychology 2, Sociology 3, or Anthropology 3.

Track III, Toxicology

Track III provides students with a strong background in the biological and chemical sciences with advanced course work focusing on nutrition and toxicology, and on the adverse effects of nutrients and non-nutrients in the diet. Students are qualified for employment in the biological sciences in academic, governmental, and industrial laboratories and may pursue entry into a variety of advanced degree programs including medicine, dentistry, optometry, and pharmacology, as well as in basic research.

Minors

Students who have pursued basic course work in biological sciences under other majors may be eligible for one of the two undergraduate minors offered by the Department of Nutritional Sciences and Toxicology. These minors are designed primarily for the Ph.D. and M.S. degree programs in molecular and bio-chemical nutrition. Courses include advanced study of human nutrition and metabolic regulation at the cellular and organismal levels. Graduates find employment in academic institutions, medical research, clinical nutrition, research and extension agencies, government, and industry, Many seek advanced professional and medical degrees.

Major degree requirements appear in the Announcements of the College of Natural Resources.

Honors Program

Students who are interested in the honors program in nutritional sciences should apply no later than the beginning of their senior year. A grade-point average of 3.0 or higher, both overall and in the major course work. Students enroll for a minimum of two semesters in NS H196, Honors Research in Nutrition. A total of at least 8 semester units. Attendance in a graduate seminar is highly recommended. In order to graduate with honors, students must submit a superior thesis based on their research to be reviewed by a committee of three faculty members.

For further information, please contact the student affairs officer, 117 Morgan Hall, (510) 642-2679.

Lower Division Courses

10. Introduction to Human Nutrition. (3) Students will receive no credit for NS H103 or H106. Two hours of lecture and one hour of discussion per week. 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 worldwide problems of health and nutrition. Students are required to record their own diet, calculate its composition, and evaluate its nutrient content in light of their particular needs. (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. These 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. Priority given to freshmen and sophomores. 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) Staff

98. Directed Group Study. (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: Lower division standing and consent of instructor. Study of special topics in nutritional sciences that are not covered in depth in regular courses. (F,SP)

99. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Three to nine hours of laboratory per week. Must be taken on a passed/not passed basis. 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 the General Catalog. (F,SP) Staff

Upper Division Courses

103. Nutrition Function and Metabolism. (3) Three hours of lecture per week. Prerequisites: 10, Molecular and Cell Biology 102, or consent of instructor. Formerly 100. An introduction to human nutrition and metabolic regulation at the cellular and organismal levels. Graduates find employment in academic institutions, medical research, clinical nutrition, research and extension agencies, government, and industry. Many seek advanced professional and medical degrees.

Major degree requirements appear in the Announcements of the College of Natural Resources.
Human dietary niche, biological variation related to diet, diet and disease, domestication of staple crops, food processing techniques and development of regional cuisines, modern diets and their problems, food taboos, human attitudes toward foods, and dietary politics. Also listed as Enviro Sci, Policy, and Management C159. (SP) Milton

160. Human Nutrition: Normal Physiology and Pathophysiology of Disease. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 10 and 160. The biochemical, physiological, and nutritional bases of medical nutrition therapy for human conditions and diseases are studied. Students apply these concepts through completion of case plans, case studies, product analyses, supermarket surveys, and calculations for enteral and parental nutrition. Current research findings and controversies are discussed. (SP) Mead

161. Medical Nutrition Therapy. (4) Two hours of lecture and four hours of laboratory per week. Prerequisites: 103 and 160. The biochemical, physiological, and nutritional bases of medical nutrition therapy for human conditions and diseases are studied. Students apply these concepts through completion of case plans, case studies, product analyses, supermarket surveys, and calculations for enteral and parental nutrition. Current research findings and controversies are discussed. (SP) Mead

165. Human Nutrition Research. (1) One hour of lecture/discussion per week. Prerequisites: 160. The methods and types of human nutrition research will be covered, including an introduction to the nutrition of our nation as part of a research team. Related topics such as re- search ethics, quality control, selection of dietary ass- sessment systems, and sources of funding will be dis- cussed. Assignments will include an evaluation of published research and design of a research diet. (SP) Vite

166. Nutrition in the Community. (3) Three hours of lecture per week. Prerequisites: 10 recommended; upper-division standing required. This course addresses basic nutrition in the context of the community. It e- xplores research programs that serve various segments of the population and the relationships of these pro- grams to nutrition policy at the local, national, and in- ternational levels. Community assessment is used as the basis for program planning, implementation, and evaluation. The specific needs of population groups (infants, children, women, and the elderly) are con- sidered and questions of food security are investigated. (F) Hudson

170. Experimental Nutrition Laboratory. (4) Stu- dents will receive no credit for 170 after taking 171. Six hours of lecture and one hour of discussion, and one hour of discussion per week. Prerequisites: 103, 160, Chemistry 5, and a course in statistics. Basic principles and techniques used in human and animal nutrition re- search. Students design, execute, and analyze ex- periments. (F) Aponte

171. Nutrition and Toxicology Laboratory. (4) stu- dents 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: 103, 110, Molecular and Cell Biology 142 (may be taken con- currently), and a course in statistics. Basic principles and techniques used in human and animal nutrition re- search. Students design, execute, and analyze ex- periments. (F) Aponte

190. Introduction to Research in Nutritional Sci- ences. (1) One hour of lecture/discussion per week. Prerequisites: 103. Students will be asked to prepare an oral or written report on a topic selected from the current research literature in nutritional sciences. (FSP) Staff

192. Junior Seminar in Dietetics. (1) One hour of lecture/discussion per week. Prerequisites: Upper division standing or permission of the instructor. This seminar course explores the profes- sional roles and responsibilities of dietitians as well as career opportunities within the field. Current issues in the profession will be discussed. Students will do research and present an oral report to the class.

Each student will begin to develop his or her profes- sional portfolio. (F) Hudson

193. Introduction to Research in Toxicology. (1) One hour of seminar per week. Prerequisites: 110 and consent of instructor. Students will be asked to prepare an oral and written report on a topic selected from the current research literature in toxicology. Kudo

194. Senior Seminar in Dietetics. (2) One hour of lecture and one hour of discussion per week. Prereq- uisites: Upper division standing. This course will cover the changes that are occurring in the field of dietetics. Students will explore the content and scope of the national nutritional standards and guidelines, issues related to comple- mentary and alternative nutrition practices, the area of genomics as it relates to diet and chronic disease, profes- sional ethics in the changing health care environment, reimbursement for professional services, legislation re- lated to the field of dietetics, and other emerging is- sues. (SP) Hudson

H196. Honors Research. (2-4) Course may be re- peated for credit. A student may take between 2-4 units per semester but must complete a total of 8 units to qualify for the College Honors Distinction. Three hours of work per week per unit. Prerequisites: Upper division standing, 3.3 GPA; consent of instructor; enroll- ment in department honors program. Individual lab- oratory research followed by a written report under the supervision of a staff committee. (F,SP)

197. Field Study in Food and Nutritional Sciences. (1-3) Course may be repeated for credit. Approxi- mately three hours of field study per week per unit. Must be taken on a pass/not passed basis. Supervised experience in off-campus organizations relevant to specific aspects of foods and nutritional sciences. Reg- ular individual meetings with faculty sponsor and writ- ten reports required. (F,SP) Staff

198. Directed Group Study. (1-3) Course may be re- peated for credit. One to two hours of lecture/discussion per week per unit. Must be taken on a pass/not passed basis. Prerequisites: Consent of instructor. Study of special topics in food science or nutrition that are not covered in depth elsewhere. (SP) Staff

199. Supervised Independent Study and Research. (1-3) Course may be repeated for credit. Approxi- mately three hours of laboratory per week per unit. Must be taken on a pass/not passed basis. Prereq- uisites: Consent of instructor. Enrollment restrictions apply: see the Introduction to Courses and Curricula section of this catalog. (F,SP) Staff

Graduate Courses

200. Advanced Organismal Nutrition and Metabolism. (3) Three hours of lecture per week. Prerequisites: 103, 160, and Molecular and Cell Biology 102 or equivalent. Critical analysis of con- cepts and research methods relating to organismal nutrition and metabolism, and its regulation in intact organisms is studied. Areas covered include the basis of nutrient re- quirements and their measurement, integration of metabolic pathways, research techniques, nutritional diseases, and specific topics such as calcium, vita- mins, and trace elements. (SP) Hellerstein

C210. Dietary Determinants of Cancer, Heart Dis- ease, and Aging. (3) Three hours of lecture per week. Prerequisites: Biochemistry and nutrition, or consent of instructor. The influence of diet on DNA damage, can- cer, and aging will be discussed with an emphasis on micronutrient deficiencies as a major contributor to DNA damage, cancer, and aging. The influence of diet on athroscerosis and heart disease will be covered with an emphasis on the role of dietary constituents pro- posed to have either toxic or preventive effects in the artery wall. Readings will consist of papers from the lit- erature. Also listed as Molecular and Cell Biology C210. (SP) Ames

211A-211B. Introduction to Research in Nutritional Sciences. (4-8; 4-8) One hour of discussion and four hours of laboratory per week per unit. Must be awarded on completion of sequence. Prereq- uisites: Restricted to graduate students in the nutrition program; consent of instructor. (SP) Staff

211A. Closely supervised experimental work under the direction of in- dividual faculty members; an introduction to experi- mental methods and research approaches in areas of nutritional sciences. (F,SP) Staff

212. Statistics in Nutrition Research. (1) One hour of lecture per week. Prerequisites: A course in statis- tics. Selection and application of statistical procedures to experimental designs and data encountered in nu- trition research. Assumptions and properties of chi-square tests, t-tests, ANOVA, correlation and re- gression, multiple comparison procedures and non- parametric procedures will be examined. (SP) Hughes

250. Mechanisms of Metabolic Regulation. (4) Three hours of lecture and one hour of discussion per week. Principles of metabolic regulation in higher an- imals. Integration of metabolic pathways and fluxes em- phasizing experimental data and mechanisms of mech- anisms of nutrient affects. Advances in methods for studying metabolism, ranging from isotopic to molec- ular genetics techniques. This course provides the foundation for pursuing research in nutrient biochem- istry/molecular biology, and for understanding nutrient and endocrine related diseases as diabetes, birth defects, osteoporosis, obesity, and cardiovascular dis- ease. (F) Napoli, Sul

290. Advanced Seminars in Nutritional Sciences. (1-2) Course may be repeated for credit. One to two hours of lecture/discussion per week per unit. Prerequisites: Graduate standing. Advanced study of topics in nu- tritional sciences. More than one section may be taken simultaneously. (F,SP) Staff

292. Graduate Research Colloquium. (1) Course may be repeated for credit. One to two hours of lecture/dis- cussion per week. Must be taken on a satisfactory/unsatis- factory basis. Prerequisites: Graduate standing. Presentations by graduate students of research pro- posals and results of their research. Participation in discussion and evaluation of others’ presentations is required. (SP)

293. Research Seminar. (1) One hour of lecture/discus- sion per week. Must be taken on a satisfactory/un- satisfactory basis. Prerequisites: Graduate standing or consent of instructor. Special study in various fields of nutritional sciences. Topics will vary depending on in- terests of qualified graduate students and availability of staff. (F,SP) Staff

298. Directed Group Studies. (1-4) Course may be re- peated for credit. One hour of lecture/discussion per week per unit. Prerequisites: Graduate standing and consent of instructor. Special study in various fields of nutritional sciences. Topics will vary depending on in- terests of qualified graduate students and availability of staff. (F,SP) Staff

299. Research in Food and Nutrition. (1-12) Course may be repeated for credit. Approximately four hours of research per week per unit. Prerequisites: Graduate standing and consent of instructor. Individual study in consultation with the ma- jor field adviser intended to provide an opportunity for qualified students to prepare themselves for the vari- ous examinations required for candidates for the Ph.D. (F,SP) Staff

Professional Courses

301. Professional Preparation: Teaching in Nutri- tional Sciences. (1-2) One hour of lecture/discussion per week per unit. Prerequisites: Consent of instructor. Creative approaches to teaching nutrition to diverse audiences are emphasized. Participants will identify needs of target populations, formulate educational ob- jectives, design and/or use motivational teaching methodologies, and evaluate the impact of teaching on knowledge, attitudes, and behavior. Undergraduates may teach nutrition to elementary school children. Graduates may become teaching assistants. (F) Bjel- danes, Ikeda

B prefix=language course for business majors C prefix=cross-listed course R prefix=honors course R prefix=satisfies R&C requirement AC suffix=course satisfies American cultures requirement *Professor of the Graduate School +Recipient of Distinguished Teaching Award
Ocean Engineering

Ocean Engineering comprises those parts of Engineering that are concerned with the design and construction of ships, offshore platforms, and other ocean structures, and with those aspects of science that underlie such endeavors. The objective of this program is to educate engineers to design and analyze systems in the ocean and coastal environments and to conduct research for the efficient and environmentally sound use of ocean resources. Areas to be studied encompass marine transportation, petroleum and other minerals, and oceanography and its potential energy. This course of study has been designed to encompass a wider field of activity for today's naval architect and ocean engineer.

The graduate program, with an emphasis on naval architecture, offshore engineering, or ocean engineering, is open to students with a bachelor's degree or its equivalent in some branch of engineering or physical science. Admission is based on the applicant's undergraduate and graduate (if any) academic record, the statement of purpose, letters of recommendation, GRE scores, and, if previous instruction has not been in English, the TOEFL score. For students without an undergraduate degree in naval architecture, offshore engineering, or ocean engineering, one or more of the department's upper division courses may be taken concurrently with the graduate courses. The graduate courses provide instruction in those parts of structural and fluid mechanics, both classical and modern, that are relevant to the design and performance of marine vehicles and other floating or fixed marine systems. The aim is to develop in the student a firm grasp of the fundamentals in these fields and the ability to read the most contemporary literature in them. This is accomplished through two core sequences as well as more specialized courses. The program offers the M.S., M.Eng., Ph.D., and D.Eng. degrees. Depending on the student's preparation, master's-level degrees can be completed in a one to two-year period. For details about the courses mentioned above, interdisciplinary programs of study can be tailored to fit the interests of the individual students after consultation with their advisers.

For graduate admissions information, contact the graduate assistant, 239 Bechtel Engineering Center, Berkeley, CA 94720-1708, phone (510) 642-8790; fax (510) 643-5103; or e-mail oceaneng@coe.berkeley.edu.
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 four-year professional program leads to the degree of Doctor of Optometry. Students are required 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 systemic manifestations. Optometry graduates are able to diagnose patients with ocular disease or systemic diseases with ocular manifestations. Recent changes in optometry laws across the United States have expanded the scope of optometric practice, giving practitioners responsibility for non-surgical pharmaceutical treatment of eye disorders and diseases.

Doctors of Optometry are educated in the sciences of anatomy, physiology, chemistry, physics, mathematics, neuroscience, 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 curriculum is designed to provide an advanced study of sciences which form the background of optometry, such as ocular anatomy, medical physiology and biochemistry, ocular pathology, physiology, microbiology, virology, neuroanatomy, the psychology of vision, vision science, geometric optics, ophthalmic optics, pharmacology, and theoretical and practical optics. The second and third years are devoted to the science of optometry and the acquisition of skills in examination procedures. Although clinic participation is involved in all four years, responsibility for patient care begins in the summer 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 health care and other health related organizations in the public service. The education acquired at the School of Optometry provides today’s Doctors of Optometry with the skills and knowledge necessary to meet the challenges of providing vision care.

For further information about the school’s programs, please consult the Announcement of the School of Optometry, available from the Admissions Office, School of Optometry, University of California, Berkeley, 390 Minor Hall #2020, Berkeley, CA 94720-2020, or send e-mail to ucbo@spectacle.berkeley.edu.

Optometric Residency Program

A one-year Optometric Residency program is available for graduate optometrists who want to expand their skills in one or more clinical areas and seek training in specialty areas. The areas of study include binocular/pediatric vision, primary care optometry, low vision, contact lenses, and ocular health. Special combined or individual programs may be considered.

For further information about the Optometric Residency program, please contact the Residency Director, 2222 Bancroft Way #2020, Berkeley, CA 94720-2020 or send e-mail to cwimer@spectacle.berkeley.edu.

Vision Science

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 faculty from the School of Optometry and the Departments of Psychology, Computer Science, and Bioengineering, among others. The faculty is distinguished in their accomplishments and diverse in their area of expertise.

The graduate program provides training in a wide variety of topics pertaining to biological vision. These include the optics of the eye, molecular and cellular biology of the eye, anatomy and neurophysiology of the eye, and visual psychophysics. The graduate program is designed to prepare students for a career in teaching and research in the science of vision. Research of students in vision science are unexcelled anywhere in the world.

Students interested in this graduate program should become familiar with the regulations of the Graduate Division and should contact the graduate student affairs officer or the chair of the Group in Vision Science as early as possible. Admission to this program requires a baccalaureate degree in a relevant discipline (such as biology, computer science, engineering, or psychology) or a doctoral degree in a relevant discipline.

For further details about the requirements for the vision science program, please contact the Graduate Student Affairs Officer, Group in Vision Science, University of California, Berkeley, 488A Mill Hall #2020, Berkeley, CA 94720-2020, or send e-mail to fstone@spectacle.berkeley.edu, or visit the web site at http://vision.berkeley.edu.

Lower Division Courses

10. The Eye and Vision in a Changing Environment. (3) Two hours of lecture per week. Course covers introduction to the basic concepts of vision and the impact of visual disorders on society. Topics include the anatomy and physiology of the eye, visual disorders (e.g., lazy eye), and the impact of environmental hazards on vision. Major topics include the impact of visual disorders on society and health and care delivery will be reviewed. Also listed as Undergrad Interdisciplinary Studies C10. (SP) Adams C10.

11. The Eye and Vision in a Changing Environment. (2) Two hours of lecture per week. Course covers the introduction to the basic concepts of vision and the impact of visual disorders on society. Topics include the anatomy and physiology of the eye, visual disorders (e.g., lazy eye), and the impact of environmental hazards on vision. Major topics include the impact of visual disorders on society and health and care delivery will be reviewed. Also listed as Undergrad Interdisciplinary Studies C10. (SP) Adams C10.

39. Freshman/Sophomore Seminar. Course may be repeated for credit. Section 1 and 2 to be graded on a letter-grade basis. Section 3 and 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 all campus departments; topics vary by department to department and from semester to semester. No prerequisites. Enrollment limits are set by the faculty, but the suggested limit is 25. (FSP) Staff

Upper Division Courses

100A. Clinical Examination of the Visual System. (3) Two hours of lecture and four hours of laboratory per week. Fundamentals of the optometric examination.
tion of the pathophysiology of various disease pro-
cesses. Convey the importance of anatomy and phys-
ology in the medical approach to ocular disease pro-
cesses. (F,SP)

106C. Anatomy and Physiology of the Eye and Vi-
sual System. (2) Four hours of seminar for seven and
one-half weeks. Must be taken on a passed/not
passed basis. Prerequisites: 106A-106B to be taken
concurrently. Problem based learning approach using
case study examples. Continuation of 106A-106B.
(F,SP)

115. Visual System Development. (2) Two hours of
lecture per week. Prerequisites: 106B. Development of
the eye and visual system. Normal development of the
eye, retina, and central visual pathways. Effects of vi-
sual deprivation. Assessment of optical and visual
function in human infants. Refraction and refractive er-
or in infants and children. Development of visuomotor
function. Behavior of visual attention and motion
vision, binocular vision, and depth perception. (F)

117. Oculomotor Functions and Neurology. (2) One
and one-half hours of lecture and ten hours of labo-
atory per week. Prerequisites: 102 or consent of in-
structor. Neuro-anatomical pathways for the control of
eye position and movement; gaze holding, image sta-
bilization, and tracking eye movement systems; ocu-
lomotor signs of the disorders of the central neurosys-
tem (hallusia, nystagmus, aphthamegopia, squint
pursuits, saccadic dysmetria); the near visual-motor re-
sponse and the oculomotor-synergistic coupling of acces-
sory and convergence; binocular misalignment (het-
rophoria and fixation disparity); and presbyopia. (SP)

118. Binocular Vision and Space Perception. (2) One
and one-half hours of lecture and ten hours of lab-
orary per week. Prerequisites: 101 and 102. Per-
ception 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)

136. Cell Biology of the Eye and Mechanisms of Ocu-
lar Disease. (3) Three hours of lecture per week.
Prerequisites: Cell Biology 130 or consent of in-
structor. Formerly 136. Structure, function, regu-
lation of cell and epithelia-neural retina in the normal
and diseased state. Cell/molecular analysis of signal
transduction cascades that determine lens trans-
parency (cataract); aqueous humor inflow, outflow
(glaucoma); cell adhesion, vitreous-retina (retinal de-
tachments); photoreceptor degeneration (retinitis pig-
mentosa). Also listed as Molecular and Cell Biology
1C16. (SP)

198. Group Studies for Advanced Undergraduates. (1-
4) Supervised group study. Must be taken on a passed
not passed basis. Prerequisites: Upper division sta-
cus and consent of instructor. (F,SP) Staff

199. Supervised Independent Study and Research. (1-
4) May be repeated for credit. Two hours of seminar
taken on a passed/not passed basis. Prerequisites:
Upper division status and consent of instructor, the stu-
dent’s major advisor and the departmental chair. Su-
pervised independent study and research. Enrollment
restrictions apply; see the Introduction to Courses and
Curricula section of this catalog. (F,SP) Staff

Graduate Courses

201A-201B. Seminar in Vision Science. (2) Course
may be repeated for credit. Two hours of seminar per
week. Prerequisites: Consent of instructor. Graduate
seminar in vision science. (F,SP)

204. Optical Formulation in the Eye. (3) Two hours
of lecture and four hours of laboratory per week.
Prerequisites: Consent of instructor. Standing in vision
science or consent of instructor. Lectures and laboratory
measurements. Measurement of optical properties of
simple and compound eyes. Image quality and resolution.
Op-positional measures, interaction of color and form, color
vision. Also listed as Psychology C216B.

210. Instrumentation and Methodology in Vision Re-
search. (2) One hour of lecture and four hours of
laboratory per week. Must be taken on a satisfac-
tory/unsatisfactory basis. Prerequisites: Graduate
standing or consent of instructor. Familiarization with
various concepts of radiometry, photometry and colorimetry.
Optical bench systems, video and oscilloscope stimulus generation and
analysis. Use of light in psychophysical and biophysical
methods for measurement of eye movements, pupil,
accommodation, ERG, EOG, VEP, single unit activity.
Psychophysical methodology, signal detection, com-
puter control of stimuli, data acquisition and process-
ing. Clinical assessment of ocular components; eye ex-
amination and function. Clinical trials. (F)

212A. Optics and Diagnostics of the Eye. (2) Three
hours of lecture per week for five weeks plus library
as-signment. Prerequisites: Consent of instructor. In-
troduction for graduate students to basic principles
of classic and modern geometric optics (thick lens sys-
tems, mirrors, prisms, apertures, and stops) and phys-
ical optics (interference, diffraction, and polarization)
with emphasis on data analysis (including
schematic eyes, aberrations, and entoptic phe-
nomena). (F)

212B. Visual Neurophysiology and Development. (2)
Three hours of lecture per week for five weeks plus
library assignment. Prerequisites: Consent of in-
structor. Introduction for graduate students to study visual
system in animals. Spatial vision, crossEye vision,
and dynamic stereopsis, binocular depth cues. (SP)

212C. Spatial Vision and Machine Vision. (2) Three
hours of lecture per week for five weeks plus library as-
signment. Prerequisites: Consent of instructor. Intro-
duction for graduate students to human spatial vision.
Contrast sensitivity, visual acuity and spatial localiza-
tion. Machine vision analogues and models of visual
processing of spatial information. (F)

212D. Anatomy and Vegetative Physiology of the Eye. (2)
Three hours of lecture per week for five weeks.
Prerequisites: Consent of instructor. Intro-
duction for graduate students to a general survey of
the eye and visual system. Basic organization at each stage will be
covered. Primary focus will be studies of receptive field
characteristics and associated visual function. Devel-
opment and plasticity of crossEye spatial pathways will also be covered.
Evidence and implications will be ex-
plored from controlled rearing procedures and studies of
abnormal development. (SP)

212E. Color Vision and Visual Sensitivity. (2)
Prerequisites: Consent of instructor. Introduction for
graduate students to human color vision. Con-
trast sensitivity, visual acuity and spatial localiza-
tion. Color discrimination, mechanisms of normal and
defective color vision. (SP)

212F. Eye Movements, Motion Perception and
Binocular Vision. (2) Three hours of lecture for five
weeks. Prerequisites: Consent of instructor. Intro-
duction for graduate students to human eye move-
mament, motion perception and motor and sensory as-
spects of binocularity. Vision pursuit, vergence and
caccadic eye movements, associated lenticonal
accommodation, stereopsis and binocular space per-
ception. Perception of real and apparent motion. (SP)

216. Color Vision. (2) Course may be repeated for
credit with consent of instructor. Two hours of lecture per
week. Prerequisites: Consent of instructor. Selected
topics from color vision mechanisms, perception, the
role of color vision in behavior, and classification of color
problems. Color vision, color blindness, and the role of
binocular vision in spatial perception. (SP)

C218. Spatial Aspects of Vision. (2) Course may be
repeated for credit with consent of instructor. Two
hours of lecture per week. Prerequisites: Consent of in-
structor. Selected topics from spatial perception: Visual
direction, egocentric and oculocentric localization. Pat-
tern vision: Feature detector and orientation filter
models, local and global frequency analysis, visual
acuity and relation to contrast sensitivity. Spatial as-
psects of color vision. Also listed as Psychology C216A.

220. Binocular Vision. (2) Course may be repeated for
credit with consent of instructor. Two hours of lecture per
week. Prerequisites: Consent of instructor. Selected
topics from stereopsis and binocular
depth perception. Development of binocular vision,
biconocular interactions, binocular disparity, binocular
space perception and anomalies of binocular vision. (SP)

222. Application of Vision Psychophysics to Cli-
nical Disorders. (3) Course may be repeated for credit
with consent of instructor. Two hours of lecture and
two hours of laboratory or discussion per week. Prere-
quizzes: Consent of instructor. Selected topics from:
Non-invasive techniques in the study of retinal and
choroidal disorders, cataract, corneal disease, glau-
coma, strabismus, amblyopia, and various aspects
of visual impairment; study of basic laboratory procedures
which may be applied to allow identification of site(s) of
defects in the visual pathways and contribute to a better
under-
standing of the prognosis for eye disease. (SP)

223. Ethics in Scientific Research. (2) Thirty hours
of seminar per semester. This seminar will examine a
range of ethical issues that arise in the fields of do-
ning science. Beginning with the philosophical and so-
cial foundations, we will consider the pathologies of
research; research fraud, the importance of docu-
menting research practices, the relationship between industry and
publication, research with human subjects, the use of
animals, the definition(s) of misconduct and the dif-
ferentiation between misconduct and error. Through hands-

C240. Proseminar: Biological and Perceptual De-
velopment. (3) Three hours of lecture per week. Sur-
vey of the biology of the nervous system and behavior;
the cellular interactions during development in animals and
humans, including neurogenesis, synaptogenesis, cell
dehisence and synapse elimination; perceptual de-
velopment, including development of the eye and ear,
the central visual and auditory pathways, and of vi-
sual and auditory perception in the genetic and ex-
periential determinants of neural and perceptual de-
velopment. Also listed as Psychology C240A.

C280. Computer Vision. (3) Three hours of lecture per
week. Prerequisites: Knowledge of linear algebra and

C290A. Vision A: Quantitative, Perceptual, and
Physiological Aspects. (2) Three hours of lecture per
week. Prerequisites: Knowledge of linear algebra and

C290B. Computer Science C280. Malik, Forsyth

C290C. Vision B: Computational, Perceptual, and
Sensory Aspects. (3) Three hours of lecture per
week. Prerequisites: Knowledge of linear algebra and

C290D. Computer Science C280. Malik, Forsyth
accompanying laboratory which the students can register for separately. Also listed as Psychology C215A, Computer Science C293A, and Molecular and Cell Biology C264A. (F) Banks, Dan

C290B. Vision B: Quantitative, Perceptual, and Physiological Aspects. (2) Three hours of lecture per week for seven and one-half weeks. Prerequisites. Consent of instructor. Course will present basic material on inferring 3d from visual information. This will include disparity, motion, texture, shading, and occlusion. Introduction to the psychophysics and mathematical analysis underlying the inference of 3d scene properties from 2d retinal images. Psychophysics of various cues to 3d and spatial layout such as texture, contour, shading, stereopsis, and structure from motion. Geometrical analysis of these cues. Probabilistic theory for optimal combination of cues and estimation of scene properties. Relevant physiology of V1, V2, V4, and higher areas. Also listed as Psychology C215B, Computer Science C293B, and Molecular and Cell Biology C264B. (F) Banks, Dan, Malik

C290L. Vision Laboratory: Quantitative, Perceptual, and Physiological Aspects. (1) Course may be repeated for credit. One hour of laboratory per week for seven and one-half weeks. Prerequisites. Consent and instructor. Quantitative analysis of psychophysical properties of spatial, color, temporal and binocular vision, motion detection, adaptation effects, and their physiological mechanisms. Also listed as Psychology C215L, Computer Science C290L, and Molecular and Cell Biology C264L. (F) Banks, Dan, Malik

298. Group Studies, Seminars, or Group Research. (1-18) Credit up to four hours of lecture per week. Course studies of selected topics. Advanced studies in various subjects through special seminars on topics to be selected in each semester by committees studying specific special problems, group participation in experimental programs and analysis. (F, SP)

299. Research in Vision Science. (1-12) Hours variable. Prerequisites. Consent of instructor. Research. (F, SP)

601. Individual Study for Master’s Students. (1-6) Course does not satisfy unit or residence requirements for master’s degree. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites. Consent of instructor. Individual study for the comprehensive requirements in consultation with the adviser in vision science. (F, SP)

602. Individual Study for Doctoral Students. (1-6) Course does not satisfy unit or residence requirements. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites. Consent of instructor. Individual study in consultation with the adviser in vision science, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for the Ph.D. (F, SP)

Professional Courses

300. Teaching Methods in Vision Science. (2) Course may be repeated for credit. Two hours of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites. Graduate standing in vision science. Instruction in teaching methods and materials, in vision science and optometry, observation of classes in session, practice teaching in classroom and laboratory. (F, SP)

Peace and Conflict Studies (College of Letters and Science)

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Teaching Faculty

Edwin M. Epstein (Chair of Peace and Conflict Studies, Walter A. Haas School of Business)

Amy Gurwitz (Peace and Conflict Studies)

Nancy Hanani (Peace and Conflict Studies)

Michael Nagler (Classics, Peace and Conflict Studies)

Edith Ng (Peace and Conflict Studies)

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Program in Peace and Conflict Studies

Note: This program is currently under review. Please contact the Group Major Office for updated information.

Peace and Conflict Studies introduces students to the study of peace and conflict resolution. Students engage in the study of the psychology, social, economic, political, historical, and ecological dimensions. Integral to the study is a critical analysis of the structures and processes of change. Students are encouraged to recognize the linkage between the academic study of peace and active participation in it.

Since the causes of conflict and the processes of peace are multifaceted and complex, students are expected to approach their study from the perspective of a number of disciplines. They must also define and develop a central theme or concentration to explore in depth. To achieve this, the major is organized into five components:

Foreign Language Requirement. All PACS students must be able to demonstrate proficiency in any single modern language (other than English) equivalent to four college-level semesters. Two semesters, or the equivalent, must be completed before admission to the major. The remaining two semesters may be completed at any time before graduation.

There are three ways students can fulfill the four-semester language requirement, depending on their backgrounds and abilities:

(1) Through course work. 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, and third levels of language may be taken on a Pass/Not Pass 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. However, transcripts must be provided and evaluated by an adviser.

(2) With a proficiency exam. Students whose language skills are at fourth semester and 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. Another option for those with advanced language abilities is to place into a language course beyond the fourth semester and obtain the instructor’s note to that effect.

(3) Being a non-native English speaker. Non-native speakers of English may use their native language to satisfy the language requirement. However, documentation of fourth semester ability is still required. Students can take a proficiency test (see above) or, alternatively, provide evidence that they have been educated in their native language at least through high school, or the equivalent of high school.

Core Courses. Six courses give the scope of the discipline in historical, theoretical, and practical terms. The core also includes credit for internships and a senior seminar.

Survey Areas. To provide a breadth of subject areas and the background necessary for the development of one’s concentration topic, students must complete one course from each of five broad subject areas: peace, war, and global systems; ethics, culture, and power; environmental conflict resolution, and social change; political economy and development; and environment, population, and resources.

Area of Concentration. This is the central theme that students develop individually and that unifies their major. Six courses must relate to one’s chosen area of concentration, two of which may overlap with survey courses if appropriate. All of the concentration courses must be approved by an adviser.

Human Diversity. Given that social and cultural differences are major contributors to human conflict, all PACS majors must address aspects of human diversity either through course work or a research project conducted for a course which has already been taken but which might not otherwise directly address human diversity issues. This requirement may be met through course work taken to satisfy a division requirement and does not necessarily lead to additional course work. The four aspects of human diversity are culture/religion, gender, U.S. or other national ethnic diversity, and social class.

The Major

Core Courses—Lower Division, PACS 10, 25.

Upper Division. PACS 100, 186, 187, 190. To declare peace and conflict studies, students must have (1) completed PACS 10 as well as one additional course which counts for the major, and (2) completed at least two semesters of college-level language or the equivalent. Students must declare no later than the term preceding their final term. Transfer students must have completed one semester of course work at Berkeley before declaring. A detailed description of the major requirements is available in the Teaching Program Office.

Double Majors. Double majors must be approved by the dean of the College of Letters and Science. No more that 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 requirements. Students must have maintained a 3.3 GPA in courses outside the L&S department in addition to the 3.3 GPA overall in course work undertaken at Berkeley before declaring. A detailed description of the major requirements is available in the Teaching Program Office.

Transfer Courses. A maximum of three courses taken at other institutions (including course from the UC Education Abroad Program) may be transferred into the major. 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 prerequisites are not included in this restriction.

Honors. Majors in peace and conflict studies who have maintained a 3.3 GPA in the major and a 3.3 GPA overall are eligible for honors at Berkeley. Students must complete one course each from five of these broad subject areas: peace, war, and global systems; ethics, culture, and power; environmental conflict resolution, and social change; political economy and development; and environment, population, and resources. Graduates of the honors program are eligible to apply for the honors program. Admission to the program requires the written approval of a faculty sponsor and the program chair. Candidates for honors are then required to conduct
Independent research and write a thesis under PACS H195. Departmental honors are awarded upon completion of the honors course with a grade of 3.0 or better and a GPA of 3.3 in both the major and overall in the student's last semester at Berkeley.

The Minor

The minor in PACS consists of six upper division courses. A minimum of three must be upper division PACS courses. The remaining courses must be selected from one (of only) of the five PACS Survey Areas. Applications for the minor and survey committee listing are available from the IAS Teaching Program Office. Minor applications must be submitted no later than the last day of instruction in 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 completed at Berkeley; (2) all courses must be taken for letter grade; (3) a minimum GPA of 2.0 must be achieved in the courses used to satisfy the minor requirements; (4) no more than one course may be repeated for credit. One or two hours of meeting per week. Two hours of lecture and two hours of discussion per week. Topics vary from semester to semester. Check with the PACS office for precise schedule of offerings. (F,SP)

125AC. War, Culture, and Society. (4) Three hours of lecture and one hour of discussion per week. Course examines the experience and meaning of war in the formation 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. It will take special note of the role of race, ethnicity, and class as prisms that filter this process. Course also explores how different interpretations of democracy and nationalism have served as a source 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

127A. Human Rights. (3) Three hours of lecture per week. An introduction to the developing international promotion and protection of human rights. The course provides a foundation for understanding legal, political, philosophical, and ethical aspects of human rights. We will examine United Nations, regional, and national systems on human rights; ideological and cultural perspectives; U.S. policy and practice; women's human rights; sources of violations; and nongovernmental organizations. (F,SP) Staff

127B. Human Rights. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 127A or consent of instructor. Five special issues will be analyzed in depth in the context of human rights: United Nations; democracy and development; universality and cultural relativism in three regional systems; and women's rights. (SP)

128AC. Human Rights and American Cultures. (4) Four hours of lecture per week. The course analyzes the theory and practice of human rights for three groupings in the United States and examines questions of race and ethnicity as they are embedded in various international and national human rights instruments. The course utilizes an interdisciplinary approach to the study of developing systems, laws, and norms for the protection and promotion of human rights while considering each group's cultural, political, literary, and cultural traditions. This course satisfies the American cultures requirement. (F,SP)

130. Cross-Listed Topics. (1-4) Course may be repeated for credit. Course topics will be selected from the following: The Americanization of India; Apartheid, South Africa, and the United States; Israel, the Palestinians, and the United States; The Soviet Union and the United States; Latin America and the United States. (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. Particular attention will be given to world economic and social integration, ethno-religious nationalism and identity politics, democratic policies, and foreign policy. Special emphasis is placed on understanding the prospects of peace and world order in the post-cold war era. (F,SP) Sanders

Upper Division Courses

100. Peace Theory: Approaches and Analyses. (3) Three hours of lecture per week. Prerequisites: 10. This course will explore the historical development of the field through its major assumptions, logic, and differing approaches of the seminal schools and thinkers that have shaped the field. Students will become familiar with the body of literature and major debates in peace studies and research. (F,SP) Sanders

119. Special Topics in Peace and Conflict Issues. (1-4) Course may be repeated for credit as topic varies. Two hours of lecture and two hours of discussion per week. Topics vary from semester to semester. Check with the PACS office for precise schedule of offerings. (F,SP)

125. Advanced Conflict Resolution. (4) Four hours of lecture per week. Prerequisite: 153, or consent of instructor. This course will investigate the special issues involved in facilitating resolution of cross-cultural 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. This course includes field immersion, conflict resolution process evaluation and design, and the opportunity to participate in mediation of a multicultural mediation. (F,SP)

155. Ethics of Conflict Resolution. (4) Four hours of lecture per week. Prerequisite: 153, or consent of instructor. This course will examine the ethical issues and perspectives in relation to peace and conflict studies, with emphasis on communication and conflict resolution processes and special emphasis on analyzing the third party intervenor's ethical responsibilities and dilemmas in facilitating collaborative conflict resolution and appreciating cultural context and meaning. Course studies will be used to examine and formulate ethical approaches to issues such as cultural conflict, neutrality and impartiality, voluntarism and voluntary and consensual participation. (F,SP)

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 pass/no pass basis. Pass/Fail grade. (F,SP) Nagler

158. Conflict Resolution: Theory and Practice. (3) Three hours of lecture per week. This course will investigate the theories of individual or conceptual framework for practical application. Students will engage in practice as parties to conflicts 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)

159. International Conflict: Analysis and Resolution. (3) Three hours of lecture per week. Prerequisite: 153. This course will examine the changing nature of conflicts and conflict resolution in the post-Cold War era. This course will study the contemporary context and issues of conflict by examining the thinking about conflict, the resolution, and their application in practice. (F,SP) Sanders

160. Pacific Northwest Peace and Conflict Studies Program. (3) Three hours of lecture per week. This course is designed to provide new students with the opportunity to become familiar with the body of literature and major seminars that have shaped the field. Students will become familiar with the body of literature and major debates in peace studies and research. (F,SP) Sanders

165. Conflict Resolution IV. (4) Four hours of lecture per week. Prerequisite: 153, or consent of instructor. This course will investigate the special issues involved in facilitating resolution of cross-cultural 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. This course includes field immersion, conflict resolution process evaluation and design, and the opportunity to participate in mediation of a multicultural mediation. (F,SP)

166. Nonviolence Today. (3) Three hours of lecture per week. This course is designed to provide new students with the opportunity to become familiar with the body of literature and major seminars that have shaped the field. Students will become familiar with the body of literature and major debates in peace studies and research. (F,SP) Sanders

167. Introduction to Nonviolence. (3) Three hours of lecture per week. This course is designed to provide new students with the opportunity to become familiar with the body of literature and major seminars that have shaped the field. Students will become familiar with the body of literature and major debates in peace studies and research. (F,SP) Sanders

168. Nonviolence Today. (3) Three hours of lecture per week. Prerequisites: 164A or consent of instructor. This course will investigate the special issues involved in facilitating resolution of cross-cultural 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. This course includes field immersion, conflict resolution process evaluation and design, and the opportunity to participate in mediation of a multicultural mediation. (F,SP) Sanders

169. Conflict Resolution: Theory and Practice. (3) Three hours of lecture per week. This course will investigate the theories of individual or conceptual framework for practical application. Students will engage in practice as parties to conflicts 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)
186. Peace and Conflict Studies Internship. (2-4) Course may be repeated for a maximum of 4 units. Six to fifteen hours of internship per week. Must be taken on a pass/noon pass basis. Prerequisites: 10 or consent of instructor. Supervised internship in selected community agencies concerned with peace and justice. Placement relevant to student’s academic interests and career objectives. Minimum 45 hours per semester per unit of credit earned. Required for PACS majors and normally restricted to them. (F,SP)

187. PACS Internship Seminar. (1) One hour of seminar per week. Must be taken on a pass/noon pass basis. Prerequisites: 10; upper division standing or consent of instructor. 186 (may be taken concurrently). Provides students with the structure for developing critical analysis and problem-solving skills used in a variety of peace and justice work settings. Students are expected to put peace theory to work in a variety of public-sector peace and justice institutional settings. Look at values and ethics, the use of social science and other methods and skills. Required for PACS majors and normally restricted to them. (F,SP)

190. Senior Seminar. (2) Two hours of seminar per week. Students prepare a major analytical paper synthesizing what they have learned in the major and do an oral presentation based on their area of concentration. Open to PACS majors only. To be taken in the final year of study. (F,SP)

195. Senior Thesis. (3-4) Three hours of research per unit per week. Prerequisites: Senior standing in PACS. Research paper or suitable research project done under the direct supervision of a faculty sponsor. Subject must be approved by faculty sponsor no later than the preceding semester in which the course is to be taken. (F,SP)

H195. Honors Courses. (1-4) Regular individual meetings with faculty sponsor. Prerequisites: Senior standing, 3.3 GPA in major; 3.0 GPA overall in coursework undertaken at Berkeley; must be admitted to PACS Honors Program. Group discussion, research, and writing project based on study of an advanced topic with faculty sponsor. Application and information available in PACS adviser’s office. (F,SP)

197. Field Studies. (1-4) Course may be repeated for credit. Field work and independent meetings with faculty sponsor. Must be taken on a pass/noon pass 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. Course may be repeated for credit as topic varies. Variable. Must be taken on a pass/noon pass basis. Prerequisites: 2.0 GPA, upper division standing. Group discussion, research, and reporting on selected topics. Student initiation in choice of subjects is solicited and welcome. (F,SP)

199. Supervised Independent Study. (1-4) Course may be repeated for credit. Tutorial. Must be taken on a pass/noon pass 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

Department Office: 314 Moses Hall, (510) 642-2722 http://socrates.berkeley.edu/~forge/ Chair: Alan Code, Ph.D.

Professors

Alan Code, Ph.D. 
Habert L. Dreifus, Ph.D. 
Samuel Scheffer, Ph.D. 
Tobin R. Brown, Ph.D. 
Hans Sluga, B. Phil. 
Barry S. Stout, Ph.D. 
R. Jay Wallace, Ph.D. 
Bernard Williams, M.A. (Deutsch Professor) 
Ernest W. Adams, Ph.D. (Emeritus) 
Charles S. Chihara (Emeritus) Ph.D. 
Thompson Clarke, Ph.D. (Emeritus) 
William Craig, Ph.D. (Emeritus) 
Donald H. Davidson, Ph.D. (Slusser Professor Emeritus) 
Bonson Mates, Ph.D. (Emeritus) 
Wallace I. Matson, Ph.D. (Emeritus) 
David Rynn, Ph.D. (Emeritus) 
Frits Staal, Ph.D. (Emeritus) 
Joseph Tussman, Ph.D. (Emeritus) 
Bruce J. Vermazen (Emeritus), Ph.D.

Associate Professors

Janet Broughton, Ph.D. 
Hannah Ginsborg, Ph.D. 
Paolo Mantoux, Ph.D. 
Daniel Warren, Ph.D., M.D.

Assistant Professors

Guido Bacciaglaupe, Ph.D. 
John MacFarlane, Ph.D.

Professor-in-Residence (Mills Professor)

Richard Wolin, M.A.

The Major

Lower Division. 12A or 14A, 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 in addition to the four required upper division courses. Students must take one course from the 160-178 series and one course from the three additional upper division courses. Course 101 does not count towards the major.

Students should pass Philosophy 12A or 14A before the end of the junior year and should take Phil- 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 adviser to be relevant to the major. One course in the major may be taken on a pass/noon pass basis.

Honors Program. With the consent of the major adviser, a student with an overall 3.5 grade-point average or higher and a grade-point average of 3.7 or higher in courses in the major may apply for admittance to the honors program. This program requires completion of either (1) Philosophy H196, 199, or Senior Colloquium, or (2) a graduate seminar in the Philosophy Department, admissibility of which is contingent upon approval of the instructor in charge. It also requires that the candidate write an acceptable honor’s 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-grade basis. Students must have an overall grade-point average of 2.0 in all six courses required for the minor. (A grade-point average 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) Sluga

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) Searle

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)

5. Science and Human Understanding. (4) Three hours of lecture and one hour of discussion per week. Introduction to the Philosophy of Science.

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 shall also follow man's realization that the changing answers to these questions are themselves self-interpreted.

7. Existentialism in Literature and Film. (4) Three hours of lecture and one hour of discussion per week. Christian, agnostic, and atheist existentialism as expressed in the works of Dostoevsky, Melville, Kafka, Antonioni, Goddard, etc. (F,SP) Dreyfus

8. Introduction to Philosophy of Art. (4) Three hours of lecture and one hour of discussion per week. This course will identify the central features of art, and it will consider alternative accounts. Topics will include: The definition of art, the institutional theory of art, intention, media of art, ontology of art, art works, representation, expression, metaphor, and value. (F,SP) Wolin

9. Chinese Philosophy. (4) Three hours of lecture per week. An introduction to Chinese philosophical thought. The main ideas of different schools of thought, including Confucianism, Taoism and Buddhism, will be presented through a study of representative thinkers and texts. Various topics will be highlighted, including: Chinese conceptions of the self, theories of human nature, accounts of the ethical ideal, and views, about self-cultivation.

10. Comparative Ethics. (4) Three hours of lecture per week. A comparative study of topics in Chinese and Western ethical traditions. Topics include love, compassion, benevolence; rituals, filial obligations, the individual and the family; pride, shame, guilt, self-consciousness, courage, wisdom; trustworthiness, forms of integrity; concepts of the self; self-cultivation; human nature, destiny, the cosmic order; the concept of morality, and its role in human life. The course will conclude with a discussion of metaethical issues concerning the contrast between the ethical traditions of the two cultures. Shun

12A-12B. Introduction to Logic. (4) Three hours of lecture and two hours of discussion per week. Syntax, semantics, and proof theory of sentential and predicate logic. (F,SP) Chihara
14A. Rudiments of Logic and the Philosophy of Logic. (4) Three hours of lecture and two hours of discussion per week.

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. 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-group 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. Ancient Philosophy. (4) Three hours of lecture and one hour of discussion per week. The history of ancient philosophy with special emphasis on the Pre-Socratics, Plato, and Aristotle. (F) Code

25B. Modern Philosophy. (4) Three hours of lecture and one hour of discussion per week. Topics in the modern philosophy of mind from Descartes through Kant. (SP) Ginsborg

39. Freshman Seminar. Course may be repeated for credit. Three hours of seminar per week. Study of various fields of philosophy of special interest to freshmen. Topics will vary from semester to semester and will be individually announced. Freshman seminars are restricted to first-year students.

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/fail basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become familiar with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

Upper Division Courses

General prerequisites: Students enrolling in any of the following upper division courses should have completed at least 8 units in philosophy. Additional prerequisites are indicated in certain courses.

100. Philosophical Methods. (4) Two hours of lecture and two hours of discussion per week. Prerequisites: Two courses from 2, 25A, 25B. Restricted to students in the major. The course is designed to acquaint students with the techniques of philosophical reasoning through 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) Warren

104. Ethical Theories. (4) Three hours of lecture and one hour of discussion per week. Formerly C104. The fundamental ethical concepts and problems are examined in the study of classical and contemporary ethical theories of ethics. (F) Scheffler, Wallace

105. Foundations of Ethics. (4) Three hours of lecture per week. An advanced investigation of fundamental questions about the nature of morality. Scheffler

107. Moral Psychology. (4) Three hours of lecture per week. An investigation of central issues in moral psychology, such as: free will, weakness of will, self-deception, moral motivation, emotions, virtues, moral education. Williams

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; perception, interpretation and evaluation. Williams

113AC. Philosophical Perspectives on Race and Culture. (4) Three hours of seminar per week. The aim of the course is to examine some of the philosophical issues related to an understanding of race and culture in the context of present-day American society. The course is intended for juniors and seniors with some background in philosophy, and it will consist of a weekly discussion session. Basic set theoretical, which students will have an opportunity to present material and to discuss issues in depth. Students will write a short paper every week on the readings for the next session and a final paper of 12-15 pages. This course satisfies the American cultures requirement. Ginsborg

115. Political Philosophy. (4) Three hours of lecture per week. Analysis of political obligation and related problems. (F) Scheffler, Sluga

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 problems in liberal theory, justice, desert, and responsibility; communitarianism, nationalism, and cosmopolitanism. Scheffler

118. Philosophy of Law. (4) Three hours of lecture per week. Philosophical problems arising in the legal context.

122. Theory of Knowledge. (4) Three hours of lecture and one hour of discussion per week. Strawson

125. Metaphysics. (4) Three hours of lecture per week.

128. Philosophy of Science. (4) Three hours of lecture per week. A survey of main topics in the logic of science and of other issues coming under the general heading of philosophy of science.

129. Special Topics in the Philosophy of Science. (4) Three hours of lecture per week. A discussion in some depth of one or a few special issues in, or approaches to, the philosophy of science. Details of current topics are available in the departmental guide of each semester in which the course is given.

130. Philosophy of Social Science. (4) Three hours of lecture per week. Philosophical topics arising from psychology, economics, sociology, etc. Searle

131. Philosophy of Mind. (4) Three hours of lecture per week. Mind and matter; other minds; the concept ‘person.’ Searle

133. Philosophy of Language. (4) Three hours of lecture per week. (F,SP) Shun

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.

C139. Mind and Brain: Intentionality in Philosophy, Neurobiology, and Cognitive Science. (3) Three hours of seminar per week. Must be taken on a pass/no pass basis. Formerly 139. Examination of the history, use, and significance of the concept of intentionality in philosophical, biological, and cognitive systems. We will present the classical Cartesian view that intelligent behavior can be explained in terms of mental representations, and criticise the implementation of this view in computer models of the mind. We will argue that such models can neither account for the experience of acting intelligently nor produce intelligent behavior. We will then consider alternative models based on biological mechanisms that do account for intelligent behavior. We will then consider alternative models based on biological mechanisms that do account for intelligent behavior and that are compatible with our experience of acting purposively. Finally, we will review accounts of intentional behavior in which the mind relates to the world, and seek to determine which account best explains intelligent behavior. Dreyfus, Freeman

140A. Intermediate Logic. (4) Three hours of lecture per week. Prerequisites: 12A-12B or equivalent. Major concepts, results, and techniques of modern logic. Mathematical logic of propositional and first-order logic. Basic set theory. Axiomatic development of number systems, computation, and incompleteness. (Mancuso

142. Philosophical 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

143. Modal Reasoning. (4) Three hours of lecture per week. Prerequisites: 124. One or consent of instructor. Analyses of the concept of necessity. Investigations of philosophical issues involving necessity and modal reasoning. Study of modal concepts and modal logic in philosophical reasoning.


148. Probability and Induction. (4) Three hours of lecture per week. Different approaches to the foundations of probability; inductive confirmation of scientific theories. Mancuso

149. Special Topics in Philosophy of Logic and Mathematics. (4) Three hours of lecture per week. This course is conceived in analogy with Philosophy 129 (Special Topics in Philosophy of Science). It is intended to allow the class to focus on specific problems in philosophy of logic or mathematics that can be treated in a broad introductory course such as Philosophy of Mathematics (Philosophy 146) or Philosophical Logic (Philosophy 142). (F,SP) Staff

C151. Early Chinese Thought. (4) Three hours of lecture per week. An examination of early Chinese thought via a study of representative thinkers and texts. Topics include pre-Ch'ing Confucianism and Taoism, development of Confucian thought in the Han dynasty and of Taoist thought in the Wei-Chin dynasties, development of Buddhist thought. Also listed as Religious Studies C156.

C152. Later Chinese Thought. (4) Three hours of lecture per week. This course begins with an introduction to early Chinese thought, including the development of Confucian, Taoist, and Buddhist thought up to the tenth century. It then continues with an in-depth examination of the evolution of Confucian thought in response to and under the influence of Taoism and Buddhism, via a study of representative thinkers from the Sung, Ming, and Ch'ing dynasties. Also listed as Religious Studies C157, Shun

153. Chinese Philosophy. (4) Three hours of lecture per week. The course focuses on central topics in Chinese philosophy, though a survey of the history 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. Shun

156. Foundations of Analytic Philosophy. (4) Three hours of lecture per week. Sluga

160. Plato. (4) Three hours of lecture per week.

161. Aristotle. (4) Three hours of lecture per week. Code

170. Descartes. (4) Three hours of lecture per week. Broughton


172. Spinoza. (4) Three hours of lecture per week.

173. Leibniz. (4) Three hours of lecture per week.

174. Locke. (4) Three hours of lecture per week. Ginsborg

175. Berkeley. (4) Three hours of lecture per week.

176. Hume. (4) Three hours of lecture per week. (F,SP) Broughton

178. Kant. (4) Three hours of lecture per week. (F,SP) Warren
234. Recent Work in Theory of Knowledge. (3) Course may be repeated for credit. Two hours of sem-
inar per week.

250. Special Studies. (1-9) Course may be repeated for credit. Tutorial. Prerequisites: Consent of instructor. Open to qualified students wishing to pursue special

251. Directed Studies. (1-9) Course may be repeated for credit. Tutorial. Prerequisites: Consent of instructor. Open to qualified students wishing to pursue special

301. Professional Preparation: The Teaching of Philosophy. (2-6) 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: Consent of instructor. (F,SP) Staff

303. Individual Study for Doctoral Students. (1-6) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Independent study. 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 of the Ph.D. (F,SP)

304. Individual Studies. (1-9) Course may be repeated for credit. Prerequisites: Permission of instructor. Staff

309. Special Topics in Recent European Philosophy. (4) Course may be repeated for credit. Three hours of lecture per week. The course is designed to deal with a variety of topics in recent European philo-
sophy. Its content will vary from occasion to occasion. Possible topics include: further work in phenomenology and existentialism, Husserl and Merleau-Ponty.

183. Schopenhauer and Nietzsche. (3) Three hours of lecture per week. Sluga

184. Nietzsche. (3) Three hours of lecture per week. Sluga

185. Heidegger. (4) Three hours of lecture and one hour of discussion per week. Formerly 187. A study of Heidegger’s Being and Time. Dreyfus

186. Wittgenstein. (4) Three hours of lecture per week. Dreyfus

187. Special Topics in the History of Philosophy. (4) Course may be repeated for credit. Three hours of lecture per week. The course’s specific content will vary from occasion to occasion but either the course will focus narrowly upon problems drawn from the work of a philosopher in the 160 to 178 series, or it will study several influential philosophers, active mainly before the twentieth century, who shared a common outlook or who were linked by other types of philosophically significant reaction to one another’s work. (F,SP)

188. Phenomenology. (4) Three hours of lecture per week. Schaad

189. Special Topics in Recent European Philo-
sophy. (4) Course may be repeated for credit. Three hours of lecture per week. The course is designed to deal with a variety of topics in recent European phi-
sophy. Its content will vary from occasion to occasion. Possible topics include: further work in phe-
nomenology and existentialism, Husserl and Merleau-Ponty.

190. Philosophy Tutorial. (4) Three hours of tutorial per week. Prerequisites: Students in Honors Program. The department will designate a tutor, under whose guidance the student will seek to satisfy the thesis re-
quirement of the Honors Program. (F,SP)

198. Group Study. (1-4) Course may be repeated for credit. Tutorial. One unit per weekly hour of instruction. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Directed study on special topics. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Tutorial. One unit per weekly hour of instruction. Must be taken on a passed/not passed basis. Enrollment restrictions apply; see the Introduction to Courses and Curricula sec-
tion in this catalog. (F,SP)

Graduate Courses

200. First-Year Graduate Seminar. (3) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. A combination seminar and tutorial, required of and limited to first year graduate students in philosophy. (F)

201. Historical Seminar. (1-9) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. An advanced investigation of fundamental questions of philosophy. Topics will vary from semester to semester. (F,SP)

297. Advanced Seminar in Philosophy. (1-9) Course may be repeated for credit. Two hours of seminar per week. Advanced study in various fields of philosophy. Topics will vary from semester to semester. (F,SP)

298. Advanced Seminar in Ancient Philosophy. (1-9) Course may be repeated for credit. Two hours of seminar per week. Advanced study in ancient philosophy. (F,SP)

299. Independent Study. (2-12) Independent study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Independent study. 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 of the Ph.D. (F,SP)

603. Individual Philosophical Studies. (1-4) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Independent study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. Reading or other advanced study by ar-
rangement with a staff member, for preparation in advance of an examination for a higher degree. (F,SP)

302. Directed Study (1-9) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Staff

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Scientific Diving. The Division of Diving Safety ensures that all underwater diving conducted under the auspices of the University of California, Berkeley, is 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 of-
cer in association with the vice chancellor for re-
search, 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 scien-
tific diving using University equipment, diving from Uni-
versity-owned property, or diving as a student or employee of the University. The Diving Safety Pro-
gram provides opportunities for students, faculty, and staff to pursue SCUBA certification or a sci-
177. Directed Studies. (1-9) Course may be repeated for credit. Tutorial. Prerequisites: Consent of instructor. Open to qualified students wishing to pursue special study or research under the direction of a member of the staff. (F,SP)

290. Seminar. (3) Course may be repeated for credit. Two hours of seminar per week. Advanced study in various fields of philosophy. Topics will vary from semester to semester. (F,SP)

298. Advanced Seminar in Ancient Philosophy. (1-9) Course may be repeated for credit. Two hours of seminar per week. Advanced study in ancient philosophy. (F,SP)

299. Independent Study. (2-12) Independent study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. (F,SP) Staff

602. Individual Study for Doctoral Students. (1-6) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Independent study. 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 of the Ph.D. (F,SP)

603. Individual Philosophical Studies. (1-4) Course may be repeated for credit. Course does not satisfy unit or residence requirements for doctoral degree. Independent study. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Appointment as a graduate student instructor. Students will work as teachers under the guidance of a faculty member. They will attend lectures, guide classroom discussion, and participate in a workshop in teaching methods. (F,SP)

Professional Courses

301. Professional Preparation: The Teaching of Philosophy. (2-6) 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. Reading or other advanced study by ar-
rangement with a staff member, for preparation in advance of an examination for a higher degree. (F,SP)

302. Directed Study (1-9) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Staff

303. Individual Study for Doctoral Students. (1-6) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for doctoral degree. Independent study. 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 of the Ph.D. (F,SP) Staff

304. Individual Studies. (1-9) Course may be repeated for credit. Prerequisites: Permission of instructor. Staff

309. Special Topics in Recent European Philosophy. (4) Course may be repeated for credit. Three hours of lecture per week. The course is designed to deal with a variety of topics in recent European phi-
sophy. Its content will vary from occasion to occasion. Possible topics include: further work in phe-
nomenology and existentialism, Husserl and Merleau-Ponty.

190. Philosophy Tutorial. (4) Three hours of tutorial per week. Prerequisites: Students in Honors Program. The department will designate a tutor, under whose guidance the student will seek to satisfy the thesis re-
quirement of the Honors Program. (F,SP)

198. Group Study. (1-4) Course may be repeated for credit. Tutorial. One unit per weekly hour of instruction. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. Directed study on special topics. (F,SP)

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Tutorial. One unit per weekly hour of instruction. Must be taken on a passed/not passed basis. Enrollment restrictions apply; see the Introduction to Courses and Curricula sec-
tion in this catalog. (F,SP)

Graduate Courses

200. First-Year Graduate Seminar. (3) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. A combination seminar and tutorial, required of and limited to first year graduate students in philosophy. (F)

204. Foundations of Ethics/Recent Work in Ethics. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Consent of instructor. An advanced investigation of fundamental questions about the nature of morality. Scheffler

234. Recent Work in Theory of Knowledge. (3) Course may be repeated for credit. Two hours of sem-
inar per week.

250. Special Studies. (1-9) Course may be repeated for credit. Tutorial. Prerequisites: Admission to candi-
dacy for the doctoral degree. (F,SP)

251. Directed Studies. (1-9) Course may be repeated for credit. Tutorial. Prerequisites: Consent of instructor. Open to qualified students wishing to pursue special
Physical Science

(College of Letters and Science)

Department Office: 366 LeConte Hall
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 health 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 most medical 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.

Plan A

(Broad introduction to physical science)

Lower Division Courses.

Mathematics 16A-16B, 55; Physics 8A-8B; Chemistry 1A-1B; Computer Science 5.

Upper Division Courses.

Physics 132; Chemistry 130A-130B; Vision Science 101; Statistics 131A. Electives in physical sciences, mathematics and statistics, with the approval of the advisor 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 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.

EPS 50/50L or EPS 50T; or Astronomy 110A or 110B.

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 adviser.

Honors Program.

Students with a grade-point average 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.

Single Subject Teaching Credential. All credential candidates must be certified under the provisions of the California Teacher Preparation and Licensing Act of 1970. Prospective single subject teachers in physical science are encouraged to complete the field major in physical sciences. Students may be required to pass a state examination in addition to completing a program of professional preparation.

For further information on requirements for the Single Subject or Multiple Subject Credential, see the Announcement of the School of Education.

Physical Education Activities. (5) Course may be repeated for credit. Two hours of laboratory per week. Varies among 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

9. Physical Education Activities for Majors. (1) Course may be repeated for credit. Four hours of laboratory per week. Sections in sport, exercise, and dance for human kinematics majors. (F,SP) Scott

32. Fitness for Life: Physical Adaptations to Exercise (2) One hour of lecture and two hours of laboratory per week. Prerequisites: Limited to freshmen and sophomores. Develops the relationship between physical fitness and wellness through scientific evidence presented in the areas of exercise physiology and health. The body’s adaptation to programs of aerobic conditioning and strength training are examined. 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) Johnson

47. Introduction to Scuba Diving (3) Two hours of lecture and two hours of laboratory per week. Prerequisites: Must complete medical and swimming evaluation. Designed to introduce non-divers to scuba diving as future tool for research. The course will cover topics related to working in the marine environment, including diving physics and physiology, life support equipment, environment, diving safety, dive planning, and emergency preparedness. Students will be introduced to the skills needed to work efficiently under water. (F,SP) Hayward

50. Emergency First Aid and Sports-Related Injuries (2) One and one-half hours of lecture and two hours of laboratory per week. Must be taken on a passed/not passed basis. Intensive course in first aid. Upon successful completion of the course and the additional requirements of the American Red Cross, an appropriate certificate may be issued. Scott

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 defended 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 why certain rhythms and movements are inherent to each 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

98. Supervised Group Study (1-4) Course may be repeated for credit. One to four hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Restricted to freshmen and sophomores with consent of instructor. Supervised studies by lower division students. Enrollment is restricted by regulations listed in the General Catalog. (F,SP) Staff

Upper Division Courses

C129. Human Physiological Assessment. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Integrative Biology 123A, 123AL (may be taken concurrently). Principles and theories of human physiological assessment in relation to physical activity and conditioning. Performance of laboratory procedures in the measurement and interpretation of physiological activity (cardiorespiratory endurance, body composition, musculoskeletal fitness). Also listed as Integrative Biology C129. (SP) Johannessen

160. Theory of Dance. (3) Two hours of lecture and three hours of laboratory per week. Prerequisites: Ac-
Physics
(College of Letters and Science)

Department Office: 366 LeConte Hall, (510) 642-7166
Chair: Christopher F. McKee, Ph.D.

University Professors
Marvin L. Goldhaber, Ph.D. University of Chicago. Theoretical condensed matter physics
*Donald A. Glaser, Ph.D. California Institute of Technology. Physics of the nuclear force
*Giorio Tinolmarchi, Ph.D. University of Wisconsin. High energy experimental physics
Lawrence W. Hall, Ph.D. Harvard University. High energy theory. Cosmology
Martin B. Halpern, Ph.D. Harvard University. Theory of elementary particles
Edgar Knobloch, Ph.D. University of California, Berkeley. Nonlinear dynamics
Dong Hae Lee, Ph.D. Massachusetts Institute of Technology. Theoretical condensed matter physics
Stephen Leple, Ph.D. University of California, Berkeley. Atomic and molecular physics
Robert F. Lit, Ph.D. University of California, Berkeley. Experimental astrophysics and atomic and molecular physics
Robert D. Littlejohn, Ph.D. University of California, Berkeley. Nonlinear dynamics. Theoretical physics
Green D. Litchfield, Jr., Ph.D. University of California, Berkeley. Nonlinear dynamics. Theoretical physics
Steven D. Lo, Ph.D. University of California, Berkeley. Theoretical condensed matter physics
Kam-Biu Luk, Ph.D. Rutgers University. Experimental high energy physics
Christopher Mckee, Ph.D. University of California, Berkeley. Theoretical astrophysics
*Forest S. Mazer, Ph.D. California Institute of Technology. Space plasma physics
Richard A. Muller, Ph.D. University of California, Berkeley. Experimental high energy physics
Hethi Murayama, Ph.D. University of Tokyo. Theory of elementary matter
Joseph W. Steinberger, Ph.D. Massachusetts Institute of Technology. Theoretical subatomic physics
Richard E. Packard, Ph.D. University of Michigan. Low temperature nuclear physics
*P. Bulloch Price, Ph.D. University of Virginia, D.C. Particle astrophysics and geomagnetism
Paul L. Richards, Ph.D. University of California, Berkeley. Infrared and optical astronomy
Daniel S. Raleigh, Ph.D. Cornell University. Computational and experimental condensed matter physics
Bernard Sadek, Ph.D. University of Paris at Orsay. Particle physics and cosmology
Charles V. Shank, Ph.D. University of California, Berkeley. Experimental particle physics
Yuen-Ron Shen, Ph.D. Harvard University. Condensed matter physics. Quantum and nonlinear optics
James L. Siegbahn, Ph.D. Stanford University. Elementary particle physics
George Simons Smith, Ph.D. Massachusetts Institute of Technology. Experimental astrophysics
Mark W. Strohm, Ph.D. Princeton University. Elementary particle physics
Makoto Suzuki, Ph.D. University of Tokyo. Theory of elementary particles
Martin White, Ph.D. Yale University. Theoretical astrophysics
Jonathan Z. Buch, Ph.D. Massachusetts Institute of Technology. Theoretical astrophysics and particle physics
Peter Y. Ueda, Ph.D. Boston University. Experimental condensed matter physics
Alex Zelevinsky, Ph.D. University of California at Los Angeles. Theoretical condensed matter physics
Bruno Zwiebel, Ph.D. University of Rome. Theory of elementary particles
Kinsky A. Anderson, Ph.D. (Emeritus)
Robert R. Brown, Ph.D. (Emeritus)
Owen Chamberlain, Ph.D. (Emeritus)
Geoffrey F. Chew, Ph.D. (Emeritus)
William Gordon, Ph.D. (Emeritus)
*Eugene D. Commins, Ph.D. (Emeritus)
Frank S. Crawford, Ph.D. (Emeritus)
Kenneth M. Crowe, Ph.D. (Emeritus)
*Sumner P. Davis, Ph.D. (Emeritus)
Robert R. Davis, Ph.D. (Emeritus)
William F. Frazier, Ph.D. (Emeritus)
Ernst L. Hahn, Ph.D. (Emeritus)
A. Carl Heisenberg, Ph.D. (Emeritus)
T. J. C. Jackson, Ph.D. (Emeritus)
Allan N. Kaufman, Ph.D. (Emeritus)
Larry T. Kerth, Ph.D. (Emeritus)
T. Charles Kittel, Ph.D. (Emeritus)
Wulf K. Kundel, Ph.D. (Emeritus)
Stanley Mandelstam, Ph.D. (Emeritus)
Richard Marcus, Ph.D. (Emeritus)
Alan M. Ponts, Ph.D. (Emeritus)
F. W. Reiff, Ph.D. (Emeritus)
Arthur H. Rosenthal, Ph.D. (Emeritus)
Ronald R. Ross, Ph.D. (Emeritus)
Hamer K. Sachs, Ph.D. (Emeritus)
Charles L. Schwartz, Ph.D. (Emeritus)
Howard A. Stoughton, Ph.D. (Emeritus)
Herbert M. Steiner, Ph.D. (Emeritus)
M. Lynn Stevenson, Ph.D. (Emeritus)
George H. Trilling, Ph.D. (Emeritus)
*Flynn H. Wingham, Ph.D. (Emeritus)

Associate Professors
Dmitry Budker, Ph.D. University of California, Berkeley. Experimental atomic physics
Michael Cremme, Ph.D. University of California, Berkeley. Experimental condensed matter physics
O. G. Don Qian, Ph.D. Tel Aviv University. Theoretical high energy particle physics
William Holzapfel, Ph.D. University of California, Berkeley. Experimental astrophysics
Piotr Horava, Ph.D. California Institute of Technology. Theoretical high energy particle physics
Robert G. Jacobson, Ph.D. University of Washington. Experimental high energy physics
Zi Qiang Qiu, Ph.D. Johns Hopkins University. Experimental high energy physics
Aleksandar Lanzafame, Ph.D. University of Rome. Experimental condensed matter physics
Adrienne L. Lee, Ph.D. Stanford University. Experimental astrophysics
J. C. Moore, Ph.D. Massachusetts Institute of Technology. Theoretical condensed matter physics
Dan M. Stamper-Kurn, Ph.D. Massachusetts Institute of Technology. Experimental atomic physics

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 specialized skills, although some specialized courses are among the options open to the student. Those desiring a detailed understanding of a particular field of study are urged to consult a departmental adviser early, in order to discuss the content of the major and also the opportunities after graduation. Students may have entered graduate work in a number of scientific fields such as biophysics and geophysics as well as in physics, and others have gone on to jobs in academic, industrial and government laboratories. Students who are considering high school teaching as a career are especially urged to consult with their adviser early.

Lower Division Courses. Courses 7A-7B-7C (regular or honors, although honors is recommended for students with suitable preparation). Mathematics 1A-1B and 54. 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 been scheduled one additional hour to the three hours of lecture. See Schedule of Classes. Physics 105; 110A; 112; 137A-137B; 6 units of 111; one additional course from the following list should be chosen with the approval of the major advisor.

138, 110B, 124, 129A-129B, 139, 141A-141B, 142, 150, 151C (cross listed with astronomy). These options will give the student the 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 adviser. Completion of the physics major is usually required for admission to graduate school. Additional mathematics from among the courses Mathematics 104, 121A-121B, 185 is recommended. Computer competence is desirable in the sciences.

Honors Program. Students with an overall grade-point average of 3.0 or higher in courses in the major may be admitted to the honors program. A major professor should be consulted before the student's last year of residence. This program requires completion of the major, at least one semester of Physics 190 and a senior thesis, H195A-H195B.

Biophysics. Students who wish to obtain a broad introduction to the physical sciences and their applications to biology are referred to the major in physics, which appears under the Department of Molecular and Cell Biology.

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 Minor in Engineering Physics 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, effective Fall 1995. Students in physical science 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 specifications and will consist of the following course work.

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. Physics 7A-7B-7C must each be passed with a letter grade of C or better. The students must achieve an overall 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. 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 assistant (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 physics major advisor who will approve the completion of the minor program.

Students may petition for a minor in physics from the 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 assistant at (510) 642-0481.
Graduate Programs

Graduate work leading to the M.A. and Ph.D. degree is available in the Department of Physics with emphasis placed on the Ph.D. Please note that the department will not consider applications from students who wish to work toward the M.A. degree only. In addition to applications and transcripts of undergraduate work, applicants for admission must submit GRE scores, which are required for the Physics Graduate Record Examination tests. Detailed information concerning admission, graduate student instructor appointments, fellowships, and degree requirements is given in a departmental brochure which is available upon request from the graduate assistant, Department of Physics.

Research is a major part of the Ph.D. program, and the department offers opportunities in a wide variety of experimental and theoretical fields. Campus research includes atomic physics and spectroscopy, astrophysics, biophysics, cosmic rays, mass spectroscopy, nonlinear optics, condensed matter physics, and statistical mechanics. At the Lawrence Berkeley National Laboratory, extensive opportunities exist for research in astrophysics, elementary particle and nuclear physics, condensed matter physics and materials science, and plasma and nuclear physics. Space physics, interplanetary studies, high-energy research, physics of 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), Physics 211 (Equilibrium Statistical Physics) and Physics 221A-221B (Quantum Mechanics), plus 19 units (five semester courses) of material selected from upper division or graduate courses (not including any upper division material required for the undergraduate major), of which at least 11 units must be in the 200 series courses. Some of the 19 units could include courses in mathematics, philosophy, or astrophysics. Consult department postings for recommendations. Physics 251, 290, 295, 299, 300, and 602 are excluded from the 19 units considered above. Physics 209, 211, and 221A-221B must be completed for letter grades (averaging at least a B). No more than one-third of the Ph.D. program 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 exams constitutes passing the comprehensive exam. The candidate must complete 9 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 courses in physics. Neither upper division courses included in the department (undergraduate) major requirements nor Physics 251, 290, 295, 299, 300, or 602 may be used to satisfy the 35-unit requirement. No more than one-third of the master's program may be fulfilled by courses graded Satisfactory, and then only if approved by the department.

Lower Division Courses

Courses 7A-7B-7C or H7A-H7B-H7C are fundamental and are designed to meet the needs of 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 science sequence (mathematics sequence) should take courses 53 and 54 concurrently with Physics 7B-7C, respectively. Physics 8A-8B is designed for physics and chemistry majors and for 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 basic physical concepts. These courses fulfill, in part, the natural science requirements of the College of Letters and Science.

All students planning to take lower division courses, except Physics 10, should have completed trigonometry.

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; Math 1B or 1BS (may be taken 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: Math 1A, Math 1A-1B, Math 53, 54 (Math 54 may be taken concurrently). Electromagnetic waves; physical 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. Prerequisites: High school physics; Math 1A or 1AS; Math 1B or 1BS (may be taken concurrently). Honors sequence responding to 7A-7B-7C, but with a greater emphasis on theory as opposed to problem solving. Recommended for those who have 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 high school records and an examination given during the first week of class or the consent of the instructor, and into H7B-H7C on performance in previous courses in the general sequence. (F,SP) Staff

9A. 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. Introductory forces, mechanics, 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

9B. Introductory Physics. (4) Students with credit for 7B or 7C will not receive credit for Physics 8B. Three hours of lecture and one hour of discussion per week plus thirty hours of laboratory per semester. Prerequisites: 8A or equivalent. Electromagnetism, optics and modern physics. (F,SP) Staff

10. 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; Math 1A-1B, Math 53, 54, and 110A-110B. Introduction to basic physical concepts and scientific methodologies for understanding physical phenomena. (F,SP) Muller, Staff

21. Physics of Music. (2) Two hours of lecture and one hour of discussion per week. Prerequisites: No previous courses in Physics are assumed, although Physics 10 is recommended. Physical principles are 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 laboratory demonstrations will be given. Only the basics of high school algebra and geometry will be used.

24. Freshman Seminars. (1) Course may be repeated for credit as topic changes. 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 Freshman Seminar is designed to provide new students with the opportunity to explore an intellectual topic with a faculty member in a small-seminar setting. Berkeley Freshman Seminars are offered in all campus departments, and topics vary from department to department and semester to semester. (F,SP)

39. Lower Division Physics Seminar. (1.5) Course may be repeated for credit. Sections 1-3 may be taken on a passed/not passed basis. Prerequisites: Enrollment by consent of instructor during the week of pre-enrollment. Consult bulletin boards outside 366 Le Conte for more information. Preregistration to 20 students per section. Physics seminar course designed for both non major students and students considering a major in physics. Topics vary from semester to semester. (F,SP) Staff

49. 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) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they graduate. (F,SP) Staff

Upper Division Courses

100. Communicating Physics and Physical Science. (2) Two hours of lecture/fieldwork 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 includes 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, central force motion, moving coordinate systems, mechanics of continuous media, oscillations, normal modes, Lagrange’s equations, rigid body dynamics, tensor analysis, etc. (F,SP) Staff

108. Laser Physics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 110A-110B, 137A-137B. This course, a survey of recent developments in lasers and photonics, is intended to provide students with some basic research tools needed for graduate school and for industry. Basic physical principles, e.g., semiconductor laser theory, will be illustrated by examples, e.g., semiconductor diode lasers, dye, and excimer lasers. Applications will also be discussed, e.g., to spectroscopy, to the laser cooling of atoms, and to optical fiber communications. (SP)

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, conduction and dispersion; metallic media; relativity; and Maxwell equations. Wave propagation in media, radiation and scattering, Fourier optics, interference, 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 to fulfill elective requirements. One 3-unit course may be completed in one semester. Eight hours of laboratory per week. Prerequisites: 137A or consent of instructor. The first semester (3 units), on Basic Semiconductor Circuits (BSC), covers introductory analog and digital circuits. The class meets for two 4-hour afternoon lab sessions, and a 1-1/2 hour lecture per week. In the second semester, Advanced Lab (3 units), stu-
112. Introduction to Statistical and Thermal Physics. (4) Three hours of lecture and one hour of discussion. Basic concepts of statistical mechanics, microscopic basis of thermodynamics and applications to macroscopic systems, condensed states, phase transitions, quantum distributions, elementary kinetic theory of transport processes, fluctuation phenomena. (F,SP) Staff

124. Introductory Nuclear Physics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A. Tools of nuclear physics, alpha, beta, and gamma decay, nuclear interactions and structure, brief introduction to particle physics. (F) Staff

129A-129B. Particle Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A-137B (137B may be concurrently taken). Tools of particle and nuclear physics. Properties, classification and interaction of particles including the quark-gluelike constituents of hadrons. High energy phenomena analyzed by quantum mechanical methods. 129A will survey the field including some related topics in modern solid-state physics. 129B will develop more quantitatively such topics as quantum number determination of resonances, hadron structure functions, introductory electro-weak theory with Dirac matrices, grand unified theories. (F,SP) Staff

132. Contemporary Physics. (3) Not open for credit to students who have completed 137A. Three hours of lecture and one hour of discussion per week. Prerequisites: 8A-8B or equivalent or consent of instructor. A general descriptive course of selected topics in contemporary physics. Subject matter will vary and 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, optical, solid state, nuclear and elementary particle physics. (F,SP) Staff

138. Modern Atomic Physics. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A-137B. This course has two goals: (1) The description and calculation of the properties of atomic energy levels based on the central field approximation, the ideas emphasized in this description are widely used in solid state, particle and nuclear physics. 2) The description of modern experimental methods in atomic physics and some of the important physics obtained from them: such as magnetic resonance, lasers and masers, ion and neutral atom traps, optical pumping and beam foil spectroscopy. (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. Selected applications. Designed for advanced undergraduate and graduate students in physics and astronomy. (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. This introductory course in modern solid state physics. Crystal symmetries; classification of solids and their bonding; magnetism, elastic, and particle waves in periodic lattices; thermal magnetic and dielectric properties of solids; energy bands of metals and semiconductors; superconductivity; magnetism, ferroelectricity; magnetic resonances. (F,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. Ionized plasmas from both microscopic and macroscopic point of view, magnetohydrodynamics, small amplitude waves; examples from astrophysics, space sciences and controlled-fusion research. (SP) Staff

C161. Relativistic Astrophysics and Cosmology. (4) Four hours of lecture and one hour of discussion per week. Prerequisites: Senior standing in astronomy or physics or consent of instructor. Physics 112A (may be taken concurrently) and either Physics 110A-110B or Physics 137A-137B. A prior knowledge of astrophysics comparable to that offered in Astronomy 7A/B is useful but not required. 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 dark matter 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, 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 nucleic acids, carbohydrates, lipids, and the forces and interactions 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 reviewed next, together with polymer dynamics. We will then cover the main structural methods in biology: X-ray crystallography, NMR 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 pass/credit basis. A seminar which includes study and reports on current theoretical and experimental problems. Open to all students. (F) Staff

H195A-H195B. Senior Honors Thesis Research. (2,2) Credit and grade to be awarded 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 two semesters, submit a satisfactory thesis. A total of four 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) Must be taken on a pass/credit basis. Enrollment restrictions apply; see the Introduction. This course and Curricula section in this catalog. (F,SP) Staff

199. Supervised Independent Study. (1-3) Must be taken on a pass/credit basis. Enrollment restrictions apply; see the Introduction. This course and Curricula section in this catalog. (F,SP) Staff

Graduate Courses

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, symplectic, symmetries and dynamics of rotation, canonical variables and transformations, perturbation theory, non-linear dynamics, KAM theory. (F) Staff

205B. Advanced Dynamics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 205A. Continuous systems, dissipative systems. Applications from astrophysics and current developments, including turbulence. (SP) Staff

208A. Introduction to Quantum Electronics and Nonlinear Optics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 110A-110B and 137A-137B. Students with equivalent courses are recommended. Sem classical theories of emission and absorption, theory and operation of common laser systems, wave propagation in one and nonlinear media, nonlinear optical phenomena such as second harmonic generation and parameter amplification. (F) Staff

208B. Introduction to Quantum Electronics and Nonlinear Optics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 208A or consent of instructor. Various topics in nonlinear optics and coherent optical phenomena, such as stimulated Raman and Brillouin scattering, self-focusing, photon echoes, self-induced transparency, two-photon absorption and high resolution spectroscopies, multiphoton processes. (SP) Staff

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 multiple expansions, vector spherical harmonics, examples of radiating systems, diffraction, and optical theory. Fields of charges in arbitrary motion, radiated power, relativistic (synchrontron) 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. Ensemble theory. Dynamical systems. Systems of interacting particles. (F) Staff

212. Nonequilibrium Statistical Physics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 211A or equivalent recommended. Quantum theory of many-particle systems. Applications of theory and technique to physical systems. Paring phenomena, superfluidity, fluctuation of state, critical phenomena, phase transitions, nuclear matter. (SP)

212A. Quantum Mechanics. (5) Three hours of lecture and one hour of discussion per week. Prerequisites: 137A-137B or equivalent. Basic assumptions of quantum mechanics; quantum theory of measurement; matrix mechanics; Schroedinger theory; symmetry and invariance principles; theory of angular momentum; stationary state problems; variational principles; time independent perturbation theory; time dependent perturbation theory; theory of scattering. (SP) Staff

212B. Quantum Mechanics. (5) Three hours of lecture and one hour of discussion per week. Prerequisites: 212A or equivalent. Many-body methods, radiation field quantization, relativistic quantum mechanics, applications. (SP) Staff

222. Special Topics in Mathematical Physics. (2-4) Course may be repeated for credit with consent of instructor. Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Application of a branch of mathematics to physical problems. Topics to be announced by the department. Particular attention will be given to recent developments in methods and to the unifying mathematical ideas. (F) Staff

223. Applications of Group Theory in Modern Physics. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: 222A or 222B and consent of instructor. Introduction to group theory and its application to problems in modern physics. The particular field of physics will vary from one offering to the next. (SP) Staff

226. Particle Physics Phenomenology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 222A or 222B and consent of instructor. Introduction to particle physics phenomena. Emphasis is placed on experimental tests of particle physics models. Topics include: Quark model spectroscopy; weak decay; overview of detectors and ac-
229A. Standard Model of Particle Physics I. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 229A or equivalent, or consent of instructor. This course is open to upper-division undergraduate physics majors. Staff. Before the beginning of the fall term, 229A may be taken only by students registered in the course. This course is open to new graduate students in Physics and Astronomy and to members of the faculty of the Department of Physics and Astronomy. The course is open to all interested students, including those who have previously taken 229A. Staff.

229B. Standard Model of Particle Physics II. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 229A or equivalent, or consent of instructor. This course is open to upper-division undergraduate physics majors. Staff.

229C. Standard Model of Particle Physics III. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture and one hour of discussion per week. Prerequisites: 229A or equivalent, or consent of instructor. Staff.

C. General Relativity. (4) Three hours of lecture per week. Prerequisites: 229A or equivalent, or consent of instructor. Topics will vary from semester to semester. See Department of Physics announcement. (F,SP) Staff

251. Introduction to Graduate Research in Physics. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Topics will vary from semester to semester. See Department of Physics announcement. (F,SP) Staff

259. Seminar in Non-neutral Plasmas. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. (F)

260. 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: For qualified graduate students. Individual study in consultation with the major field advisor intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for the Ph.D. (F,SP) Staff

290A-290Z. Seminar. (2) Course may be taken on a satisfactory/unsatisfactory basis. (F)

290N. Seminar in Non-neutral Plasmas. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. (F)

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 announcement. (F,SP) Staff

251. Introduction to Graduate Research in Physics. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Topics will vary from semester to semester. See Department of Physics announcement. (F,SP) Staff

259. Seminar in Non-neutral Plasmas. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. (F)

260. 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: For qualified graduate students. Individual study in consultation with the major field advisor intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for the Ph.D. (F,SP) Staff

290A-290Z. Seminar. (2) Course may be taken on a satisfactory/unsatisfactory basis. (F)

290N. Seminar in Non-neutral Plasmas. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. (F)

250. Special Study for Graduate Students. (1-4) Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. This course is arranged to allow qualified graduate students to investigate possible research fields and to pursue problems of interest through reading or non-laboratory study under the direction of members who agree to give such supervision. (F,SP) Staff

299. Research. (1-12) Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing. (F,SP) Staff

420A-420B. Quantum Theory of Solids. (4,4) Three hours of lecture and one hour of discussion per week. Prerequisites: 240A-240B or equivalent, or consent of instructor. Staff.

424A-424B. Theoretical Plasma Physics. (4,4) Three hours of lecture and one hour of discussion per week. Prerequisites: 240A-240B or equivalent, or consent of instructor. Staff.

3. Special Study for Graduate Students. (1-2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. (F,SP) Staff

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 announcement. (F,SP) Staff

251. Introduction to Graduate Research in Physics. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Topics will vary from semester to semester. See Department of Physics announcement. (F,SP) Staff

259. Seminar in Non-neutral Plasmas. (2) Course may be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. (F)

260. 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: For qualified graduate students. Individual study in consultation with the major field advisor intended to provide an opportunity for qualified students to prepare themselves for the various examinations required for the Ph.D. (F,SP) Staff

Professional Courses

300. Professional Preparation: Supervised Teaching of Physics (2) Course may be repeated for credit. One hour of meeting with instructor plus fifteen to twenty hours of teaching per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Graduate standing, appointment as assistant, or consent of instructor. Discussion, problem review and development, guidance of physics laboratory experiments, course development, supervised practical teaching practice. (F,SP) Staff

*Professor of the Graduate School

Recipient of Distinguished Teaching Award
Undergraduate Program in Microbiology

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 play 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 outbreaks recur in human societies on a global scale. Microorganisms are the evolutionary precursors of chloroplasts and mitochondria, the energy-producing centers of plants and animals; hence, even 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; many unique organisms and biochemical processes remain to be discovered. Because of the renewed appreciation of the relevance of microbes to all life, 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.

Requirements

**Humanities and Social Science (20-24 units). Reading and Composition (8); Humanities (two courses, 6-8, language recommended for pre-med); Social studies (two courses, 6-8).**

*Units may be credited toward American cultures requirement.*

**Lower Division Science and Mathematics (34-37 units).** Chemistry 1A (4); Chemistry 3A (5) and 3B (4) (Organic); Physics 8A (4); Math 16A (3) and 16B (3) or 1A and 1B (8); General Biology 1A and 1B (8); Statistics 20 (4), 25 (4), PH 142A (4), Stat 131A (4) or Geol C120 (3).

Upper Division Science (20-24 units). One course from category (a) and (b): (a) Biochemistry and Molecular Biology. MCB 102, Biochemistry and Molecular Biology (4); MCB 110, General Biochemistry and Molecular Biology (4). (b) General Genetics. MCB 140, General Genetics (4); MCB 142, Survey of Genetic Practice (4).

**Microbial Core (7 units).** All listed courses are required: PMB C112, General Microbiology (3); PMB C112L, General Microbiology Lab (1); PMB 118, Microbial Genomics and Genetics (3).

Upper Division Science Electives. Take 15-16 units from the following, including a course with a lab or a lab course.-

**Microbial Diversity and Ecology:** PMB 110, Biology of Fungi (2); PMB 110L, Fungi Lab (2); PMB 120, Biology of Algae (2); PMB 120L, Algae Lab (2); PMB C116, Microbial Diversity (3); ESPM 112, Microbial Ecology (3) (lab included); ESPM 131, Soil Microbiology (4).

**Host-Microbe Interactions:** PH 162A, Public Health Microbiology (3); PH 162L, Public Health Microbiology Lab (1); PMB C103, Bacterial Pathogenesis (3); PMB C114, Intro to Comparative Virology (4); MCB 115, Molecular Biology of Animal Viruses (3).

**Chemistry, Biochemistry, Structure:** *Chem 130A, Biophysical Chemistry (3); MCB 100, General Biochemistry (4); MCB 111, Intro to Structural Biology (5).*

*Prerequisites for MCB 110.

**Applied Microbiology:** Nut 113, Food Microbiology (2); ESPM 192, Molecular Approaches to Environmental Problem Solving (2); CE 114, Environmental Microbiology (3); MCB 113, Applied Microbiology and Biochemistry (2).

General Electives. Take 34-35 units of additional electives to complete 120 units.

Graduate Program in Plant Biology

The graduate program in plant biology is designed to train students in modern research in plant biology. Students’ courses of study are designed individually, in light of their interests and career goals. The graduate program features an introductory seminar (Faculty Research Review), a two-semester core course, and additional special topic courses and seminars in areas of faculty specialties. The department has research expertise in the following areas: molecular, cellular, genetic, biochemical, physiological, developmental, and structural biology, and plant-microbe interactions. The core course emphasizes in an integrated manner the following areas: plant structure, plant physiology, plant biochemistry, plant development, plant cell biology, and plant molecular biology.

Prospective students for the graduate program in plant biology are expected to demonstrate academic excellence and potential for independent scientific research. Students are expected to have a basic background in chemistry, physics, mathematics, and biology equivalent to those in the undergraduate program. An admissions committee composed of five members of the department will review applications and make recommendations to the full department on admissions matters. Recommendations for admission will be based on a demonstration of academic excellence and potential for independent scientific research as shown by grades in university-level undergraduate and graduate courses, letters of recommendation, written statements of academic aims, and other evidence of academic accomplishment. Scores on standardized tests, such as the Graduate Record Examination, will be required of all applicants. Students seeking detailed information about matters such as admission, curriculum, and courses of financial support should contact the student affairs assistant or the graduate adviser.
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. (FSP) Staff

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. One hour of lecture per week. Sections 1-4 to be graded on a letter-grade basis. Freshman and sophomore seminars and 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. (FSP) Lindop

40. The (Secret) Life of Plants. (3) Two hours of lecture and one hour of discussion per week. Covers contemporary topics in plant biology. Examines how plants grow, reproduce, and respond to the environment (e.g., to light) in ways distinct from animals. Presents basic principles of genetics, cell, and molecular biology. Basics of genetic engineering and biotechnology reveal how they are used to modify plants, and these social and ethical issues are assessed. Includes visits to modern plant biology research laboratory, and aspects of plant disease and diversity. Knowledge of the physical sciences neither required nor assumed. (SP) Zambrayski

C41X. Heredity and Society. (4) Two hours of lecture and two hours of discussion per week. Basic genetic principles and mechanisms, evolution, philosophical implications, and relation of genetics to global problems of human and environmental health. Also listed as Molecular and Cell Biology C41X. (SP) Freeing

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 they relate to majoring in biology. Students will learn concepts, skills, and information that they can use in their major course, and as future science professionals. Restricted to freshmen in the biology scholars program. Also listed as Integrative Biology C96 and Molecular and Cell Biology C96. (SP) 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, approval of division independent study research intended for the academically superior student. Enrollment only with prior approval of faculty advisor directing the research. (FSP) 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 and fungal kingdoms. Also listed as Integrative Biology C101. (F) Staff

C102L. Laboratory in the Diversity of Plants and Fungi. (2) Hours of laboratory per week and two 1-day excursions. Prerequisites: Biology 1A-1B. Must be taken concurrently with C102L. 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 60 or consent of instructor. This course is open to upper division and graduate students who 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 pathogens of mammals, but there will be some discussion of viral and protozoan pathogens as well. There will be an emphasis on experimental approaches. The course will also include some aspects of bacterial genetics and physiology, immunology, and cell biology. Enrollment is limited to 25. (F) Kaplan

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 107L. An analysis of the structural diversity of multicellular 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 evolution and growth. Also listed as Integrative Biology C107. (F) Kaplan

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 107L. Laboratory designed to accompany C107, Principles of Plant Morphology. Also listed as Integrative Biology C107L. (F) Kaplow

110. Biology of Fungi. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B; Integrative Biology 101 recommended. Must be taken concurrently with 110L. Selected aspects of fungi: their structure, reproduction, physiology, genetics, their role in plant disease, human welfare, and industry. (F) Taylor

110L. Laboratory for Biology of Fungi. (2) Six hours of laboratory per week. Prerequisites: Biology 1A-1B; Integrative Biology 101 recommended. Must be taken concurrently with 110. Laboratory designed to accompany 110, Biology of Fungi. Several field trips are offered including day trips to a mushroom farm, a winery and a cheese factory, and a weekend mushroom foray. (F) Taylor

C112. General Microbiology. (3) Three hours of lecture per week. Prerequisites: Biology 1A-1B; Must be taken concurrently with 112. Formerly 112. This course will explore 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 structural features of microbial cell cycle, adaptive responses, metabolic capability, and macromolecular syntheses will be emphasized. Also listed as Molecular and Cell Biology 112L. (F) Hoffman

C112L. General Microbiology Laboratory. (2) Four hours of laboratory and one hour of discussion per week. Prerequisites: C112 or Molecular and Cell Biology C112 (may be taken concurrently). Experiments on techniques of microbial design to accompany the lecture in C112 and C148. The primary emphasis will be on the correlation and physiological and genetic characterization of bacteria. Laboratory exercises will include the observation, enrichment, and isolation of bacteria from selected environments. Also listed as Molecular and Cell Biology C112L. (F) Kustu

113. California Mushrooms. (2) Three hours of laboratory per week and three weekend field trips. Prerequisites: Completion of C112 or consent of instructor. Hands-on class in identification of macro fungi. Emphasis will be on laboratory work with fresh and dried fungi. Two short lectures at the beginning of labs focus on mushroom systematic, collection techniques, and identification. Three weekend field trips are required in addition to the weekly lab. Previous course experience with fungi is not required, but grades are based on tests and a collection. Offered alternate odd years. (F) Bruns

C114. Introduction to Comparative Virology. (4) Three hours of lecture and four hours of discussion per week. Prerequisites: Consent of instructor; introductory chemistry (1A or 3A-3B or equivalent) and introductory biology (1A-1B or equivalent) and general microbiology (C70 or equivalent). This course (tentatively completed but may be taken concurrently). Viruses will be con- sidered as infectious agents of bacteria, plants, and animals (vertebrates and invertebrates). Several fam- ilies of viruses will be compared in terms to bio- chemical, structural and morphological properties, and strategies of infection and replication. Also listed as Environ- ment, Policy, and Human Affairs 114 and Molecular and Cell Biology C114. (SP) Volkan, Jackson

120. Biology of Algae. (2) Two hours of lecture per week. Prerequisites: Biology 1A-1B; Integrative Biology 101 recommended. Must be taken concurrently with 120L. This general course of freshwater and marine algae, highlighting current research and integrating phylogeny, ecology, physiology, genetics, and molecular biology. (SP) Niyogi

120L. Laboratory for Biology of Algae. (2) Four hours of laboratory per week plus field trips. Prerequisites: Biology 1A-1B; Integrative Biology 101 recommended. Must be taken concurrently with 120. Laboratory designed to accompany 120, Biology of Algae. Field trips include identification of specimens collected during several field trips, and experiments on development, physiology, and molecular genetics. (SP) Niyogi

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 instructor. Survey of behavior, structure, and function of chromosomes with emphasis on behavior in model organisms. Topics include mitosis, meiosis, chromosome meiosis, genome function, evolution, and transposons, repetitive DNA, and modern cytological imaging. Also listed as Molecular and Cell Biology C134. (SP) Candé, Hollick

135. Physiology and Biochemistry of Plants. (3) Three hours of lecture per week. Prerequisites: Biology 1A-1B. A study of physiological and biochemical processes in higher plants, including water relations, transport, and hormone physiology; photosynthesis (light utilization and carbon assimilation), nitrogen and sulfur metabolism, and plant-specific biosynthetic pathways. (F) Metes, Tarry

135L. Laboratory for Physiology and Biochemistry of Plants. (1) Three hours of laboratory with discussion per week. Prerequisites: Biology 1A-1B; must be taken concurrently with 135. Laboratory designed to accompany 135, Physiology and Biochemistry of Plants. (F) Metes

C146. Topics in Computational Biology and Ge- nomics. (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 105, 106, or equivalent course of instruction. Instruction 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 and functional annotation, and phylogenetic analysis. Also listed as Bioengineering C146 and Molecular and Cell Biology C146. (SP) Brenner, Eison

C148. Microbial Genomics and Genetics. (3) Three hours of lecture per week. Prerequisites: Molecular and Cell Biology 109 or 102. Formerly Plant and Microbial Biology 118. Course emphasizes bacterial and archaebacterial genomics and comparative genomics. Genetics and genomic methods used to dissect metabolic and development processes in bacteria, archaea, and selected microbial eukaryotes. Genetic mechanisms integrated with genomic information to address integration and diversity of microbial processes. Introduction to 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. This course offers an introduction to the structure, dynamics, and function of plant cells: organelle structure and development; intracellular trafficking of proteins and macromolecules; cell division and specialization. (F) Hake, Luan
199. Supervised Independent Study and Research. (3) Two hours of lecture per week. Prerequisites: Consent of instructor. 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

200. Plant Biochemistry. (2) Two hours of lecture and two hours of discussion per week. Prerequisites: Consent of instructor. Core course for first year graduate students. The consideration of metabolic and biochemical processes in plants integrating structure and function. Class format involves lectures and discussion of readings of historical and contemporary papers. (F) Freeling, Hollick, Fletcher, Sung, Theologis

200A. Plant and Microbial Genetics. (2) Three hours of lecture per week. Prerequisites: Biology 1A-1B. Must be taken concurrently with 150. Designed to accompany the lecture course and to introduce microscopy, biochemical, and molecular tools for studying cell biology. (F) Hake, Luan

200C. Molecular Genetics of Plant Development. (2) One hour of lecture and two hours of discussion per week. Prerequisites: Consent of instructor. Core course for first year graduate students. A consideration of cellular differentiation and pattern formation, and aspects of hormone action in plants. Class format involves lectures and discussion of readings of historical and contemporary papers. (SP) Fletcher, Sung, Theologis

200D. Plant Cell Biology. (2) One hour of lecture and two hours of discussion per week. Prerequisites: Consent of instructor. Core course for first year graduate students. A consideration of the particular characteristics of plant cells, with a focus on intracellular signal transduction pathways. Class format involves lectures and discussion of readings of historical and contemporary papers. (SP) Luan, Zambryski

201. Faculty Research Review. (2) Three hours of lecture per week. Must be taken on a satisfactory/un satisfactory basis. Prerequisites: Consent of instructor. Presentation and discussion of faculty research in the areas of plant and microbial 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/un satisfactory basis. Prerequisites: Consent of instructor. Presentation and discussion of faculty research in the area of microbial 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

210. Scientific Reasoning and Logic. (1) One hour of lecture per week. The objectives of this class are to stimulate a dialogue between instructor and students in the course of each presentation. Effective and efficient teaching methods will be introduced by experienced G3s and faculty. Students will participate in reciprocal classroom visits, visitation and critique of faculty lectures, course design, lecture preparation, sample lecture presentation, and discussion of current literature on teaching. (SP) Staff

238. Readings in Environmental Microbiology. (1) Course may be repeated for credit. One hour of discussion per week. Must be taken on a satisfactory/un satisfactory 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. (F) Lindow

240. 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 information and/or creating publication-quality figures. Topics include image acquisition (including cameras), beginning image processing and analysis, and digital image enhancements. Photoshop, CorelDRAW, ILE and other commonly available computer programs on Mac and PC platforms will be used. Additional lectures on file formats used and advanced document layout are included. (F) Ruizin

250. Seminar. (1) Course may be repeated for credit. One hour of seminar per week. Must be taken on a satisfactory/un satisfactory basis. Prerequisites: Consent of instructor. Advanced study in various fields of plant biology. Topics will be announced in advance of each seminar. 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 in the process—each participant will review the other grant proposals. Some samples of successful applications will be included to provide ideas for the outlines and pre-proposals, and the last class will be organized as a grant panel, with students assigned as primary and secondary reviewers. (SP) McCormick
Political Economy of Industrial Societies
(College of Letters and Science)

Group Major Office, International and Area Studies: 101 Stephens Hall, (510) 542-4466
Faculty Advisors:
Richard M. Abrams (History)
Vinod Aggarwala (Political Science)
Richard Almquist (Law)
Stephen Cohen (City and Regional Planning)
Beverly Crawford (International and Area Studies)
Merle D'Amato (Economics and International and Area Studies)
Michael Gerlach (Business Administration)
Andreas F. Harms (Political Science)
Robert Kagan (Political Science)
Alain Kirner (International and Area Studies)
Jonathan Leonard (Business Administration)
Malcolm Potts (Public Health)
Robert Reed (Geography)
Gene I. Rochlin (Energy and Resources Group)
Stephen S. Ross (Political Science)
John Zysman (Political Science)

Program in Political Economy
The Program in Political Economy of Industrial Societies prepares 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 broadly based liberal arts background while providing them with the skills applicable to careers in either the public or private sector. In addition, the major provides excellent background for students planning postgraduate careers in social science disciplines and professional schools.

Political economy covers the interaction between politics and economics in modern industrial societies. It is assumed that society, culture, geography, and demographics affect that interaction and are critical contributors to an understanding of the subject. Therefore, any study of political economy must be both multi- and interdisciplinary in scope.

Although the major has a strong historical component, contemporary problems form the central focus. Students in the major emphasize planning and problem solving; environmental issues; resource use and distribution; and the challenges of institutional adaptation, value innovation, and changing political equilibriums.

Some of the questions which the major addresses include:
(a) the tension between rising consumer demand and the need to minimize resource depletion and pollution;
(b) the different priorities served by traditionalist, capitalist, and socialist varieties of political economy;
(c) the different priorities served by democratic and authoritarian political systems;
(d) how international interdependence may undermine the efforts of national governments to cope with unemployment, inflation, trade and payment deficits, health, housing, and welfare problems, and other issues associated with industrialized societies;
(e) the importance of organizational structures for policy-making in both the public and private sectors.

The Group Major
Declaring a major in PEIS follows guidelines established by the College of Letters and Science. Students wishing to declare PEIS:
(1) must have completed at least 30 semester units of university work before applying to the program;
(2) must have completed at least two of the required lower division courses or their equivalents and be enrolled in a third;
(3) must have a minimum GPA of 3.2 in courses relevant to the major, including the required lower division courses;
(4) must have completed at least two semesters of college-level foreign language or the equivalent;
(5) should declare the major no later than the semester in which they complete the 61st unit (junior transfer students should contact the Teaching Program Office concerning their eligibility).

Students who meet the above criteria are eligible for admission to the major. Students who do not meet the above criteria, or who wish to declare PEIS, may submit a letter of appeal along with a completed application. Appeal cases are reviewed at the end of the sixth and twelfth weeks of each semester. Applications and instructions regarding the application and appeal process may be obtained from the Teaching Program Office, 101 Stephens Hall.

Students are reminded that: (1) no course work 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, and cannot use more than two upper division courses to satisfy requirements in both majors.

Courses Outside L.S.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 course work taken at institutions outside the United States to fulfill major requirements is restricted to the equivalent of three semester-length upper division courses. However, courses taken to fulfill the foreign language requirement for the group major are not included in this restriction.

Honors Program. To graduate with honors from the group major in PEIS, students must enroll in the two-semester honors seminar, 102 and 102H, and must obtain grade-point averages of 3.5 in the major and in overall university course work. The honors seminar is taken in addition to a student’s regular course work for fulfilling requirements for the major and culminates in the writing of a senior thesis. The thesis is based in the thesis instruction and at least one other faculty member who is selected by the student in consultation with the thesis instructor. Eligibility for participation in the Honors Program may be checked in the Teaching Program Office.

Course Plan
There is considerable flexibility within the PEIS major. It permits and encourages students to construct programs appropriate to their intellectual interests and the global areas they wish to stress in their studies. There are, however, minimal core course requirements that each student must meet. These requirements are designed to provide all PEIS students with a common background of knowledge and common intellectual reference points.

The program consists of three tiers of course work and a foreign language requirement: (1) four lower division courses provide necessary historical, political, quantitative, linguistic, and economic skills essential for upper division course work and future career and educational options; (2) six upper division core courses provide detailed background for studying modern political economics; and (3) four courses provide in-depth study in the student’s chosen issue or problem emphasis.

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 course work: This could consist of any combination of high school, college, summer program, or college-level study abroad program. At a minimum, students must complete the fourth semester of a language at a level of C- or better. The first, second, and third level of language may be taken on a Pass/No Pass 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. Transcripts 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 departments offer proficiency exams. Ask an adviser in the IAS Office about specific departmental policies. Another option is to have a language department place you in a class according to your skill level. Anyone who can pass a placement exam into an advanced course work, that is, beyond the fourth semester, and obtain an instructor’s note to that effect will be exempted from the requirement.
(3) Being a non-native English speaker: Non-native speakers of English may use their native language to satisfy this requirement. You must demonstrate a proficiency level equivalent to four college-level semester through proficiency testing (see paragraph above). Alternatively, students who can document that they were educated in their native countries in their native language at least through high school, or the equivalent of high school, will be exempted from the requirement.

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 an upper division equivalent. Please consult with the Teaching Program Office for current information.

Required Courses. Economics 1, IAS 45, Political Science 2, Statistics 2 or 20 or 21.

Upper Division
There are 10 required upper division courses spread among four major divisions. These include three courses in conceptual tools; two courses in introductory sequence: historical context; one course in introductory sequence: political economy; and four courses focusing on a student’s emphasis in the major.

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 used in their major programs and no course used to complete major requirements may be taken P/NP.

I. Conceptual Tools
Section A: two courses in intermediate economics.
Choose one of the following sequences: Economics 100A-100B or Economics 101A-101B.
Section B: one course in modern theory and methodology: PEIS high.

II. Introductory Sequence: Historical Context
Section A: one course in classical works: PEIS 100.
Section B: one course in the rise of the industrial state: Economics 115; History 159B, 160, 161.

†Recipient of Distinguished Teaching Award
*R Professor of the Graduate School
B prefix=language course for business majors
course satisfies R&C requirement
C prefix=cross-listed course
prefix=satisfies R&C requirement
D prefix=course satisfies R&C requirement
H prefix=honors course
AC suffix=course satisfies American cultures requirement
Emphasis 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 emphasis must be a somewhat broadly based issue or problem within political economy. Students are encouraged to be imaginative in defining an emphasis and to discuss their ideas with a faculty or staff adviser before selecting their courses. All emphasis courses must be approved by a staff adviser.

In choosing Emphasis courses, students should be mindful of two things: (1) Students must select from a number of different disciplines. This ensures the fullest possible understanding of the Emphasis topic. (2) In addition to the interdisciplinary view, students are required to take courses that differ in approach. For this purpose, all of the courses in the PEIS booklet have been evaluated and categorized according to approach. These categories are not exhaustive themselves. Each category is described in the booklet. At least two courses must come from one category, the remaining two may be selected from any of the remaining three categories. The lists provided are not exhaustive, special courses are often announced each semester. Students are encouraged to be flexible in their scheduling in order to take advantage of last minute additions.

Both defining your Emphasis topic and deciding on the relevant course work must be done in conjunction with a PEIS faculty or staff adviser. The Emphasis is not given pass/fail grades. Each course is described in the booklet. At least two courses must come from one category, the remaining two may be selected from any of the remaining three categories. The lists provided are not exhaustive, special courses are often announced each semester. Students are encouraged to be flexible in their scheduling in order to take advantage of last minute additions.

Both defining your Emphasis topic and deciding on the relevant course work must be done in conjunction with a PEIS faculty or staff adviser. The Emphasis is not given pass/fail grades. Each course is described in the booklet. At least two courses must come from one category, the remaining two may be selected from any of the remaining three categories. The lists provided are not exhaustive, special courses are often announced each semester. Students are encouraged to be flexible in their scheduling in order to take advantage of last minute additions.

Recommended Courses

Listed below are a few of the many course options which PEIS students have found particularly relevant and helpful in providing a basic introduction for methodology and other upper division courses: History 7B, Mathematics 1A-1B, 1C, Demography 100.

Note: Math 16A-16B or the self-paced equivalent to either sequence are alternative acceptable formulations. However, it is strongly recommended that Math 1A-1B be taken over the alternatives. If a self-paced version is chosen, students are reminded to schedule their units conservatively and clearly understand how self-paced scheduling works.

Minor in European Studies

The minor in European studies is open to all undergraduates except PEIS majors. Applications for the minor and a list of appropriate courses are available from the Teaching Program Office.

Requirements: Students must complete six upper division courses, including PEIS 100 and 101. The remaining four courses must be concentrated in two of three specified fields: arts and social sciences, and culture and society and distributed evenly among the two specified fields (i.e., two courses per field).

The following college requirements also apply: (1) At least three of the upper division courses must be taken at Berkeley; (2) students satisfying minor requirements must be taken for a letter grade; and (3) a minimum GPA of 2.0 must be achieved in all course work used to satisfy the minor requirements.

Lower Division Courses

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will write an essay on a topic typical of the discipline and become acquainted with the approaches and methods of scholars in the field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (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)

Upper Division Courses

100. Classical Theories of Political Economy. (4) Three hours of lecture and one hour of discussion per week. One-semester lecture course 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. Strong emphasis is placed on providing appropriate 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 alternative explanations for inequalities in economic development among nations and economic declines of the empires. It will also examine tensions between the increasing “globalization” of that economy and continued 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 by multiple departments, the content of which is applicable to PEIS majors. Content and unit values vary from course to course. (F,SP)

C135. Game Theory in the Social Sciences. (4) Students will receive no credit for C135 after taking Econometrics 104. Three hours of lecture and one hour of discussion per week. Formerly C135. A non-technical introduction to game theory. Basic principles, 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 and Economics C119.

140. Special Topics. (2-3) 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 for the Department to take advantage of short-term visitors coming to campus who have considerable expertise in areas of interest to political economy of industrial societies. Topics will vary from semester to semester. (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. Advanced multidisciplinary research in current issues of political economy and industrialization. Seminars will focus on specific geographical areas or topics with appropriate com-
Political Science

(College of Letters and Science)

Department Office: 210 Barrows Hall, (510) 642-6323
http://www.polisci.berkeley.edu

Chair: Judith Gruber, Ph.D.

Professors
Vinod K. Aggarwal, Ph.D. Stanford University. International relations, comparative politics, economic theory
Henry E. Brady, Ph.D. Massachusetts Institute of Technology. Quantitative methodology. American and Canadian politics, political behavior
George W. Bliss, Ph.D. University of Michigan. Soviet and Eastern European politics, Soviet foreign policy, comparative communism, comparative analysis of post-Soviet foreign policy and post-Soviet societies
Wendy Brown, Ph.D. Princeton University. Contemporary political theory, social theory, philosophy, and history of ideas
Bruce E. Cain, Ph.D. Harvard University. California politics, state and local politics, American politics
J. Merrill Shanks, Ph.D., University of Michigan. Research methodology and techniques, electoral behavior and public opinion
Nelson W. Polsby, Ph.D. Yale University. American government, American and European political theory, social theory, comparative analysis
David Leonard, Ph.D. University of Chicago. Public policy, urban politics, public policy
Hong Yung Lee, Ph.D. University of Chicago. Politics of race and ethnic relations, Asian American politics
Todd R. La Porte, Ph.D. Stanford University. Formal political theory, feminist political thought
Barry Eichengreen, Ph.D. Yale University. Economic history, regulation and international economy, environmental politics
Ruth B. Collier, Ph.D. University of Chicago. Comparative politics, development politics, political economy, comparative politics, Western Europe
Bruce E. Cain, Ph.D. Harvard University. California politics, state and local politics, American politics
David Collier, Ph.D. University of Chicago. Comparative politics, Western Europe
Vinod K. Aggarwal, Ph.D. Stanford University. International relations, comparative politics, economic theory
T. Lee, Ph.D. University of Chicago. Politics of race and ethnic relations, Asian American politics
M. Steven Fish, Ph.D. Stanford University. Communist and post-communist politics, American politics, urban political economy
Mark Bevir, Ph.D. Merion College. Oxford University. Hong Kong, China, social movements, political behavior, comparative public policy, political economy, public policy, comparative politics
Christopher Arrasmith, Ph.D. University of Chicago. Urban politics, comparative public administration, feminist political thought
Mark Bevir, Ph.D. Merion College. Oxford University. Hong Kong, China, social movements, political behavior, comparative public policy, political economy, public policy, comparative politics
Robert D. Scalfarino (Emeritus), Ph.D. Harvard University. Comparative political behavior, comparative politics, East Asian political development, Middle Eastern politics, political economy, political behavior
Kornell T. Dewitt (Emeritus), Ph.D. University of California, Berkeley. Comparative politics, comparative methodology, comparative political analysis
Martin Landau (Emeritus), Ph.D. New York University. Comparative politics, comparative theory, comparative analysis
Herbert McClosky (Emeritus), Ph.D. Columbia University. Political behavior, political psychology, political sociology
Nicholas Zeigler, Ph.D. Yale University. Germany, Western Europe, comparative political economy
Peter W. Singer, Ph.D. University of Michigan. Political psychology, American government, methodology, and public opinion
Assistant Professors
Julia delFregueiro (Emeritus), Ph.D. Stanford University. Formal political theory, institutional political analysis
L. Fish, Ph.D. University of Chicago. Politics of race and ethnic relations, Asian American politics
William K. Muir, Jr. (Emeritus)
Herbert McClosky (Emeritus)
Martin Landau (Emeritus)
Norman Jacobson (Emeritus)
Raymond E. Wolfinger, Ph.D. Yale University. American politics, urban political economy, public policy
Jonah D. Levy, Ph.D. Massachusetts Institute of Technology. Comparative politics, political economy, European political development, French politics
James A. Robinson, Ph.D. Yale University. Methodology, comparative political economy, transition to democracy
Laura L. Staker, Ph.D. University of Michigan. Political behavior, electoral behavior, and political methodology
Steven V. Vogel, Ph.D. University of California, Berkeley. Japanese, Comparative politics, comparative and international political economy
Steven Weber, Ph.D. Stanford University. International relations, U.S. Soviet relations, national security
S. J. Ezequiel, Ph.D. Harvard University. European politics and comparative political economy
Nicholas Zeigler, Ph.D. Yale University. Germany, Western Europe, comparative political economy
J. Merrill Shanks, Ph.D., University of Michigan. Research methodology and techniques, electoral behavior and public opinion
Nelson W. Polsby, Ph.D. Yale University. American government, American and European political theory, social theory, comparative analysis
Mark Bevir, Ph.D. Merion College. Oxford University. Hong Kong, China, social movements, political behavior, comparative public policy, political economy, public policy, comparative politics
Kornell T. Dewitt (Emeritus), Ph.D. University of California, Berkeley. Comparative politics, comparative methodology, comparative political analysis
Martin Landau (Emeritus), Ph.D. New York University. Comparative politics, comparative theory, comparative analysis
Herbert McClosky (Emeritus), Ph.D. Columbia University. Political behavior, political psychology, political sociology
William K. Muir, Jr. (Emeritus), Ph.D. University of Michigan. Yale University. American government, constitutional law, public policy
Shanna Pliskin (Ridson Research Professor of Government) (Emeritus), Ph.D. University of California, Berkeley. Political science, communications, political behavior
Austin Ranney (Emeritus), Ph.D. Yale University. American government, communications, electoral behavior, political parties
Robert D. Scalfarino (Emeritus), Ph.D. Harvard University. Comparative political behavior, comparative politics, East Asian political development, Middle Eastern politics, political economy, political behavior
Harold W. Wilensky, Ph.D. Ph.D. University of Chicago. Comparative politics, comparative public policy, political economy, public policy, political sociology
Associate Professors
Christopher Arrasmith, Ph.D. University of Chicago. Comparative politics, comparative public administration, feminist political thought
Mark Bevir, Ph.D. Merion College. Oxford University. Hong Kong, China, social movements, political behavior, comparative public policy, political economy, public policy, comparative politics
Kornell T. Dewitt (Emeritus), Ph.D. Columbia University. International politics and military policy
Harold W. Wilensky, Ph.D. Ph.D. University of Chicago. Comparative politics, comparative public policy, political economy, public policy, political sociology

M. Steven Fish, Ph.D. Stanford University. Communist and post-communist politics, American politics, urban political economy
Jonah D. Levy, Ph.D. Massachusetts Institute of Technology. Comparative politics, political economy, European political development, French politics
James A. Robinson, Ph.D. Yale University. Methodology, comparative political economy, transition to democracy
Laura L. Staker, Ph.D. University of Michigan. Political behavior, electoral behavior, and political methodology
Steven V. Vogel, Ph.D. University of California, Berkeley. Japanese, Comparative politics, comparative and international political economy
Steven Weber, Ph.D. Stanford University. International relations, U.S. Soviet relations, national security
S. J. Ezequiel, Ph.D. Harvard University. European politics and comparative political economy
Nicholas Zeigler, Ph.D. Yale University. Germany, Western Europe, comparative political economy
Peter W. Singer, Ph.D. University of Michigan. Political psychology, American government, methodology, and public opinion

Graduate Program

Information about admission to the graduate program may be obtained from the departmental graduate office, 210B Barrows Hall.

Lower Division Courses

1. Introduction to American Politics. (4) 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.

2. Introduction to Comparative Politics. (4) 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.

3. Introduction to Empirical Analysis and Quantitative Methods. (4) Three hours of lecture and one or two hours of discussion per week. Analytical methodology and methods for analyzing problems of Political Science 1, 2, 3; two history courses (one on U.S. history and one relating to another geographical area of the world); and any seven upper division Political Science courses from the numbered 100-189. Advanced placement credit does not satisfy any major prerequisites; but students scoring 4 or 5 on the Advanced Placement Examination May substitute an upper division American politics course 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 Political Science web page at www.polisci.berkeley.edu/uGrad/ ugrad.html.

All major requirements must be taken on a letter-graded basis.

To declare the major, students must have completed Political Science 1 or its equivalent and Political Science 2, and also have completed or be enrolled in any two of the following three required courses: Political Science 3, U.S. history, and the history of political institutions outside the U.S. These courses may be taken concurrently or in whatever order the student prefers. Students eligible to declare for a major declaration session on the department's web site at www.polisci.berkeley.edu/uGrad/declarationws.asp.

Transfer students may go to the web site at www.assist.org, for a list of California community college courses that satisfy University and major requirements.

Honors Program. Students with a 3.5 grade-point average in the major and a 3.3 grade-point average overall who have completed at least two letter-graded upper division political science courses at Berkeley are eligible to apply for the honors program (H199A and H199B or H195A and H195B). Students are required to perform independent research or participate in an honors seminar and write a major paper or scholarly thesis. Departmental honors are awarded upon completion of the honors courses with a grade of B or better and a minimum grade-point average of 3.5 in the major and 3.3 in all upper division courses. Enrollment in the honors courses requires the written approval of a faculty sponsor and the department chair. The deadline for obtaining required signatures and adding special studies classes, which include the honors courses H199A, H199B, H195A, and H195B, is the end of the third semester. Placement credit does not satisfy any major prerequisites and courses may be taken on a passed/not passed basis. Sections 1-6 to be graded on a letter-graded basis. Sections 7-8 to be graded on a letter-graded basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to explore an intellectual subject in small group. These courses may be taken concurrently or in whatever order the student prefers. Students eligible to declare for a major declaration session on the department's web site at www.polisci.berkeley.edu/uGrad/ declarationws.asp.

Transfer students may go to the web site at www.assist.org, for a list of California community college courses that satisfy University and major requirements.

B prefix/language course for business majors
C prefix/cross-listed 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

Prerequisites:
98Z. Group Study of Selected Topics. (1) One hour of lecture per week. Must be taken on a pass/not passed basis. Prerequisites: Completion of two Political Science courses and a 3.3 GPA. Supervised Independent Study. (1-4) By arrangement with faculty. Must be taken on a pass/not passed basis. 

100. The Development of American Political Institutions. Three hours of lecture and two hours of discussion per week. The development of the political institutions of the United States, with emphasis on constitutional developments in the legislative and executive branches and the role of the Supreme Court. Prerequisites: Consent of instructor.

103. Congress. (4) Three hours of lecture and one to three hours of discussion per week. Prerequisites: Consent of instructor. 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. (4) 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 context: their nature and function, development and history, party organization and structure. State, national, and local party systems and their variations. Nominations and elections. One directed research paper will be required. 

105. The Politician. (4) Three hours of lecture and one hour of discussion per week. The nature of politics, the educational 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. 

105W. The Politician. (3) Three hours of seminar per week. Prerequisites: Admittance to UC Berkeley-Washington Program. For details see http://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.

106A. American Politics: Campaign Strategy—Media. (4) Three hours of lecture per week. Prerequisites: Junior or senior standing. An inside look at how political campaigns operate from the viewpoint of the media, taught by the people who run them. Class material will be directed toward students who are interested in direct involvement in campaign politics or who are looking for a better understanding of the political process. Students will be expected to follow political and campaign news via the media and be prepared to discuss those developments in class. 

106B. American Politics: Campaign Strategy—Management. (4) Three hours of lecture per week. Prerequisites: Junior or senior standing. An inside look at how political campaigns operate from the viewpoint of campaign managers, taught by the people who run them. Class material will be directed toward students who are interested in direct involvement in campaign politics or who are looking for a better understanding of the political process. 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 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 is designed to provide Cal-in-Sacramento interns and others interested in direct involvement in campaign politics or who are looking for a better understanding of political campaigns operate from the viewpoint of the media, taught by the people who run them. Class material will be directed toward students who are interested in direct involvement in campaign politics or who are looking for a better understanding of the political process. Students will be expected to follow political and campaign news via the media and be prepared to discuss those developments in class.

109A. Selected Topics in American Politics. (3) Three hours of seminar per week. Prerequisites: Admission to UC Berkeley-Washington Program. For details see http://learning.berkeley.edu/ucdc. Formerly 109B. See departmental announcements. 

109W. Selected Topics in American Politics—UCDC. (3) Three hours of seminar per week. Prerequisites: Admission to UC Berkeley-Washington Program. For details see http://learning.berkeley.edu/ucdc. Formerly 109W. Topics will vary.
approaches are rational choice theory, institutionalism, Marxism, and poststructuralism. The course looks at the narrative that each approach provides of the origins and workings of governance since 1979, and at the way these narratives embody theoretical commitments about questions of power, structure and agency, and democracy. It thus promotes an awareness of the way questions about contemporary governance are intricably linked to philosophical and normative commitments. This course has a required discussion section.

115C. Marxism and Culture. (3) Three hours of lecture and two hours of discussion per week. The purpose of this course is to trace the development of Marxism as an idea system and political ideology since its inception, focusing particularly on developments in “Comparative State Socialism” systems, but also including a brief look at Eurocommunist thought.

116. Selected Topics in Political Theory. (4) Course may be repeated for credit with department approval. Three hours of lecture and one hour of discussion per week. Prerequisites: One semester of 112 or 113. Intensive study of one topic, problem, or intellectual movement in political theory. Topic will vary with instructor.

118AC. Three American Cultures. (4) Course may be repeated for credit with department approval. Three hours of lecture per week. The course will examine three American cultural forms. 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 that of identity, seen politically, socially, and culturally. Students will write essays that examine the relationship between personal identity and political and social identity. This course satisfies the American cultures requirement. (F,SP)

International Relations

120A. International Relations. (4) Three hours of lecture and one hour of discussion per week. Comparative foreign and security policies across time and space. Meets basic methodological needs of all political and social science majors.

121A. International Organizations. (4) Three hours of lecture and one to three hours of discussion per week. Prerequisites: 120B. Formerly 121. United Nations, Organization of American States, NATO, Warsaw Pact, Organization of African Unity, Arab League.

122A. Politics of the European Union. (4) Three hours of lecture and up to two hours of discussion per week. This course deals with the origins, development, and political dynamics of the European Union. What is the nature of this (possibly unprecedented) experiment in international cooperation? What difference has it made to the member states, to relations among them, and between them and the rest of the world? The course explores these questions by examining the EU’s institutions, and some major policies of the EU, with a particular eye toward theoretical debates in social science about how to understand what is happening in politics and political economy in Europe.

123. Selected Topics in International Relations. (4) Maybe repeated for credit with consent of instructor. Three hours of lecture and one hour of discussion per week. Prerequisites: 120A strongly recommended. See departmental announcements. Topic will vary with instructor.

124A. War and Politics in History. (4) Three hours of lecture and one hour of discussion per week. The nature of the causes of war; the relationship of politics to war in history; historical varieties of strategic doctrine; the implementing of strategy; the end of war.

124B. Politics and Military Strategy. (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 end of war.

124A. War and Politics in History. (4) Three hours of lecture and one hour of discussion per week. The nature of the causes of war; the relationship of politics to war in history; historical varieties of strategic doctrine; the implementing of strategy; the end of war. Economic concepts in the study of international political behavior. Political concepts influencing the choice of economic policy. International law and the use of force.

127A. International Law. (4) Three to four hours of lecture and up to two hours of discussion per week. This course is an introduction to international law for students of international relations. The primary purpose of this course is to acquaint students with the substantive rules of international law, the relationship between law and politics, 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.

127B. International Law: Theory and Research. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 127A. The purpose of this course is to explore in greater depth the effect that international law has on the conduct of foreign relations and on international outcomes. After a brief review of some of the principles of international law, the course will turn to the more theoretical question of why states increasingly have turned to agreements in legal form to order their relations, and to what extent legalized agreements influence state behavior. Since states are the primary subjects of international law, the course will focus on their motives and choices, but attention will be paid to the context in which governments make decisions within the constraints of law. Therefore, we will consider the role domestic politics, transnational actors (corporations, non-governmental organizations), and domestic courts may have in using law to accomplish their purposes. The course will focus on three substantive issues areas: international trade, international human rights, and territorial claims.

128. Chinese Foreign Policy. (4) Three hours of lecture and one hour of discussion per week. Formerly 141. China 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 Sino-American and Sino-Soviet 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.

129A. Russian Foreign Policy. (4) Three hours of lecture and one hour of discussion per week. The evolution of Soviet and Russian foreign policy in the nuclear age. Emphasis on Soviet foreign relations since the collapse of the USSR. (F)

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 politics? What is the post-Soviet Russian state? Where is Russia headed—toward democracy as it is known in the West, a new form of authoritarianism, reversion to the Stalinist period, or something else? The social and cultural transformations of the Gorbachev period will be explored. 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 transformation of political institutions. The course is recommended for juniors and seniors but is open to all students.

129C. Communist and Post-Communist Interna- tional Relations. (4) Three hours of lecture and one hour of discussion per week. The formation and evolution of international communism. The forms and functions of interparty and interstate relations. The emergence of the Soviet bloc in Eastern Europe and the Sino-Soviet alliance. The collapse of that movement with the end of Soviet power in the USSR and Eastern Europe. Relations among the new states of Eastern Europe and the former Soviet Union.

C131A. Applied Econometrics and Public Policy. (4) Three hours of lecture and one hour of discussion/laboratory per week. Prerequisites: Economics 140 or 141 or consent of instructor. This course focuses on the sensitive 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. By the end of the course, students should 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 Economics C142.

Empirical Theory and Quantitative Methods

132A. Quantitative Methods for Political Science. (4) Three hours of lecture and one hour of discussion per week. Comprehensive introduction to research methods, statistical analysis, and computer usage in the social sciences. Emphasis on critical analysis and interpretation of existing empirical research and individual student research projects. Meets basic methodological needs of all political and social science majors.

132B. Quantitative Methods for Political Science. (4) Three hours of seminar and one hour of discussion per week. Prerequisites: 132A. Comprehensive introduction to research methods, statistical analysis, and computer usage in the social sciences. Emphasis on critical analysis and interpretation of existing empirical research and individual student research projects.

133. Selected Topics in Quantitative Methods. (4) Course may be repeated for credit with instructor's approval. Three hours of lecture and one to three hours of discussion per week. Prerequisites: A previous course in statistics or data analysis. For more information see course description on department web site when course is offered.

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 principles, and models of interaction among players. Applications to political science, economics, and other social sciences. Also listed as Economics C110 and Political Economy of Industrial Soc C135.

136A. 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 instructor. For details consult departmental announcements. (F,SP)

Comparative Politics

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 concepts in description, hypothesis-testing, and theory construction. Methodological issues that arise in comparing national units and the making of comparisons across different 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 revolutionary 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. Transitions to Democracy. (4) Three hours of lecture and one to three hours of discussion per week. This course offers intensive comparative study of the wave of democratization that has swept much of Latin America, Asia, Eastern Europe, and the former Soviet Union during the past two decades. The course will analyze the theoretical literatures on regime change and compare the experiences of countries emerging from bureaucratic authoritarian rule, and socialism. The course will investigate the meaning of democracy, democratic transition, the roles of mass movements and elites in the process of democratization, problems of nationalism and ethnic conflict, and the relationship between democratization and economic systems.

138A. Democracy, Democracies. (4) Course may be repeated for credit with consent of department. Three hours of lecture and one to three hours of discussion 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 why some countries are democracies and others are not. The third part looks at whether institutional choices make a difference in the consolidation and performance of democratic regimes. It examines the historical origins of parties and institutions that are democracies and others that are not. The course may be repeated for credit as topic varies. Three hours of lecture and one hour of discussion per week. Course may be repeated for credit with consent of instructor. See departmental announcements. Topics will vary with instructor.

1340. Politics in the Post-Communist World. (4) Three hours of lecture and one hour of discussion per week. This course covers the major industrial countries in Western Europe, Japan, and the United States. It considers the adjustments they make in the changing international environment and highlights the role of domestic and international politics in these adjustments. The countries which most effectively manage this historical transition will establish their political and economic legacies in the future. Competitive development strategies make the experiences of foreign countries of great practical importance to the United States and the global economic system.

138B. The Politics of Market Economics: The National Roots of the Global Economy. (4) Three hours of lecture and one to three hours of discussion per week. The course focuses on the major industrial countries in Western Europe, Japan, and the United States. It considers the adjustments they make in the changing international environment and highlights the role of domestic and international politics in these adjustments. The countries which most effectively manage this historical transition will establish their political and economic legacies in the future. Competitive development strategies make the experiences of foreign countries of great practical importance to the United States and the global economic system.

138C. Comparison of Party Systems. (4) Three hours of lecture and one hour of discussion per week. The course provides an introduction to the study of political parties and party systems in democratic societies. It examines the historical origins of parties and party systems, the main lines of cleavage in democratic politics, the substance and importance of ideologies, electoral systems and parliamentary arrangements, governing coalitions, and the policy consequences of political parties.

138D. Governance of the E-conomy. (4) Three hours of lecture and one to three hours of discussion per week. The course focuses on the major industrial countries in Western Europe, Japan, and the United States. It considers the adjustments they make in the changing international environment and highlights the role of domestic and international politics in these adjustments. The countries which most effectively manage this historical transition will establish their political and economic legacies in the future. Competitive development strategies make the experiences of foreign countries of great practical importance to the United States and the global economic system.

140E. Encounters with Power: How Individuals Experience Power. (4) Three hours of lecture and one hour of discussion per week. This course explores the ways power is exercised on ordinary people. It highlights unpleasant aspects of the state and emphasizes the fact that political power is not simply a question of who gets what, but of control and domination. Course seeks to recapture the human experience of politics, as described by scholars, novelists, and journalists as seen through the eyes of people who have lived through extreme encounters with authority (e.g., state terror, apartheid, police interrogation, mob violence, conquest, attempted genocide).

140T. Selected Topics in Comparative Politics. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture and one hour of discussion per week. This course will focus on the major industrial countries in Western Europe, Japan, and the United States. It considers the adjustments they make in the changing international environment and highlights the role of domestic and international politics in these adjustments. The countries which most effectively manage this historical transition will establish their political and economic legacies in the future. Competitive development strategies make the experiences of foreign countries of great practical importance to the United States and the global economic system.


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 presented within a broader cultural, historical, and sociological framework. Problems of economic underdevelopment and national fragmentation. Comparisons of the pre-Communist, Communist, and post-Communist periods.

142A-142B. Middle East Politics. (4) Three hours of lecture and one to three hours of discussion per week. The Middle East in world affairs, international relations and domestic politics in the contemporary states. The Middle East; policies and strategy of major powers; supranational movements, regional political and security organizations. The area comprises Turkey, Iran, Afghanistan, Israel, and the Arab countries.

143A-143B. Northeast Asian Politics. (4) Three hours of lecture and one hour of discussion per week. The economic structure and political development of the states of China, Japan, and Korea. Emphasis upon such topics as nationalism, political modernization, and ideology.

143C. Chinese Politics. (4) Three hours of lecture and one hour of discussion per week. An overview of Chinese politics since the fall of the Qing dynasty. Emphasis on the People's Republic of China and post-Mao reforms. (F,SP) O'Brien

143D. Democracy and China. (4) Three hours of lecture and one hour of discussion per week. The course has two goals: 1) to examine whether democracy means in China, both in theory and practice, and 2) to assess China's political reforms since Mao's death in 1976. Efforts will be made to integrate historical analysis with the study of contemporary political processes and concepts. China's electoral and legislative reforms will be examined, as will the political pressures for democracy mounted by dissidents and ordinary Chinese. Taiwan's democratization will also be discussed and comparisons across the Taiwan Straits will be pursued.

144A. Rapid Growth in East Asia. (4) Three hours of lecture and one hour of discussion per week. Japan, Korea, and Taiwan. This course will argue that the national strategies of the three countries have been significant, and in some ways complementary, variations on a common theme of externally-oriented development. Japan represents the triumph of flexible "production," Korea's strength is in mass production, while Taiwan aims at rapidly changing market niches.

144B. Politics of Divided Korea. (4) Three hours of lecture and one hour of discussion per week. An overview of modern Korea divided into the Republic of Korea and the Democratic People's Republic of Korea. The course will compare the two Koreas in terms of political, social and economic structure, political elites and modernization strategy.

145A-145B. South Asian Politics. (4) Three hours of lecture and one hour of discussion per week. A comparative analysis of development and change in the political systems of the region. The course may be repeated for credit as topic varies.

146A. African Politics. (4) Three hours of lecture and one hour of discussion per week. Introduction to politics of sub-Saharan Africa. Focus on the relationship of politics to social and economic change. Emphasis is placed on the basic problems and challenges faced by the post-colonial states of the region, and on alternative strategies for dealing with them. Nation-building, political instability, "neo-colonialism," are among the specific topics that are discussed.

146B. African Politics. (4) Three hours of lecture and one hour of discussion per week. In-depth analysis of several African states, focusing on the formation of their contemporary state structures and political systems, and the nature of current political processes and problems. Cases are chosen so as to highlight contrasting political strategies for the pursuit of economic development and social change. For details consult departmental announcements.

146C. Conflict and Change in South Africa. (4) Three hours of lecture and one hour of discussion per week. Primary emphasis on the Republic of South Africa, focusing on the evolution of the system of racial rule, the politics of apartheid, and on pressures for political change. Analysis of South African politics is placed within the context of regional political change and of conflict between South Africa and her neighbors. The role and significance of the United States in the process of conflict and change in southern Africa will also be discussed at some length. Price

147A. Western European Politics. (4) Three hours of lecture and one hour of discussion per week. The originate development of state and society in Western Europe from the Middle Ages to the Industrial Revolution. Feudalism, the estate society, absolutism, constitutionalism, state building, authority, and social relations.
147B. Western European Politics. (4) Three hours of lecture and one hour of discussion per week. The political development of Western Europe from feudalism to the 20th century. Topics include absolutism, commercialization of agriculture, English and French revolution, nationalism, dissent, national unification, working-class incorporation, democratic and authoritarian regime outcomes, contemporary politics and policy. Focus on Britain, France, Germany, and Italy.


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—Belgium, France, Germany, and to a lesser extent, Italy and Sweden—have confronted common problems in the postwar period.

148A-148B. Latin American Politics. (4,4) Three hours of lecture and two to three hours of discussion per week. Political institutions, groups and parties in Latin American countries. Basic characteristics of political processes in Latin America; problems of political development and modernization and political change. Comparative study of political systems, institutions, groups and political culture.

149. Selected Topics in Area Studies. (4) Course may be repeated for credit with different topic and consent of instructor. Three hours of lecture and one hour of discussion per week. See departmental announcements. Topic will vary with instructor.

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 one hour of 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.

151. The Jury System. (4) Students who have taken 151B during the 1983-84 or 1984-85 academic year will receive no credit for 151. Three hours of lecture and one hour of discussion or conference per week. The place of the jury in the judicial and political system. Selection and behavior of jurors on the local, state, and federal level.

157A-157B. Constitutional Law of the United States. (4,4) Three hours of lecture and one hour of discussion per week. Fundamental principles of constitutional law, leading cases, causes, and consequences of legal decisions. A. Civil Rights B. Civil Liberties.

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, election and choice; political cleavages; the role of the mass public.

C163A. Religion and Politics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Formerly 163A. The interaction of religion and politics. The primary focus is the impact of religion on modern American politics. This core will be supplemented by historical and comparative analysis of religion and politics in politics. Also listed as Religious Studies C185A.

C163B. Religion and Politics. (4) Three hours of seminar and one hour of discussion per week. Prerequisites: 163A and consent of instructor. Formerly 163B. The interaction of religion and politics. The primary focus is the impact of religion on modern American politics. This core will be supplemented by historical and comparative analysis of the role of religion in politics. Also listed as Religious Studies C185B.

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 belief; conflict theory.

169. Selected Topics in Political Behavior. (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.

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 political institutions—government, parties, interest groups, and citizens; and the policies resulting from the interaction of environment and institutions.

175A. Urban and Metropolitan Government and Politics. (4) Three hours of lecture and one hour of discussion per week. The roles of various levels of government—local, regional, state, and national—in politics and policy-making in metropolitan regions.

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 by students of local community and public decisions; war veterans, elderly, alcoholics, prisoners, military personnel, factory workers, etc. Frequent field trips led by undergraduate student coordinators. Classroom discussions also directed by undergraduate student coordinators under the direction of the sponsoring faculty.

177B. Internship Program. (4) Three hours of lecture and fifteen to twenty hours of fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of faculty sponsor and department chairperson. Juniors and seniors only. Supervised experience in field positions with California state and local governments for 15-20 hours per week, and coordinated course work.

179. Undergraduate Colloquium on Political Science. (1) Course may be repeated for credit. One hour of lecture per week for the course consisting of no fewer than 35 pages. Prerequisites: Consent of the department chairperson. Limited to juniors and seniors only. In preparation for students continuing to 180H.

Public Organization, Administration, and Policy

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 structure and behavior. The effects of administrative structure upon the creation and distribution of public benefits.

182. Public Policy and Administration in Developing Countries. (4) Three hours of lecture and one hour of discussion per week. The political economy of policy-making and administration for economic development in selected developing countries.

183. Administrative Behavior. (4) Three hours of lecture and one hour of discussion per week. The dynamics of public formulation within bureaucratic organizations; the influence upon public organizations of the legislative and pressure groups; patterns of conflict within public organizations.

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, scope of challenges of democratic governance of technical developments, the bases for technological dissent, roots and promise and assessment in the congressional setting, and alerts for the future in the development of public policy.

H190A-H190B. Honors Seminars. (4,4) Four hours of seminar per week. Prerequisites: Senior honors candidates and consent of instructor. Offerings vary from year to year. May be one or two semesters. Credit and grade awarded upon completion of thesis. Applications and details through the Undergraduate Office.

Special Studies

H191. Honors Thesis Preparation Seminar. (4) Course is preparatory for students continuing to H195A-H195B. Students must take both H191 and H190A-H190B. Three hours of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Students must meet honors criteria and receive approval from the undergraduate adviser. Limited to juniors and seniors. This course will help students with the planning and execution of the honors thesis in political science. It is intended for students who are currently researching and writing their theses, or who plan to begin a thesis in the upcoming term. Identification of a feasible topic, organization of constructs, and development and execution of the research plan will be conducted by students.

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 honors candidates. Independent research and thesis. Satisfies thesis requirement for honors candidates. Both semesters must be taken and completed with a final grade B+ or better in order for department honors to be awarded. Applications and details through the Undergraduate Office.

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 chair. Independent study of an advanced topic resulting in a substantial research paper.

C196W. Special Field Research. (10,5) Course may be repeated for a maximum of 12 units. 240-300 hours per semester plus regular meetings with the faculty supervisor. Prerequisites: Consent of instructor. Formerly 196W. Students may enter the internship and thesis program in advance by permission of 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 produce a final paper for the course consisting of no fewer than 35 pages. Other restrictions apply; see faculty adviser. Also listed as History of Art C196W, Undergraduate Interdisciplinary Studies C196W, Women’s Studies C196W, Mass Communications C196W, History C196W, Political Economy of Industrial Soc C196W, and Sociology 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 study or field. Must be entered into through the Undergraduate Office. Supervised individual work with faculty sponsor. 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 study proposal by faculty sponsor for department chairman one month in advance of the semester to be offered. Group studies of selected topics may vary from year to year.

199. Supervised Independent Study and Research for Undergraduates. (1-4) Course may be repeated for credit. 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 study or field. Must be entered into through the Undergraduate Office. Supervised individual work with faculty sponsor. 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 study proposal by faculty sponsor for department chairman one month in advance of the semester to be offered. Group studies of selected topics may vary from year to year.
for credit. By arrangement with faculty. Must be taken on a pass/No Pass 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. (F,SP)

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 relation between domestic political developments and the international system. The effect of economic development on political change. The effect of labor politics on national politics.

201C. Globalization and Liberalization: The Politics of Deregulation, Reregulation, and Meseregulation. (4) Three hours of seminar per week. The course will examine the advance of global trade and economic liberalization and the relationship between these two processes.

201D. Governance of the E-conomy. (4) Three hours of lecture per week. New digital technologies, changing market structures, and innovative business organization are transforming the economic and social landscape of the advanced industrial countries. The policy issues associated with this transformation pose fundamental philosophical and political questions of how to organize our markets, politics, and society. 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 literature on 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 conceptual understanding of the burgeoning digital economy and its impact on politics, law, and socio-economic relations.

203. Comparative Analysis of Communist Societies. (4) Three hours of seminar per week. An analysis of the interrelations between Communist systems with particular reference to institutional and political differences, presented at an advanced level for graduate students. Discussion and papers required.

205. The Nation-Building Process. (4) Three hours of seminar per week. The nation-state is the most significant political unit in the contemporary world. This course focuses on its origins, essential characteristics as well as on different patterns of national development, the relation of national development to modernization, the role of internal and external factors in the national development process and current challenges to the national definition of political life.


209A. Comparative Political Economy. (4) Emphasis on three models of modern society—post industrial, "mass," and "corporatist"—as they apply to countries in Europe, Latin America, and South and Southeast Asia. The aim: to evaluate convergence theory and explore divergent paths of development among rich and poor countries. "Special" attention is given to stratification, the welfare state, mass media, role of intellectuals.

Political Theory

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. See departmental announcements. Topic will vary with instructor.

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.

217. Politics and Culture. (4) Three hours of seminar per week. An examination of interrelationships of politics, personality, and culture, normally with specific focus on American materials. Research papers will be written and discussed during the semester.

218A. Colloquium in Political Theory. (4) Three hours of seminar per week. An intensive examination of the nature of political theory and the enterprise of theorizing about politics, with attention to selected aspects of social science theory and contemporary philosophical issues.

219. Symposium in Political Theory. (4) Course may be repeated for credit with consent of instructor. Three hours of seminar per week. Forum for the presentation of original work in political theory.

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 theories featured in the study of international relations. Relation of various strands of political and social theory to international relations.

220B. Theories of International Relations. (4) Three hours of seminar per week. Prerequisites: 220A. The construction of theories in the field of international relations.

222. Nationalism and Imperialism. (4) Three hours of seminar per week. Prerequisites: 220 or 220A. Themes in the theory of nation-building illustrated with Western and non-Western case studies.

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. See departmental announcements. Topic will vary with instructor.

226A-226B. International Political Economy. (4-4) Three hours of seminar per week. Prerequisites: Introduction to courses (graduate or undergraduate) in international relations, foreign policy, international organizations and political economy. The creation, maintenance, transformation, and decay of international arrangements designed to manage or regulate interstate activities relating to trade, money, resource use, technology, and physical environment.

Empirical Theory and Quantitative Methods

231A. Quantitative Analysis in Political Research. (4) Three hours of seminar per week. Prerequisites: 132A-132B or Statistics 130A. Introductory course in the analysis of political data.

231B. Quantitative Analysis in Political Research. (4) Three hours of seminar per week. Prerequisites: 231A or equivalent. Topics from multi-equation causal modeling and introductory econometrics, with special emphasis on procedures appropriate for political data, including survey data.


A. Mathematical models of politics with applications to political learning, bargaining, and democratic theory.

B. This course emphasizes the application of mathematical models of politics to data analysis. This will include formal models of political science. Topical focus will vary from year to year. Formerly 232.

233. Psychometric and Econometric Methods. (4) Three hours of seminar per week. Most political science data suffer from two major problems: the measures of theoretical constructs contain substantial amounts of error and the processes generating the data involve reciprocal causation (“v”- or “x”-shaped) 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.

234. Rational Choice Theory and Democratic Politics. (4) Three hours of seminar per week. This seminar will provide students with an introduction to the main contributions of economic models to our understanding and normative evaluation of politics in democratic states. The goal of the course is that students develop a familiarity with the potential applications of economic methodologies to the study of politics, while also gaining insights into the potential limitations of economic approaches.

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. Selected Topics in Methodology. (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.

Area Studies

241C. Politics and Government in Eastern Europe. (4) Two 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.

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 formerly 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 patterns, and of 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, etc.). A 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.

243B. Political Authority and Economic Exchange in East Asia. (4) Three hours of seminar per week. This course will compare how authority and exchange relations are combined to regulate political and economic activities in China, Taiwan, South Korea, North Korea, and Japan. The course will examine theoretical literature on state-society relations, market, world system, late development, as well as empirical case studies dealing with each nation covered.

243C. Japanese Politics. (4) Three hours of seminar per week. Japanese domestic politics—issues in historical, administrative, political, and legal contexts; studies in economic policymaking.
Political Science / 405

244A. Analysis of Contemporary China. (4) Three hours of seminar per week. This is the first in a two-semester sequence designed to provide the incoming graduate student with a basic grounding in the politics of contemporary China. The focus will be on wide ranging and comprehensive understanding of the contemporary Chinese political system, its historical foundations, and its relationship with the rest of the world. The seminar will be structured around reading and primary source research materials. There are no prerequisites, though undergraduate course work in Chinese or other relevant disciplines 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 “socialist reform”, and 3. A final period of oral reports on student research topics.

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.

246. African Politics. (4) Three hours of seminar per week. Traditional polities 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 of national identities; ethnic states; repression and restructuration; conflict and class formation; political order and development; modernization and identity; and interstate conflict and international order.

247B. Western European Politics. (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 presents an overview of modern German political development in the context of Central European history, and detailed analyses of selected topics.

248A-248B. Latin American Politics. (4;4) Either part of the 248A-248B sequence may be taken separately for credit. Three hours of seminar per week. Three hours of seminar per week. 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. Selected Topics in Area Studies. (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 Law and Jurisprudence

252. Legal Theory and Institutions. (3) Three hours of seminar per week. The organization and behavior of legal institutions, 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 the empirical studies, judicial opinions, jurisprudential writings and organization theory.

257. Constitutional Law. (3) Three hours of seminar per week. A study to gain a comprehensive understanding of the Constitution and its role in the American governmental system. The seminar is designed to equip the student with the necessary knowledge and tools to analyze and interpret the Supreme Court decisions.

259. Selected Topics in Public Law. (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.

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 topic varies. 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.

272A-272B. 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. Credit and grade to be awarded on completion of sequence.

273. Urban Politics. (4) Three hours of seminar per week. Politics and policy-making in American cities. Historical, economic and social context of cities. Major urban political institutions, other levels of government in urban affairs.

274. American Political Development. (4) Three hours of seminar per week. This course will consider several broad themes in American political development. The objectives 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.

275. Principles of Policy Analysis. (4) Three hours of seminar per week. The study of American public policy doctrines, policy formulation, evaluation, and implementation, including the role of social science research in policy-making.

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. Topics include campaign finance reform, lobbying regulations, the 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 disciplinary perspectives. Formerly 280A. Comparative Administration. (4) Three hours of seminar per week. A comparative analysis of the structures and functions which are used to control public bureaucracies in selected political systems and the effects of those controls on the character of administrative performance.

280C. Public Policy and Decision-Making. (4) Three hours of seminar per week. The process of public policy formulation, governmental planning and programming, and administrative decision-making.

287. Development Administration. (4) Three hours of seminar per week. The problems of administering economic development programs in poor countries. Particular emphasis is placed on rural development, the problems of relating bureaucratic structures to relevant communities, and the relevance of organization theory to non-Western administration.

289. Research Topics in Public Organization. (4) Course may be repeated for credit as topic varies. Three hours of seminar per week. See departmental announcements. (F,SP)

Special Studies

290. Dissertation Research. (4) Course may be repeated for credit. By arrangement with faculty. Prerequisites: Consent of instructor and graduate adviser. Open to qualified graduate students wishing to pursue special study and research under direction of a member of the staff. (F,SP)

296. Directed Dissertation Research. (4-12) Course may be repeated for credit. By arrangement with faculty. Must be taken on a satisfactory/unsatisfactory basis. Open to qualified graduate students advanced to candidacy for the Ph.D. degree.

299. Independent Study in Preparation for the M.A. Essay. (4-8) Credit to be awarded on completion of the Master’s essay. Course may be repeated for credit. By arrangement with faculty. Must be taken on a satisfactory/unsatisfactory basis. Open only to qualified first-year graduate students working toward the M.A. degree.

602. Individual Study for Doctoral Students. (4-12) Course may be repeated for credit. By arrangement with faculty. Must be taken on a satisfactory/unsatisfactory basis. Individual study in consultation with the major field adviser, intended to provide 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.

Professional Courses

298. Professional Preparation for Graduate Student Instructors. (4) Course may be repeated for credit. By arrangement with faculty. 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 political science.

404. Research Skills. (1-4) Course may be repeated for credit. By arrangement with faculty. Must be taken on a satisfactory/unsatisfactory basis. Individual research work under supervision of faculty members. Open to students engaged in supervised research projects in Political Science.
Psychology
(College of Letters and Science)

Department Office: 3210 Tollman Hall, (510) 642-5292
http://s.s.berkeley.edu/dept/psychology
Chair: To be announced

Professors
Joseph J. Campos, Ph.D. Cornell University.
Social/emotional development of infants; perceptual development
Martin V. Covington, Ph.D. University of California.
Psychological assessment; intelligence
Philip A. Cogan, Ph.D. University of Detroit. Family systems
Mark D’Esposito, M.D. State University of New York.
Image processing; functional MRI
Eleanor H. Rosch, Ph.D. Harvard University. Cognition, conceptual development in children; infants’ understanding of animacy, artifact functions, and goal-directedness

Associate Professors
John Galant, Ph.D. Yale University. Visual neuroscience, attention
Lucia Jacobs, Ph.D. Princeton University. Evolution and ecology of learning
Dacher Keltner, Ph.D. Stanford University. Emotion, individual differences in emotion; social interaction; conflict and negotiation; culture
Ann Kring, Ph.D. State University of New York, Stony Brook. Schizophrenia, emotion and psychology, gender and emotion
Seif D. Roberts, Ph.D. Brown University. Depression, mood, sleep, human circadian rhythms

Assistant Professors
Ozlem Aduygu, Ph.D. Columbia University. Cognitive and affective processes; self-regulation of conflict, hostility, and depression; processes in regulatory competencies
Sorina Chiu, Ph.D. New York University. Relationship cognition, relational bases of self and identity, social power; intergroup relations
Carla Hudson, Ph.D. University of Rochester. First- and second-language acquisition, how those processes constrain the form of languages, how languages change over time
Lori Markson, Ph.D. University of Arizona. Language and conceptual development in children; infants’ understanding of animacy, artifact functions, and goal-directedness

Adjunct Professors
Robert Knight, M.D. Northwestern University. Attention and perception and psychophysics; attention
Richard Ivry, Ph.D. University of Oregon. Language development, children’s theories of mind, language and development across the life span
Ervin R. Harff, Ph.D. University of Texas. Auditory processing, attention
Thomas Wickens, Ph.D. Brown University. Mathematical neurosciences and behavior
Gerald A. Mendelsohn, Ph.D. University of Michigan. Perception and psychophysics; attention
Christina Maslach, Ph.D. Stanford University. Job burnout
Karen K. DeValois, Ph.D. Harvard University. Vision, psychophysics and physiology
David Wessel, Ph.D. New York University. Relationship neuroscience, relational bases of self and identity, social power; intergroup relations

Adjunct Associate Professor
William Pritchard, M.D. University of California. Psychology of women; creativity

Affiliated Professors
Paul Ekman (University of California, San Francisco)
Robert MacCoun (Public Policy)
Barbara Mellers (Haas School of Business)
Richard Muñoz (University of California, San Francisco)
Kurt Oganisian (Social Welfare)
Michael A. Runyan (Social Welfare)
William McKinney, Jr. (Social Welfare)
Lorraine H. Snowden (Social Welfare)
Elliot Turiel (Education)
David Wassel (Music)
Yu-Wen Ying (Social Welfare)

Department Overview
Psychology represents an extremely broad discipline, ranging from the study of behavior of the simplest of organisms to the behavior of humans and groups of humans in complicated situations. The major at Berkeley attempts to give basic and well-rounded coverage of most of the principal fields of psychology. Areas covered include social, developmental, behavioral neuroscience, comparative, industrial, clinical, and cognitive psychology; learning (human and animal); perception; personality; and psycholinguistics. The fact that psychology is so diverse means, however, that all areas of study cannot be represented within the expertise or primary interest of a single faculty or department. The emphasis at Berkeley is upon empirical research and theoretical development of fundamental aspects of animal and human behavior. Since it is our experience that students who are interested in the major often have been exposed to introductory courses with emphases different from ours, we strongly urge prospective majors to examine our upper division course offerings closely to see if they are consonant with their special interests.

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 objective study of behavior is one of the major themes of intellectual history of the last hundred 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 planning on graduate work in psychology, the undergraduate major seeks to establish a sound foundation.

The Major Program
The primary goal of the major is to ensure that the student becomes aware of the diversity within the discipline and of the interrelationships among the different sub-areas of psychology. The major consists of (1) a set of prerequisite courses; (2) a course in research methods and design (101); (3) three “decade” courses; and (4) four elective courses. The four areas of psychology (cognition, brain and behavior; developmental; clinical; and social/personality) must be included in the courses used for the decade and elective courses. Only one seminar may be used.

Lower Division Requirements
Admission to the Major. Psychology is a popular major and for several years has not been able to accommodate all students who want to declare it. Students will be admitted to the major in October and May. Criteria for admission include (1) the prerequisite courses of the end of the semester; and (2) a grade-point average of 3.2 in the prerequisite courses. Students who do not meet the criteria may apply, but their admission to the program is very unlikely.

Pre-Major Students. Students who intend to declare the psychology major are urged to visit the Student Services Office periodically each semester to obtain departmental literature and the “Tolman Tribune” and to review the undergraduate bulletin boards for current information. Pre-majors are encouraged to become involved in departmental student activities and events. The advising staff is available to pre-majors, as are peer advisers.

Prerequisite Areas, Courses, and Options. Psychology: Psychology 1 (AP Psychology units will satisfy this prerequisite provided the score was at least 3). Evolution: One course from Molecular and Cell Biology 41 or 41X. Anthropology 1, Integrative Biology 60.

Biological Science: Two courses from Molecular and Cell Biology 32, 61, 64; Biology 1A, 1B, 11; Integrative Biology 31 (AP Biology units will satisfy this prerequisite provided the score was at least 3).

Social Science: Two courses from Anthropology 3, Sociology 3, Linguistics 5, Political Science 1 or 2. Quantitative: One course from Statistics 2.20, or 21; Math 54 or 55 (AP Statistics units will satisfy this prerequisite).

Prerequisite courses must be taken on a letter-grade basis (except when a course is offered only on a Pass/Not Passed basis). No course to be counted toward completion of the upper division major requirements may be taken on a Pass/Not Passed basis except 199/198.

Upper Division Requirements
Research Design and Methods: Psychology 101. All four areas (cognition, brain and behavior; developmental; clinical; and social/personality) of psychology must be included in the following courses. Breadth: Three “decade” courses (110, 120, 130, 140, 150, 160, 180).

Electives: 12 units of additional courses. These may be decade or non-decade courses. Only one 198 or 199 course of at least 3 units may be used in satisfaction of the major.

Total Units: 25 upper division units in psychology.
Honors Program. Admission to the honors program is limited to senior psychology majors with a 3.5 average or above, and consists of an honors seminar, an honors colloquium, and an honors senior thesis. The honors seminar is a small seminar in which students present and discuss their research. The honors colloquium is a regular seminar in which students present their research to a faculty audience. The honors senior thesis is a research project that is completed during the senior year. The honors seminar, honors colloquium, and honors senior thesis are offered every year.

Graduate Study
Preparation. The Department of Psychology requires completion of an undergraduate major in psychology or a cognate field as the best preparation for graduate study. The undergraduate program should include a course in statistical methods and a laboratory in experimental psychology. The number of fully qualified applicants always greatly exceeds the number admitted; therefore, the prospective applicant who has little or no background in psychology is advised to defer application until appropriate undergraduate coursework has been completed.

Graduate Programs. The graduate program is designed for doctoral students interested in pursuing an advanced study and conducting original research in psychology. New admissions are restricted to candidates for the Ph.D. Students are assigned to graduate programs in the areas of specialization. Students are given a broad background in the areas of specialization prior to selecting a particular area of specialization. Students are expected to affiliate themselves with one of the areas of specialization and to complete the core sequence for that area. Students are encouraged to take additional courses in areas other than their main area of interest. Students are expected to take at least one course in each of the areas of specialization, and to complete the core sequence for that area.

General Psychology
Further Information. The Schedule of Classes is issued before the beginning of each semester and the department course descriptions issued at the beginning of each semester provide more detailed and up-to-date information about courses offered by the Psychology Department. Please consult these sources for current course offerings.

Upper Division Courses
100A-100B. Theory and Research in Psychology. (4,4) Three hours of lecture and one hour of discussion per week. Prerequisites: Completion of the prerequisites for the psychology major. The course is required of, and limited to, psychology majors. Both semesters are required for the major and must be taken in sequence. Beginning with 2009-2010, students may take this course in the spring, and it will cover social, personality, and clinical psychology. (F,SP)

101. Research and Data Analysis in Psychology. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 1 and 100B. This course will cover research and data analysis techniques in psychology. (F,SP)

C105. Psychology of African American People: Current Issues. (3) Three hours of lecture per week. Prerequisites: African American Experience or 101A, or other course in psychology. This course will examine the intersection of psychology and African American people. Emphasis will be on understanding the cultural, psychological, and social issues that affect African American people. (F,SP)

106. Psychology of Dreams. (3) Two hours of lecture and one hour of discussion per week. Dreaming is a complex neurological event that occurs in all organisms with nervous systems. This course will cover the history and current research on dreams. (F,SP)

107. Buddhist Psychology. (3) Two hours of lecture and one hour of discussion per week. Dreaming is a complex neurological event that occurs in all organisms with nervous systems. This course will cover the history and current research on dreams. (F,SP)

109. History of Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 107. This course will cover the history of psychology, including the development of scientific study of human mind and behavior. Consideration of history of particular subject areas such as biological, comparative, developmental, personality, 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 relationships between behavioral and biological processes. Topics include sensory and perceptual processes, neural maturation, natural bases of motivation, and learning.

111. Sensory Processes: Vision. (3) Four hours of lecture per week. Prerequisites: 110 or consent of the instructor. Examination of various aspects of visual perception (adaptation, brightness and color vision, binocular vision, object detection) in relation to anatomy and physiology of the visual system. (SP)

111L. Laboratory in Vision. (2) Same as 111L. Laboratory in Vision. (2) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course is required for the major. Students should complete 111L concurrently with 111. (SP)

112. Sensory Processes: Hearing. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Completion of biological and quantitative prerequisites for the major. Lectures cover a broad range of topics in human hearing, including the structure and function of the ear, sound perception, and hearing loss.
of topics related to the psychology of hearing and the physiology of the auditory system.

C113. Biological Clocks: Physiology and Behavior. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 110 or consent of the instructor. Concepts of biological rhythms and circadian rhythms in mammals including humans. Emphasis on endocrine substrates, development and adaptive significance of estrous cycles, feeding 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.

C115A. Introduction to Comparative Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 104A or 110. Studies of animal behavior in a comparative perspective, including topics of behavior development, reproduction, aggression, and territoriality.

C115B. Animal Behavior. (4) Students will receive no credit for C115B after taking Integrative Biology 146. Three hours of lecture, one hour of discussion, and one hour of demonstration per week. Prerequisites: Biology 1A-1B or Environmental Sciences, Policy, and Management 114B, Molecular and Cell Biology 114C or 142, 160 recommended. An introduction to comparative animal behavior and behavioral physiology in an evolutionary context, including but not limited to analysis of behavior, genetics and development, learning, aggression, reproduction, adaptability, and physiological substrates. Two midterm exams and a library term paper. Also listed as Integrative Biology C144. (F) Staff

C115C. Neuroethology. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: C115B. Integrative Biology C144 or consent of instructor. The course will cover a range of topics that span the gap between the properties of individual molecules and complex cognitive behavior, including the cellular properties of single nerve cells, synapses, pattern-generating circuits, sensory and motor integration, sensory processing, escape responses, animal communicative processes and learning. Also listed as Integrative Biology C147. (SP) Staff

C116. Hormones and Behavior. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 104A or 110. A survey of contemporary psychopharmacological approaches to problems of human disabilities including mental disorders, behavior changes following human brain injury and mental subnormalities. Emphasis on nervous system models of these problems and areas of potential application of basic research development.

118. Topical Seminar in Biological Psychology. (3) Course may be taken for 0 or credit with different topics and consent of instructor. Three hours of lecture per week. Prerequisites: Consent of instructor. For a precise statement of courses check with the Student Services Office each semester.

119. Drugs and Behavior. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 104A or 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 behavioral and physiological effects of drugs. Emphasis will be placed on effects of pharmacological agents on complex mental processes such as attention, motivation, learning, and memory.

Cognitive Psychology

120A. Introduction to Cognitive Psychology. (3) Students will receive no credit for 120A after taking Psychology 120B. Two hours of lecture and one hour of discussion per week. Prerequisites: 104A or consent of instructor; 101 recommended. Principal concepts and research concerning human processing of visual, auditory, and symbolic information; object recognition and classification; perception and comprehension of language; attention; theoretical models and experimental techniques in the study of imagery and other cognitive processes.

C120B. Basic Issues in Cognitive Science. (4) Students will receive no credit for 120B after taking Psychology 120A. Three hours of lecture and one hour of discussion per week. Formerly 100. Theoretical foundations and current controversies in cognitive science will be discussed. Basic issues in cognition—including perception, imagination, attention, organization, 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: C115B 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: 104A or cognitive science recommended. Formerly 122A. Theoretical and experimental analysis of human learning and memory; short-term and long-term memory; retrieval processes; transfer and interference, mechanisms of forgetting.

123. Concepts and Categories. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1 or Cognitive Science C1; or 121A or 121B or Cognitive Science C126. Introduction to concepts and categories. Theoretical approaches to the study of categories, typicality, exemplars, and category abstraction. Also listed as Cognitive Science C100. (F)

C124. Psycholinguistics. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. An introductory course in linguistics or consent of instructor. Introduction to psycholinguistics, emphasizing effects of context on the learning and use of language, influence of language behavior on psychological processes; special attention to psychological and sociocultural aspects of language behavior. Also listed as Cognitive Science C124.

C125AC. Second Language Learning and Bilin- gualism. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Background in linguistics and psychology recommended. Process and structure in second language acquisition, including development of “inter-languages.” Processing of linguistic information by bilinguals (perception, recall, translation); structure of bilingual discourse. Child bilingualism, language maintenance or shift in North America. Also listed as Cognitive Science C124.

C126. Perception. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. An introductory course in the principal theoretical constructs and experimental procedures in visual and auditory perception. Topics will include psychophysics; perception of color, shape, space, and motion; pattern recognition and perceptual attention. Also listed as Cognitive Science C126.

C127. Cognitive Neuroscience. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: Psychology 104A or 110 or 120A or 120B, or Cog Sci C100. This course will examine research investigating the neurological basis of cognition. Material covered will include the study of brain-injured patients, neuropsychological research in animals, the study of normal cognitive processes in humans with noninvasive behavioral and physiological techniques (e.g., PET scan, brain waves), and computer modeling. Topics to be covered include visual perception and object recognition, attention, motor control, language, and development. Also listed as Cognitive Science C127.

128. Topical Seminars in Cognitive Psychology. (3) Course may be repeated for credit with different topics 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.

C129. Scientific Approaches to Consciousness. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 1 or Cognitive Science C1; or 120A or Cognitive Science C120. 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 computational models. Also listed as Cognitive Science C102. J. Kihlstrom

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 explanation of psychopathological phenomena and the relation between theories of psychopathology and theories of intervention. A critical evaluation of the effects of individual, family, and community approaches to therapeutic and preventive intervention. Thematic focus of the course may change from year to year. See departmental notices for details. (F,SP)

131. Developmental Psychopathology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 100B or consent of instructor; 130 recommended. This course will discuss linkages between developmental processes and child psychopathology. Included will be discussion of cognitive impairments in children, including learning disabilities and mental retardation; internalizing disorders, such as anxiety, depression, and externalizing disorders, such as attention-deficit hyperactivity disorder and conduct disorder; and child abuse and neglect. Psychobiological, familial, legal and societal factors will be emphasized.

132. Community Psychology. (4) Two hours of lecture and one and one-half hours of discussion per week. Prerequisites: 100B or 130, or consent of instructor. An interdisciplinary study of mental health problems from a social psychological perspective, with particular concern for ecological, epistemological, and historical perspectives. Critical examination of emerging methods of community intervention, including prevention.

132AC. Community Psychology: An American Cultural Perspective. (4) Two hours of lecture and one and one-half hours of discussion per week. Prerequisites: 100B or 130, or consent of instructor. Introduction to community psychology with a comparative emphasis on ethnic cultural diversity. Critical examination of socio-cultural, environmental, and psychological factors that affect the development of mental health, and social/ community intervention approaches that prevent dysfunction or promote competence for populations, organizations, and communities. Theories and methods of a community psychology approach to multi-cultural groups: African Americans, Asian Ameri...
cans, Chicanos/Latinos, indigenous peoples of the United States, and European Americans. Students participate in community-based action research projects. This course satisfies the American cultures requirement.

135AC. Psychological Perspectives on Cultural, Racial, and Ethnic Diversity. (3) Two hours of lecture and discussion per week. Course provides an overview of the American experience from a psychological perspective. Examines Asian American culture, values, the process of psychological adaptation, ethnic identity formation, implications for social work practice, and culturally sensitive service delivery and treatment. Also listed as Social Welfare C151.

138. Topical Seminars in Clinical Psychology. (3) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: 100B or 130 or consent of instructor. For a precise schedule of offerings check with Student Services Office each semester.

Developmental Psychology

140. Developmental Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 100A or 110 or consent of instructor. Three hours of seminar per week. Prerequisites: 100B or 130 or consent of instructor. Course provides an overview of the American experience from a psychological perspective. Examines Asian American culture, values, the process of psychological adaptation, ethnic identity formation, implications for social work practice, and culturally sensitive service delivery and treatment. Also listed as Social Welfare C151.

135AC. Psychological Perspectives on Cultural, Racial, and Ethnic Diversity. (3) Two hours of lecture and discussion per week. Course provides an overview of the American experience from a psychological perspective. Examines Asian American culture, values, the process of psychological adaptation, ethnic identity formation, implications for social work practice, and culturally sensitive service delivery and treatment. Also listed as Social Welfare C151.

138. Topical Seminars in Clinical Psychology. (3) Course may be repeated for credit with different topic and consent of instructor. Three hours of seminar per week. Prerequisites: 100B or 130 or consent of instructor. For a precise schedule of offerings check with Student Services Office each semester.

Developmental Psychology

140. Developmental Psychology. (3) Two hours of lecture and one hour of discussion per week. Prerequisites: 100A or 110 or consent of instructor. Three hours of seminar per week. Prerequisites: 100B or 130 or consent of instructor. Course provides an overview of the American experience from a psychological perspective. Examines Asian American culture, values, the process of psychological adaptation, ethnic identity formation, implications for social work practice, and culturally sensitive service delivery and treatment. Also listed as Social Welfare C151.
Quantitative Psychology

201A-201B. Design and Analysis of Psychology Experiments. (3,3) Three hours of lecture per week. Design and statistical analysis of psychology experiments are examined from an intuitive and mathematical point of view. 201A may be taken by itself and considered the most common designs found in psychology experiments. 201B consists of 201A and covers the design and analysis of more complicated experimental designs.

C204. Research Reviews in Animal Behavior: Behavior Review. (1-2) Course may be repeated for credit. One and one-half hours of seminar per week. Prerequisites: Consent of instructor. 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 Environ Sci, Policy, and Management C204.

Staff

205A-205B. Data Analysis. (3,3) Three hours of lecture and two hours of laboratory per week. Students will need to work through problems (homework). A general data analytic course that emphasizes design issues and problems, from pure experimental research through complex designs. Includes ANOVA and multiple regression/correlation will be presented as analytical models for both lab and field research.

Biological Psychology

210A-210B. Graduate Survey of Biological Psychology. (3,3) Three hours of lecture per week. Prerequisites: Consent of instructor. A four-semester survey of the field of biological psychology. All four semesters are required for all graduate students in biological psychology; other graduate students may take any of the semesters for credit. The areas covered by each course are (a) human cognitive neuroscience; (b) animal behavior, behavioral endocrinology, and biological rhythms; (c) sensory systems, and (d) learning. One course is available each semester. Graduate students in biological psychology are required to complete all four semesters in the first two years of study.

211. Hormones and Behavior. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. A four-semester survey of the role of circadian processes in photoperiodic time measurement and on seasonal reproduction. Emphasis on mammalian endocrinology and the anterior pituitary gland.

212. Biological Clocks and Animal Behavior. (3) Prerequisites: 210A-210B. Three hours of lecture and two hours of laboratory per week. This course at-
Cognitive Psychology

C220A. Proseminar: Cognition. (3) Three hours of lecture per week. Theoretical constructs and experimental methods in the study of human cognition with particular emphasis on the nature of concepts and categories. Topics will include category structure, prototype constructs and experimental analysis of human learning, transfer, and memory. Stress will be given to the learning and retrieval of mental materials.

C220D. Proseminar: Problem Solving and Understanding. (3) Three hours of lecture per week. Requisites: Consent of instructor. Students will examine cases involving children and adults from a predominantly cognitive science perspective, beginning with an examination of thinking involved in diverse problem types. Students will then analyze the literature concerning these issues that span current problem types, including representation, “understanding,” access and availability of knowledge, access to one’s own cognitive processing, categorization, the architecture of knowledge, and the control of cognition. Also listed as Cognition 220A. Ranney

C220E. Proseminar: Perception. (3) Three hours of lecture per week. Principal theories of perception and experimental procedures in visual and auditory perception. Topics will include psychophysics, perception of space, sound, and motion; pattern recognition, and peripersonal attention.

C220F. Graduate Issues in Cognitive Science. (3) Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This course will consider current issues and trends in cognitive science at the graduate level. The class will include consideration of topics in perception, reasoning, decision-making, learning, and the perspectives of different disciplines. Also listed as Cognitive Science 220D.

C220G. Proseminar: Judgment and Decision Making. (3) Three hours of seminar per week. This course will examine how people make judgments, 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 prediction and choice.

C220H. Proseminar: 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 the prototype view; the idea of basic categories (with its proliferation of implications); categorization and life events; personality trait designations as categories; categories viewed as theories; developmental models in categorization; and the relationship between categorization and language.

C229. Cognitive Seminar. (1) Course may be repeated for credit. One and one-half hours of seminar per week. This course will be taken on a satisfactory/unsatisfactory basis. Prerequisites: Limited to second and third year clinical psychology students or consent of instructor. Psychological intervention in community settings. (F,SP)

231A. Clinical Neuropsychology. (3) Three hours of lecture per week. Survey of clinical neuropsychology, including frontal subcortical and neocortical systems and the relation of theory to clinical technique. (F,SP)

231D. Minority Mental Health. (3) Three hours of lecture per week. Overview of concepts and research findings relevant to understanding and contributing to the solution of the particular mental health problems of ethnic minority communities.

231E. Expectations and the Prevention of School Failure. (3) Three hours of lecture per week. Examination of the theory and research on expectancy processes in the classroom and in schooling, with particular focus on classroom and school practices which enhance the socialization of instruction and promote the development of competence in children.

232. Cognitive, Behavioral, and Emotional Assessment of Children. (3) Three hours of lecture per week. This course will feature theoretical and clinical issues pertinent to assessment of children. Topics to be covered include the nature of intelligence and its measure in IQ testing, the use of checklists and structured interviews related to behavioral and psychological evaluation, and self-report instruments related to internalizing disorders (e.g., anxiety, depression). Graduate students in clinical psychology will receive first priority for course enrollment.

233A-233B. Clinical Assessment: Theory, Application, and Practicum. (3,3) Three hours of lecture per week. Prerequisites: First-year status as graduate student in clinical psychology or enrollment in limited training in clinical psychology. The clinical interview will examine theoretical and clinical issues pertinent to assessment of children. Topics to be covered include the nature of intelligence and its measure in IQ testing, the use of checklists and structured interviews related to behavioral and psychological evaluation, and self-report instruments related to internalizing disorders (e.g., anxiety, depression). Graduate students in clinical psychology will receive first priority for course enrollment.

234A. Contemporary Psychoanalytic Theory. (3) Three hours of lecture per week. Contrast and evaluation of various models of contemporary psychoanalytic theory, including the models’ basic theory of mind, how motivation and behavior are understood, how change in symptoms or personality can be brought about, and the relation of theory to clinical technique. Consideration of the scientific status of clinical constructs and attempts to verify them through quantitative methods.

234B. Children’s Therapy 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 the research and theoretical frameworks for and community approaches to the reintegration 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. Exploration of selected features of cognitive behavior therapy; basics of several cognitive-behavioral theories; evidence of efficacy and effectiveness of methods; measurement of progress, conceptualizing, and treating patients; theories, methods, and efficacy evidence for several disorders, primarily anxiety and affective disorders.

235. Clinical Research. (3) Three hours of lecture per week. Strategies of research investigation, methods of gathering and interpreting data; case studies from the research in progress of participants in the seminar.

237A. Intervention: Adult Psychotherapy. (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. Psychological intervention in the treatment of adults. (F,SP)

237B. Intervention: Child and Family Therapy. (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. Psychological intervention with children, couples and families. (F,SP)

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. Psychological assessment of children and adults. (F,SP)

237E. Intervention: Decision Making. (3) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Limited to second and third year clinical psychology students or consent of instructor. Issues in decisions about providing psychological services to individuals, families, groups and social systems. (F,SP)

237F. Intervention: Couples Therapy. (1) Course may be repeated for credit. Two hours of seminar per week. Prerequisites: Limited to second and third year clinical psychology students or consent of instructor. Psychological intervention with couples. (F,SP)

237G. Intervention: Specialty Clinics. (1) Course may be repeated for credit. One hour of seminar per week. Prerequisites: Limited to second and third year clinical psychology students or consent of instructor. Psychological intervention with and evaluation of specially designated populations.

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. Seminar will review major areas of intervention 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 discussions. Required course for all students in the clinical graduate program. (F,SP)

Developmental Psychology

C240A. Proseminar: Biological and Perceptual Development. (3) Three hours of lecture per week. Survey of the biology of the nervous system and behavior; the cellular interactions during development in animals and humans, including neurogenesis, synaptogenesis, cell death and synapse elimination; perceptual development, including development of the eye and ear, of the central visual and auditory pathways, and of visual and auditory perception; and the genetic and experiential determinants of neural and perceptual development. Also listed as Vision Science C240.

240B. Proseminar: Emotional, Social and Psychopathological Development. (3) Three hours of lecture per week. Current theory and research on the origins and maintenance of normal and pathological socioemotional development in infancy. Exploration of biological, psychological, familial, and cultural factors affecting socioemotional development through childhood and adolescence. Focus includes how normal or pathological trajectories are maintained in some children, with particular shifts into or out of clinically diagnosable disorders.
290E. Perception. (2)
290G. Language and Communication. (2)
290H. Developmental. (2)
290J. Personality. (2)
290K. Clinical. (2)
290M. Industrial. (2)
290P. Additional Seminars on Special Topics to Be Announced. (2)
290Q. Cognition. (2)
290Z. Seminars. (Special section)
292A-292B. Introduction to the Profession of Psychology. (2,2) Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. 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 describe current developments in their areas. The course will also cover topics in professional development (e.g., scientific writing, convention presentations, journal review processes, professional and scientific ethics, and special issues facing women and minority psychologists). Required of all first-year graduate students.

292A-292B. Second-Year Seminar on Professional Development. (2) Two hours of seminar per week. Formerly 293A-293B. 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 committee, identifying career options, and strategies for professional advancement. This seminar will be offered each semester, and all participants will select topical areas for discussion. The seminar will use a variety of formats, including panel discussions, guest lectures, and small group discussions.

293. Second-Year Seminar on Professional Development. (2) Two hours of seminar per week. Formerly 293A-293B. 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 committee, identifying career options, and strategies for professional advancement. This seminar will be offered each semester, and all participants will select topical areas for discussion. The seminar will use a variety of formats, including panel discussions, guest lectures, and small group discussions.

299. Research. (1-12) One to two hours of colloquium per week. Must be taken on a satisfactory/unsatisfactory basis. Current issues in special areas of psychology presented weekly by announced speakers.

299. Directed Study. (1-12) Course may be repeated for credit. Individual conference. Special study under the direction of a member of the staff.

299. Research. (1-12) Course may be repeated for credit. Individual conferences. Individual research.

602. Individual Study for Doctoral Students. (1-8) 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 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.

Professional Courses

300. Teaching Psychology. (2) May be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This course will provide training in a variety of teaching techniques, will review relevant pedagogical issues, and will assist graduate students in mastering their initial teaching experiences.

301. Supervision for Teaching Psychology 2. (2) May be repeated for credit. Two hours of seminar per week. Must be taken on a satisfactory/unsatisfactory basis. This course will provide training in a variety of teaching techniques, will review relevant pedagogical issues, and will assist graduate students in mastering their initial teaching experiences.

401A-401B. Clinical Internship (Off Campus). (1-12;1-12) Credit and grade to be awarded on completion of internship appointment. Individual conferences. Prerequisites: Acceptance to candidacy, consent of instructor. Supervised teaching experience for graduate student instructors of Psych 2. (F,SP)

Public Health (Graduate School of Public Health)

Office: 19 Earl Warren Hall, (510) 642-6531
Dean: Stephen Shortell, Ph.D.
Associate deans:
Z. Sably, Dr.P.H.
Denise Herd, Ph.D.
Teh-wei Hu, Ph.D.

Professors:
Barbara F. Abrams, Dr.P.H. University of California, Berkeley, Nutritional epidemiology, dietary methodology, maternal and child nutrition
Glady's Block, Ph.D. John Hopkins University. Nutrition and cancer prevention, vitamin C
Joan R. Bloom, Ph.D. Stanford University. Design and evaluation of community health programs
W. Thomas Boyd, M.D. Baylor College. Social and behavioral epidemiology, developmental psychology
Patricia A. Buffler, Ph.D. University of California, Berkeley. Cancer epidemiology
Raj A. Cates, Ph.D. Syracuse University. Economic and social stress in the health of populations
Leonard J. Duhl, M.D. Albany Medical College. Health and healing, social policy, social change
Brenda Lekucki, Ph.D. Columbia University of New York. Human behavioral toxicology/teratology, neuropsychology, perinatal epidemiology
Richard G.A. Feachem, Ph.D. University of New South Wales. International health policy and public health
Paul J. Gertler, Ph.D. University of Wisconsin. Economics and finance of health and health care markets, both domestic and international
Jeffrey B. Gould, M.D. University of Rochester. Epidemiology of pregnancy outcome, interventions to improve pregnancy outcome
Helen Ann Hafkin, Ph.D. Brandeis University. Health-care utilization and expenditure policy, economics of health services
S. Katherine Hammond, Ph.D. Brandeis University. Exposure assessment for occupational and environmental health studies
Ernest B. Hook, M.D. New York University. Cytogenic epidemiology
Teh Wei Hu, Ph.D., University of Wisconsin. Techniques in health economics to support specific program evaluation and policy analysis.

Nicholas P. Jewell, Ph.D., University of Edinburgh. Biostatistics and applications of statistical methods in epidemiology.

James S. Liu, Ph.D., Cornell University. Nervous System Development in Mice: Genetic and Neuroanatomical Basis of Motor Development.

Cynthia L. Parks, Ph.D., University of California, Berkeley. Social support and health policy for the aged.

Edward E. Porth, Ph.D., University of Washington. Infectious diseases, vaccine development, and policy.

Daniel Potrykus, Ph.D., University of Washington. Micronutrient deficiencies, cell biology, and nutrition.

Arthur L. Reingold, M.D., University of Chicago. Epidemiology of infectious diseases, control of diseases in travelers.

Lee W. Riley, M.D., University of California, San Francisco. Tuberculosis, emerging infections, and bacterial pathogenesis.

James C. Robinson, Ph.D., University of California, Berkeley. Occupational environmental health policy, organization, and economics of the health care system.

Thomas G. Randall, Ph.D., Stanford University. Relationship of social factors to health behavior, health status, and the use of services.

Zaid M. Saul, Ph.D., Pennsylvania State University. International nutrition, policy and planning.

William S. Sawyer, Ph.D., Purdue University. Aging, social policy.

Richard C. Neighgheller, Ph.D., New York University. Health economics, the impact of financing on healthcare delivery.

Vijay Srinivasan, Ph.D., University of California, Berkeley. Application of data analysis and graphical methods to preventive and epidemiological problems.

George F. Senabasura, D.Crim., University of California, Berkeley. Epidemiology of genetic variation in human and microbial populations; forensic science.

Stephan M. Shimk, Ph.D., University of Chicago. Evaluation of strategic change in health care.


Kirk E. Smith, Ph.D., University of California, Berkeley. Application of risk assessment techniques to energy and chemical production and use in developing countries.

Martin T. Smith, Ph.D., St. Bartholomew’s Hospital Medical College (London). Occupational health toxicology.

Robert S. Spear, Ph.D., Cambridge University. Engineering aspects of environmental and occupational health risk.

Richard L. Stephens, Ph.D., University of Washington, Seattle. Molecular and epidemiological studies of Chlamydia trachomatis, the role of surface antigens in host-parasite interaction.

in New Zealand. Occupational and environmental epidemiology. Infection and disease, aging.

Michael B. Tarr, Ph.D., University of California, Los Angeles. Computer-intensive model-free statistics.

Mark J. Van der Laan, Ph.D., University of Utrecht. Application of risk assessment techniques to energy and environmental and epidemiological problems.

Eva Harris, Ph.D., University of California, Berkeley. Social and cross-cultural issues in migration and health.


Geri Houston, Ph.D., Yale University. Ethical and philosophical perspectives of health care.

Eva Harris, Ph.D., University of California, Berkeley. Pathogenesis, survival analysis, molecular epidemiology of infectious diseases; appropriate and sustainable technology transfer.

*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
‡Fellowship of the Institute of Medicine
§Recipient of Distinguished Achievement Award

Overview

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 understanding of the theory and mechanisms of the 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, informational, and administrative and policy sciences. In the School of Public Health, these and other disciplines focus on health problems of particular populations, selected diseases, and disabilities, or issues associated with the application of resources to public health systems. SPH faculty, support resources, and curricula 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 the fundamental disciplines, apply them to problems faced by human populations, and provide the interdisciplinary context in which future public health practitioners and scholars may develop their roles.

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 nutrition.

The M.P.H. curriculum is based on a comprehensive body of knowledge in the field of public health and its related disciplines—biostatistics, epidemiology, and evaluation of significant problems in public health practice.

Programs of study leading to the following academic degrees are administered by groups of faculty from the School of Public Health and other departments:

- Biostatistics—M.A., Ph.D.
- Environmental Health Sciences—M.S., M.S./Ph.D., Ph.D.
- Epidemiology—M.S., Ph.D.
- Health Services and Policy Analysis—Ph.D.
- Infectious Diseases and Immunity—Ph.D.

Joint Medical Program—M.S.

Applications for admission to the School of Public Health (SPH) in the fall semester only are invited. That deadline also applies to fellowship and stipend applications. The deadline for receipt of all applications, August 1. That deadline also applies to fellowships and stipends.

Applications for admission to the School of Public Health (SPH) are accepted for the fall semester only because of the sequencing of courses. Both the School of Public Health and Graduate Division require a separate set of application materials. All applicants should return all application documents (both School of Public Health and Graduate Division) in one packet to Student Services and Admissions, School of Public Health. The deadline is December 1. That deadline also applies to fellowships and stipend applications.
For further information about the School of Public Health, go to http://sph.berkeley.edu or visit or write the School of Public Health, University of California, Berkeley, 19 Earl Warren Hall #7360, Berkeley, CA 94720-7360. E-mail: sphiinfo@uclink.berkeley.edu.

Lower Division Courses

14. Healthy People: Introduction to Health Promotion, (4) Three hours of lecture and one hour of dis- cussion per week, introduction to personal and com- munity health, drawing on physical and social sciences. Specific areas include stress, alcohol and drugs, the environment, communication, and sexuality. Readings, lectures, and dis- cussions explore key issues for students and examine those issues in the context of contemporary American society. Public health approaches to disease preven- tion and health promotion are explored for each topic. (F) Griego

24. Freshman Seminar in Public Health, (1) Course may be repeated for credit. One hour of lecture/discus- sion per week. Sections 1-2 to be graded on a let- ter-grade basis. Sections 3-4 to be graded on a pass/not pass basis. Seminar format. Freshman and sophomores offered lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-semi- nar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP) Staff

39. Freshman/Sophomore Seminar, (2-4) Course may be repeated for credit as topic varies. Priorly given to freshmen and sophomores. Seminar format. 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 pass/not pass basis. Freshman and sophomores offer lower-division students the opportunity to explore an intellectual topic with a faculty member and a group of peers in a small-semi- nar setting. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP) Staff

97. Field Study, (1-4) Course may be repeated for credit. Variable format. Must be taken on a passed/not passed basis. Prerequisites: Lower division standing. Supervised experience relevant to specific aspects of public health in off-campus organizations. Regular in- dividual meetings with faculty sponsor and written re- ports required. (F,SP) Staff

98. Directed Group Study, (1-4) Course may be repeated for credit. Enrollment is restricted; see the In- troduction to Courses and Curricula section of this cat- alog. Variable format. Must be taken on a passed/not passed basis. (F,SP)

99. Supervised Independent Study, (1-4) One to four hours of study per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. (F) Harris

Upper Division Courses

C102. Bacterial Pathogenesis, (3) Three hours of lec- ture per week. Prerequisites: Molecular and Cell Bi- ology 100, 102 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 pathogens of mamm- als, but there will be some discussion of viral and protozoan pathogens. There will be an emphasis on experimental approaches. The course will also include some aspects of bacterial genetics and physiology, im- mune response to infection, and the cell biology of host-parasite interactions. Also listed as Molecular and Cell Biology 100C and Plant Biology 1003. (SP) Port- nay

103. Drugs, Health, and Society, (2) Two hours of lecture and one hour of discussion per week. Intro- duces undergraduates to concepts basic to under- standing the role of drugs in society. Benefits of drug use, health and society. Using a broad multi-disciplinary perspective, examines legal and illegal drugs and their effects on personal and community health. Prevention of drug problems at the policy, community, organiza- tion, and individual levels will be examined. (SP) Griego

104A-104B. Health Promotion in a College Setting, (2,3) Course may be repeated for credit. One and one- half hour of lecture per week and one hour of seminar every other week. Credit and grade to be awarded on completion of sequence. Must be taken on a pass/not pass basis. Prerequisite: Consent of in- structor. Topics include health promotion, medical self- care, and delivery of health care service. Through a combined theoretical and practical approach, topics are covered as they apply to the campus community. The course is divided into three sections corresponding to particular campus health field experiences in which students may be involved. (F) Griego

105. Policy, Planning, and Evaluation of Health Promotion in a College Setting, (3) Course may be repeated for credit. Three hours of lecture/discussion per week. Prerequisites: Upper division or consent of instructor. Theory and practice of policy, plan- ning, implementation, and evaluation of health pro- motion programs in a college setting. Comparison of different methodologies (peer education, teaching, problem-posing, organizational change), content areas (stress, nutrition, alcohol, drugs, AIDS, sexuality, women’s health, self-care, health services), and set- tings (clinical, classroom, living room, campus). (F,SP) Griego

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 understanding the interconnectedness be- tween personal health and the larger context of soci- ety and the impact to community. Classes will cover the principles of public health and social justice, health promotion philosophy, the concept of equity, current public health issues, community health issues, diver- sity and oppression theories. Students are expected to participate in a community health service 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, fitness, 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) Griego

130AC. Aging, Health, and Diversiy, (3) Three hours of lecture per week. Formerly 130. The goal of this seminar is to provide a critical examination of ag- ing and health from a broad, multicultural perspective. Personal economy and life course perspectives will be among the key theoretical frameworks used to ex- aminate how race, class, culture, gender, and sexual ori- entation interact to help shape and determine 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 sociological per- spective with attention to their salience in a multicultural society. The course will be offered at the under- graduate (upper-division) level to meet the American Cultures requirement, but is also open to graduate stu- dents and will serve as an elective for the new Multi- cultural Health Speciality Area in the School of Public Health. This course satisfies the American cultures re- quirement. (SP) Minker

131AC. Race, Ethnicity, and Health in America, (3) Three hours of lecture per week. Race, Ethnicity, and Health in America will address the need to integrate public health theory, values, and practice into a curriculum that ac- knowledges and values the health practices and philosophies of African American, Chicano/Latino, Asian, and Native American communities. By exam- ining the historical and cultural prerequisites to health for each ethnic group, the course will allow stu- dents to fully appreciate the distinct contributions of each group. This course satisfies the American cul- tures requirement. (SP) Griego

140. Introduction to Risk and Demographic Statis- tics, (4) Three hours of lecture and one hour of dis- cussion per week. Prerequisites: MATH 110A or 115. Statistical and evaluation methods in studies of human mortality, morbidity, and natality. History of statistical terminology and notation, critical appraisal of registry and census data, measurement of risk and introduction to life tables. Computational systems and the analysis of mass data. (F)

142A. 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. Descriptive statistics, probability, probability distributions, point and interval estimation, hypothesis testing, chi-square, correlation and re- gression with biomedical applications. (F) Selvin

142B. Introduction to Probability and Statistics in Biology and Public Health, (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 142A or equivalent. Regression, analysis of variance, bioassay, analysis of covariance, design of experi- ments, and nonparametric analysis with biomedical ap- plications. (SP) Lahiff

143. Introduction to Statistical Methods in Com- putational and Genomic Biology, (4) Three hours of lecture and one hour of laboratory per week. Prerequisites: 142A, Statistics 134, 135 or consent of in- structor. Statistical and computational methods have become an integral part of the analysis of biological data. This course will introduce students to the design and analysis of genomic experiments. Bi- ological questions to be considered include, but are not limited to, modeling meiosis, genetic mapping, nu- cleotide and protein sequence analysis, molecular evo- lution, computational gene finding, protein structure prediction, genetic and biochemical pathways, DNA microarray experiments, database searches. Related statistical topics to be introduced in a biological context include basic notions in probability theory and stochas- tic modeling, likelihood analysis, hypothesis testing, lin- ear models, model selection, classification, resampling. Access to an efficient, portable, and distributed sta- tistical computing environment is an essential aspect of the analysis of genomic data. The course will also provide a survey of statistical computing resources for the analysis of biological data, with emphasis on the R language and environment. (SP) Dubit

150A. Introduction to Epidemiology, (2) Two hours of lecture and one hour of discussion per week. For- merly 150. This course introduces epide- miology in the context of critically interpreting stud- ies of health in human populations. Basic concepts addressing the design, implementation, analysis, and interpretation of epidemiological studies are covered, including observational and experimental methods, study group selection, exposure and outcome mea- surement, and interpretation of associations. (SP) Abrams

150B. Introduction to Environmental Health, (2) Two hours of lecture and one hour of discussion per week. Prerequisites: Background in biological sciences and a course in biostatistics required or consent of in- structor. Formerly second half of 150. The course will present the major human and natural activities that lead to releases of hazardous materials into the envi- ronment as well as the causal links between chemical, physical, and biological hazards 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. The overall role of envi- ronmental risks in the pattern of human disease, both na- tionally and internationally, will be covered. The engi- neering and policy strategies, including risk assessment, used to evaluate and control these risks will be introduced. (SP) K. Smith

150C. Introduction to Public Health Biology, (2) Two hours of lecture per week. The biology of health and disease is taught from an evolutionary perspective. Topics include the biologic basis of human heredity,
150. Introduction to Health Policy and Management. (2) Two hours of lecture/discussion per week. Prerequisites: Not required for HPM students. This course is designed to introduce students to the health policy making and health care organizations in the United States. Students will be introduced to concepts from public policy, economics, organizational behavior, and political science. Students will also be introduced to current issues in U.S. health policy and the present organization of the U.S. health care system. This course is not designed to provide students with the policy analysis or management tools necessary to manage the provision of public health or medical care services. Further course work in HPM is necessary to develop these skills. (F) Catalano

150E. Introduction to Social and Behavioral Health. (2) Two hours of lecture per week. This course introduces students to the technology of air pollution dealing with the environmental and occupational health of working adults. The course will cover the social and behavioral determinants of health status, various approaches of public health interventions. Community based groups designed to improve the health status of designated groups. (SP) Morgan

162A. Public Health Microbiology. (3) Three hours of lecture and two hours of seminar per week. Prerequisites: One year each of college-level biology and chemistry. Introduction to properties of microorganisms; their relationships with college-level biology and chemistry. Further course work in HPM is necessary to develop these skills. (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 with 162A. (F) Lopez

171B. Toxicology. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Introduction to toxicology covering basic principles, dose response, toxicity testing, chemical metabolism, mechanisms of toxicity, carcinogenicity, interpretation of toxicological data for risk assessment, and target organ toxicology. Also listed as Nutritional Sciences C119. (F) Smith

171, Air Pollution. (3) Three hours of lecture per week. Prerequisites: Chemistry 1A; Mathematics 1B; Physics 7A. Formerly 171. An introduction to the technological issues pertaining to air pollution dealing with air pollutants, effects, sources, combustion processes, control technology and abatement. (F) Koshland

171T. Toxicology II. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Advanced issues in modern-day toxicology including molecular aspects of chemical carcinogenesis, genetic toxicology, toxic effects on the immune, reproductive, and other organ systems. (SP) M. Smith

172. Introduction to Pharmacology and Toxicology. (3) Three hours of lecture per week. Prerequisites: Organismal and upper division biological science. Principles of drug action and toxicity. Brief survey of major groups of chemicals used in therapy. (SP) Wei

180. Topics in Human Sexuality. (2) Two hours of seminar per week. This course is designed to provide students with the opportunity to formulate a personal sexual identity through exploration of the human sexual experience. Through discussion and participation, students will have the opportunity to explore a variety of topics related to human sexuality. (F) Potts

182. Understanding War: The Biological Origins of Human Warfare. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course will contrast the biosocial paradigm of understanding human warfare. It will outline the history of raids, warfare, and terrorism from prehistoric times to September 11, 2001. It will outline recent observations on the behavior of the great apes that may illuminate the human pre-disposition to raids and warfare. (F) Potts

183. The History of Medicine, Public Health, and the Allied Health Sciences. (3) Three hours of lecture per week. Prerequisites: Knowledge of (and preferably a college level course which covered basic aspects of mammalian) physiology and anatomy. Graduate or upper division undergraduate status. This course will examine the historical developments of social and scientific responses to human disease from their beginnings to their current roles as major forces in modern society. It will consider the evolution of diagnoses, treatment, and prevention of human morbidity and death from both a humanitarian and scientific perspective. It is pre-medical, pre-dental, and other students preparing for careers in public health, nursing, optometry, or the other health sciences, students interested in public policy and health-related law, and students of history of the other humanities who wish an overview of medicine and health from a broad historical perspective. (SP) Hook

197. Field Study in Public Health. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass basis. Prerequisites: Upper division standing. Supervised experience relevant to specific aspects of public health in off-campus organizations. Regular individual and collective meetings with faculty sponsor and written reports required. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass basis. Prerequisites: Upper division standing. (F,SP) Staff

199. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass basis. Enrollment restrictions apply. May be repeated for credit. Course and curricula section of this catalog. (F,SP) Staff Graduate Courses

200. Overview of Public Health. (2) Four hours of lecture for seven and one-half weeks. Prerequisites: Graduate standing in public health. This course provides an introduction to the public health field. Various sections of the course address the mission of public health, fundamental value conflicts regarding public health in American society, social and behavioral determinants of health status, various approaches to health promotion and disease prevention, and the development of public health policies. The course has a primary focus on the United States, with limited attention to other industrialized and non-industrialized countries. (F) Catalano

200A. Current Issues in Public Health Ethics: Research and Practice. (2) Two hours of lecture per week. Prerequisites: Graduate standing. An analysis of the on-going ethical issues in public health research and practice, e.g., informed consent, privacy and confidentiality, dignity and rights of subjects, deception, coercion, risks of vulnerable populations, research fraud, and misuse of ideas, against the background of actual dilemmas and experience of public health professionals. (F) Halpern

C200B. Conceptual Dilemmas in Public Health and Medicine. (2) Two hours of seminar per week. This course addresses conceptual dilemmas confronted by both public health and medicine in studying health and disease. While many of these dilemmas or problems form a largely unseen "back-grounder" in the practice of the field, they are part of the theoretical foundation brought to epidemiologic studies. Readings are drawn from the epidemiological, biological, social, and historical literature. Topics include problems in assigning causation; definitions of disease and disorder; mind and body; evolutionary biology and the health sciences; how society manages risk; the role of the press in communicating health information; and the nature of suffering and the goals of public health and medicine. Also as Health and Medical Sciences C271. (F) Boyle, Reingold

200C. Public Health Core Breadth Seminar. (2) Two hours of lecture per week plus optional 45-minute discussion. Prerequisites: Graduate standing. This course is designed to provide students with a broad overview of the field of public health and a basic understanding of the contributions of the environmental, behavioral, and management sciences to the practice of public health. A central organizing principle of the course will be the concept of risk, particularly as this relates to an analysis of public health and the environment, behavior, and the management sciences. By the conclusion of this course, students will be able to discuss and describe seminal as well as current theories and methods underlying societal efforts to manage agent and place-specific toxins; 2) manage behaviors that increase individual and collective risk of illness; 3) evaluate organizations that manage health as individual and collective risk taking; and 4) use the power of the state to manage toxins as well as individual and collective risk taking. (F) Catalano, Pies, Satiriano, Smith

200D. Applied Public Health: Putting Theory Into Practice. (2) Two hours of lecture per week. Prerequisites: 142A, 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 experiences. 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 effort to large groups for feedback and evaluation. (SP) Winkelschef

201A. Social and Cultural Perspectives in Public Health. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Using major social and cultural theories, this course introduces students to the public health problems in America is the purpose of this course. The course has three objectives. First, to familiarize students with the use of cultural theories for analyzing specific public health problems; second, to increase understanding about how social and cultural factors shape the perception, recognition, and response to public health problems; and, third, to demonstrate how each public health professional can benefit from social science knowledge and research related to their practice or research interests. (SP) Morgan

201C. Health, Behavior, and the Family. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course focuses on the relationships between health and the theory, history, types, ethics, and approaches of public health interventions. Community level interventions and multidisciplinary approaches receive special emphasis. The course stresses a rigor-
ous critique of the outcomes of interventions and practical ways to improve them. Students take an active role in the planning and conduct of the course. (SP) Neuhouser, Syme

202A. Social Movements and Public Health. (3) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. An examination of social movements and their historical context with a focus on their development in social and political arenas. (SP) Herd

202B. Ethnic and Cultural Diversity in Health Status and Behavior. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Focus on ethnic and cultural diversity in health status and behavior examined in context of relevant social and cultural groups in non-Western societies. Health status and behavior examined in context of relevant social and anthropological theory (social class, acculturation, political economy) and the role of socio-cultural background on concepts of health, illness, and health-seeking behavior. Implications for planning public health programs and policies. (SP) Herd

202C. Substance Abuse Prevention. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Patterns of use and social responses to alcohol, tobacco, and other psychoactive drugs. Historical, psychological, and social perspectives. (SP) Staff

202D. Violence Prevention: Community-Based Public Health. (3) Course may be repeated for credit. Two hours of lecture and one hour of discussion per week. An overview of violence as a public health problem, including specific sessions on data, research, and surveillance issues; program development; policy; and various approaches to the prevention of violence. Educational methods include lectures, presentations by public health role models who practice violence prevention in the community, class exercises, and class discussions. (SP) Pote

202F. Advanced Social and Cultural Theory. (3) Three hours of seminar per week. Prerequisites: 201A, doctoral student status, and consent of instructor. This course aims to introduce students to the development of sociological, anthropological, and political economic theories to public health issues. Particular emphasis is placed on providing theoretical foundations for dissertation research. (SP) McFadden

203A. Theories of Health and Social Behavior. (3) Three hours of lecture per week. Prerequisites: Background in social and behavioral sciences. Consent of instructor. The course provides 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 examining the strengths and weaknesses of particular theories for addressing complex health problems and building effective community-based intervention programs. (SP) Herd

204A. Mass Communications in Public Health. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Examines the role of mass media in advancing public health goals. Reviews mass media theories in general, and theories of the news media in particular. Provides an understanding of the role of mass 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 wide range of public health, media reform, and public policy sources. (SP) Staff

204B. Training as an Educational Methodology. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Presents an overview of the role of training in social work education, as a field and a process. Examines the types of educational situations in which training, as an intervention, is best applied. Analyzes training problems, including the justification of training as an educational methodology. (SP) Pies

204C. Occupational Health Education. (2.3) Two hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Participants from various disciplines survey current issues in occupational health: the scope of hazards faced by workers; an overview of social, legal, and political forces that affect worker safety and health; and the implementation of health education programs designed to prevent occupational illness and injury; and practical skills for planning and implementing effective occupational health programs. (SP) R. Baker

204D. Community Organization and Community Building for Health. (3.4) Three hours of lecture per week. Prerequisites: Consent of instructor. This course emphasizes community organization and community building as major approaches to creating healthy communities and fostering broader social change. It 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) Minker

204E. Multicultural Competence in Public Health. (3) Three hours of lecture per week. Prerequisites: Enrollment in Multi Cultural 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 assessment tools. Understanding the basic assumptions of the public health system, discovering one’s own cultural biases, and learning how to examine such values diversity as well as respects cultural issues related to approach and process. Will enable the student to be more effective 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) Fratichelli

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 material will be drawn from lectures and fieldwork, with emphasis on multidisciplinary planning. Assessment of problems, setting goals and objectives, designing activities, implementation and evaluation. (SP) Guen- delman, Bloom

206A. Measuring Dietary Intake and Nutritional Status. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Concepts, methods, and the determination of nutritional status; application of methodologies for determining and interpreting data; technical, social, and political implications of nutritional assessments and related community needs. (SP) Block

206B. Food and Nutrition Policies and Programs. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course focuses on the relationships and state policies and the various types of intervention programs aimed at improving the nutritional status of the American people. These include food assistance programs, food and nutrition education initiatives, and food quality and safety regulatory activities. Emphasis is on the legislative history, policy, and the policy aspects of their development, and their objectives, design, administration, implementation, and evaluation. (F) Wang

206C. Nutritional Epidemiology. (2) Two hours of lecture for ten weeks. This course develops the ability to read published nutritional epidemiology research critically. Basic research methods in nutritional epidemiology will be reviewed, and issues in design, analysis, and interpretation of nutritional epidemiology will be addressed. This will be accomplished by readings and study questions, lecture/discussions, and project sets. (F) Abrams, Block

207A. Public Health Aspects of Maternal and Child Nutrition. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. An overview of nutritional requirements and problems during pregnancy, lactation, infancy, child-, childhood, and adolescence. Introduction to nutritional assessment of individuals and communities. Discussion of programs, policies, and activities to improve nutritional status for mothers and children. Course is intended for students of Maternal and Child Health, Social Welfare, and other disciplines as well as nutrition students. (F) Abrams

C07B. International Food and Nutrition Policies. (3) Three hours of lecture per week. Prerequisites: Graduate standing and consent of instructor. An interdisciplinary course reviewing various international nutrition policy, and advocacy issues that are dominated by nutrition policies designed to solve them. Topics include famine and intervention measures, food aid, feeding programs, food fortification, nutrient supplementation, price policies, and nutrition education. The course surveys the world food situation, emphasizing the links between food production, food consumption, and government policy. Special attention will be given to the effect of income and prices on food demand and to social and economic factors affecting food consumption within and among households. Also listed as Agricultural and Resource Economics C271. (SP) Saby

209. Analysis for Community Health Science. (2) One and one-half hours of lecture and two hours of laboratory per week. Prerequisites: Introductory statistics course and working knowledge of personal computer. This course will equip students to formulate hypothesis based on health belief theories; test hypotheses and analyze data using SPSS-PC; and report, interpret, and discuss results. Commands will include data definitions, recode, count, frequency, crosstabs, correlation, t-test, one-way ANOVA, and multiple regression (optional). Differences between the mainframe and the PC will be highlighted. Exercises will include creation of a data file, recording of response categories, creation of new variables, correction for false positives and confounders, age calculation, and basic scale construction. We will use national survey data from the alcohol beverage container warranty label project. (SP) Kaskutas

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 course 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) policies and practices in MCH. The course will include discussions with community professionals to address practical problems, public policy concerns, current issues in MCH, and current research in MCH. In addition, major health problems facing women, children, and adolescents will be explored, including how and why these are distributed in these populations. (F) Staff

210C. Needs Assessment in Maternal and Child Health. (3) Two hours of seminar/discussion per week. Prerequisites: Graduate student in Public Health. Formerly 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 a community. The course is designed to help students anticipate working in situations that involve measuring health problems in communities, planning for health services, and identifying and making decisions about the distribution of community health resources. (F) Guen- delman

210D. Reproductive and Perinatal Epidemiology. (2) Two hours of lecture per week. Prerequisites: Graduate standing in
epidemiology or consent of instructor. Research methods and issues in perinatal and reproductive epidemiology, emphasis on methods of study. Specific adverse reproductive outcomes, risk factors, and prevalence will be discussed. Will include critiques of the stages of development and techniques of proposal writing. (SP) Eskenazi

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 the basis for human rights issues 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 (1) documenting the health and social consequences of human rights violations and war; (2) treating survivors of abuse; (3) addressing specific human rights concerns of women and children; (4) identifying the impact of health policy on human rights, and (5) participating in human rights education and advocacy. The course will also examine issues of universality of human rights and cultural relativism and the role of accountability for the past abuses in prevention. (F) Iacopino, Weinstein

212A. International Maternal and Child Health. (2) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. The course will examine the roles of health status of mothers, infants, and children on worldwide basis; special emphasis on problems, policies, and programs affecting MCH and family planning in developing countries. (F) Hosang, Potts

212B. Review of Maternal and Perinatal Health. (2) Two hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Beginning with the physiologic processes of pregnancy, this course will examine individual and contextual risks for poor pregnancy outcome. Strategies used to evaluate and improve perinatal outcome at the personal and institutional levels will be examined. (SP) Staff

212C. Health and Social Policy in Mexico and Latin America. (2-3) Two hours of lecture and one hour of discussion per week. Critical issues in health and social welfare policies and structures in Latin America. Various theories of development are considered and related to health and social well being. Themes are examined from a multidisciplinary perspective including demography, epidemiology, family structure, environmental influences, occupational health, and migration. (SP) Guendelman

212D. International Health Specialty Area Core Course: Epidemiology. Three to four hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. The International Health Core Course is a survey course for students who intend to work in international health. Current issues in health and development as they apply to international development projects funded by international agencies will be discussed. The course begins with a characterization of health issues in a sample of representative developing countries. The structure, function, and funding arrangements of international agencies are examined. The role of the consultant in international health and the basis for sustainable community-based programs is discussed. Students are required to write a proposal for projects to be funded by agencies. These proposals are used as vehicles for demonstrating the complexities of the relationships between donors and recipients. A “student committee” is used to select proposals for funding based on different evaluation criteria.

213A. Family Planning, Population Change, and Human Rights. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. The course looks at the successful family programs as well as those that have resulted in creating survivors of abuse; (3) addressing specific human rights concerns of women and children; (4) identifying the impact of health policy on human rights, and (5) participating in human rights education and advocacy. The course will also examine issues of universality of human rights and cultural relativism and the role of accountability for the past abuses in prevention. (F)

214C. Current Issues in Women’s Health. (2) Two hours of lecture/discussion 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 lifetime span; to present and 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. (F) Staff

215. Money, Management and Maternal and Child Health. (3) Three hours of lecture per week. Prerequisites: Epidemiology, statistics, graduate standing. This course will expose students to the management of budgets, money, and resources using primarily maternal and child health issues as cases and examples. It will deal with cost analysis, cost-effectiveness analysis, program budgets based upon performance and outcome measures, and setting priorities when resources are limited and an introduction to human resource management. The methods will be delineated primarily through case studies of maternal and child health programs domestically and internationally. By the end of the course, students will be familiar with the information and analysis required for decision making as well as the data and sources available for the analysis. (SP) Hosang, Walsh

217A. Aging: Value and Social Policy Issues. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of public health or related discipline. Examines key themes and issues central to understanding the complex linkages between public health education, policy, and aging. (F) Minkler

217B. Aging, Health, and Functioning. (3) Three hours of lecture per week. Prerequisites: Graduate standing. An examination of conceptual and analytic issues associated with the application of physical and cognitive functioning continuous in clinical, epidemiologic, and health services research. Special attention will be given to measures of quality of life, quality of care, and active life expectancy in studies of older populations. (F) Santarino

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 provide an overview of research, practice, and policy in the area of aging and public health. Topics will include the epidemiology of aging; social class, gender, race, and aging; nutrition and the elderly; and current health policy surrounding aging. Themes running throughout the course and the particular topics covered will include the diversity of the elderly; the importance of co-morbidity and functional health status in this population group; the relationship of 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. Weekly lectures by the faculty will be complemented 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) Santarino

218A. Research Methods: Logic and Design. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. The study of logic, theory, concepts, and methods of behavioral research as they apply to public health. (F) Staff

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, McKone

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 research. It is intended for those who have already completed an introductory course on program evaluation (such as 218B), and it will be especially useful for those who are interested in careers as policy analysts or teachers of evaluation. By the completion of this course, students will be able to (1) explain the stages of development 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 evaluation theorists and discuss the strengths and weaknesses of each approach; (3) identify the theoretical perspectives that have influenced the implementation of published evaluation studies; (4) distinguish the types of meta-evaluations: an audit evaluation, a critical review and re-analysis, a research synthesis, and a meta-analysis; (5) conduct a meta-evaluation; and (6) present a meta-evaluation to 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 theoretical and methodological components involved in various aspects of qualitative research. (F) Morgan

219B. Advanced Methods: Interview and Questionnaire Design. (3) Three hours of lecture/discussion per week. Prerequisites: Doctoral student in public health or a related discipline, or consent of instructor. The study of interviews, and other methods used in health and related surveys. (SP) Kaskutas

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) Minkler

220A. Health Politics and Policy. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. 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, rules, and representation. (SP) Schaufele

220B. The Role of Public Health in Community Planning. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. The theories and methods of community planning and their implications for public health are described. Students are also introduced to the opportunities available to public health professionals to participate in the planning process. (F,SP) Catalano

220C. Health Risk Assessment, Regulation, and Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Graduate standing. 250A, 270A-270B recommended. This course introduces the basic scientific components of environmental and occupational health risk assessment and describes the policy context in which decisions to manage environmental health risks are made. The course presents the quantitative and qualitative methods used to assess the health risks associated with exposure to toxic chemicals, focusing on the four major components of risk assessment: hazard identification, dose-response assessment, and risk characterization. Students use these tools to develop their own risk overview of occupational and environmental hazards with consideration of how hazard, risk, cost, and benefits are considered. Current political controversies about environmental policy will be examined. (SP) Hambleton, Rundall

221A. The City and Health: Emphasis on Oakland. (3) Two hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. Forrom 221A-221B. A history of the relationship of urban development and the health of its...
populations. The problems of diversity, politics, participation, governance, economic development, power, and community infrastructures, planning, and policy will be emphasized. Healthy cities as an organizing framework for the “new public health” will be used as a vehicle for developing 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 course. Community’s agenda. (SP) Duhl

222. Health Planning and Policy: An International Perspective. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. An introduction to health care organization, policy, and planning throughout the world—rich and poor, centralized and decentralized. A group report will be developed for a major client dealing with international health issues. (F) Duhl

223A. Introduction to the Health Care System. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. An intensive introduction that will provide students with an understanding of the structure, financing, and special properties of health services delivery. The course will analyze business management and policy issues that drive reform efforts. (F) Staff

223B. Capstone Cases in Health Management. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instructor. This is an academic experience in health management intended for master’s degree students in the Division of Health Policy and Management who have already completed their course work. The course consists of analyses and discussions of cases highlighting complex managerial issues in health care delivery, E-health, systems and other health-related organizations. The cases used in the class will provide the student with real-world management problems, choices, and consequences. The key task for the student is to develop solutions to problems and propose actions using the information in the case. The case discussions will focus on the student’s knowledge of health organizations and the skills the student has acquired in operational management, strategic management, ethical analysis, health politics and policy analysis, and interprofessional 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 222A or consent of instructor. Students are required to have a general background knowledge of the health services system. The overall purpose of this course is to develop the know-how to manage complex health care organizations from a strategic perspective. This is accomplished by systematically addressing systemwide, organization-wide, and individual-level issues in strategy formulation, content, implementation, and performance. Emphasis is placed on the manager’s role in achieving objectives and accountability, corporate strategies, and the implementation and accountability of the strategy. Students will make a presentation on a case, which is a model of coping with health and related issues. (SP) Catalano

224A. Health Care Organizations and Environments. (3) Three hours of lecture/discussion per week. Prerequisites: Business Administration 205 or 224A and 222A or consent of instructor. Study of current approaches to the theories of innovation and change in health care. Theories of complex organizations and organizational relationships in health management. (F) Bloom

224D. Organizational Analysis of the Health Care Sector. (3) Three hours of seminar/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course examines the major theories and frameworks for analyzing health care organizations. General organizational theory course or consent of instructor. This course examines the major theories and frameworks for analyzing health care organizations. Resource dependency, contingency, population ecology, institutional, and neo-institutional, adaptation, transition-cost economics, and related theories are examined. The seminar will rely on extensive student participation. (F) Shortell

225. Legal Basis for Public Health. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Statutes, cases, and readings in the legal basis for public health, medical care administration, and law related to hospitals. (SP) Staff

226A. Health Economics. (3) Three hours of lectures/discussion per week. Prerequisites: Graduate standing or consent of instructor. This course examines the impact of market, organizational, and regulatory structures on health care and health insurance in the United States. Particular emphasis is placed on managed care, including health maintenance organizations, insurance, indemnity, and group purchasing by employers, individuals, and governmental programs. Particular topics include payment incentives (e.g., capitation), alternative forms of organization (e.g., vertical integration, networks), and ownership types (e.g., nonprofit, for-profit). The course evaluates the economic logic and incentives in competing proposals for health care reform. (F) Robinson

226B. Microeconomics of Health Care Policy. (3) Two hours of lecture and two hours of discussion per week. Prerequisites: A recent graduate 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 composition and regulation on providers and patients. Alternative models of health care system reform are presented and analyzed. (SP) Scheffer

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 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

226D. International 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 country’s health care system. Students will make a presentation on a country’s health system and write a paper. (SP) Scheffer

226E. Advanced Health Economics. (3) Three hours of lecture 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 regulation and organizational structures as methods of governance and examines the role they play in the evolving health insurance sector. Theoretical topics include vertical integration, relational contracting and network forms of organization, principal-agent relations, the dynamics of market selection, and the politics of health care technology, 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. Research Methods for Health Services I. (3) Three hours of lecture/discussion per week. Prerequisites: Business Administration 205 or consent of instructor. An introduction to research methods. (F) Gertler

231B. Research Methods for Health Services II. (3) Three hours of lecture/discussion per week. Prerequisites: 220A or equivalent. This course introduces methods to estimate costs and effectiveness in health services. Topics include theory and empirical estimations of cost analysis, effectiveness analysis, and cost-effectiveness comparison. (SP) Hu

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

232. Doctoral Seminar in Public Health Applications of Time Series Analysis. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: 2142A and 142B (may be taken concurrently). Review of multivariate statistical methods including regression analysis, empirical applications, and model building for analyzing health services. (F) Hu

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 skills students acquire in forecasting and disease testing will be demonstrated. (F, SP) Catalano

240A. Biostatistical Methods: Advanced Categorical Data Analysis. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 220A (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 generalized linear models. Computer-based numerical methods, simulation and general implementation of biostatistical analysis techniques with emphasis on data applications. Offered odd-numbered years. (F) Chen
240B. Biostatistical Methods: Applications to Observational Survival Data. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Statistics 200A or equivalent (may be taken concurrently). An introduction to computational techniques commonly used in a variety of biostatistical applications: Newton, scoring, and EM algorithms for maximization; smoothing methods; isotonic regression; Markov chain Monte Carlo methods. Lecture topics illustrated on simple data structures, with an emphasis on observational survival analysis and genetics, and other biostatistical applications. Offered even-numbered years. (F) Jewell

240C. Biostatistical Methods: Computational Techniques with Applications to Observational Survival Data. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Statistics 200A or equivalent (may be taken concurrently). An introduction to computational techniques commonly used in a variety of biostatistical applications: Newton, scoring, and EM algorithms for maximization; smoothing methods; isotonic regression; Markov chain Monte Carlo methods. Lecture topics illustrated on simple data structures, with an emphasis on observational survival analysis and genetics, and other biostatistical applications. Offered even-numbered years. (F) Jewell

240D. 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. The ex- ploration of genetic information has revolutionized the way biological and biomedical problems are defined, approached, and ultimately solved. This course surveys techniques of probability and statistical genetics and molecular biology, from early Mendelian experiments to modern day genomic research. Biological questions will be considered, but are not limited to, modeling meiosis; genetic mapping; nucleotide and protein sequence analysis; molecular evolution; computerized gene finding; protein structure prediction; genetic and biochemical pathways; DNA microarray experiments. Related statistical topics span the entire spectrum of the discipline and include stochastic processes (Markov processes, hidden Markov models, Markov chain Monte Carlo); experimental design; like- lihood analysis; multiple hypothesis testing; linear models, least squares adjustment; classification: resampling; introduction to basic notions in genetics and molecular biology and to statistical computing resources for the analysis of biological data, with emphasis on the R lan- guage and environment. Offered even-numbered years. (SP) Dudoit

241. Statistical Analysis of Categorical Data. (4) Three hours of lecture and two hours of discussion/laboratory per week. Prerequisites: 142A or consent of instructor. Biostatistical concepts and modeling relevant to the design and analysis of multifactor cohort studies, matched and unmatched case-control studies, and in- tervention studies. Logistic regression and the analysis of 2x2 tables. (SP) Staff

242A. Biometrical Data Analysis—Pathological In- complete Data and Pattern Recognition. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 142A-142B or equivalent, or consent of instructor. Survey of classical methods; mixture, clas- sered, and stopping rules, multiple hypothesis analysis and weighting techniques, nonparametric regression, vari- ance reduction, smoothing, and equiprobability contour estimation methods and other graphical methods. Offered even-numbered years. (SP) Tarter

242C. Longitudinal Data Analysis. (2) Two hours of lecture per week. Prerequisites: 142A-142B or equivalent. Familiarity with linear regression and statistical software, preferably Splus or SAS. The course will cover the statistical methodology surrounding estimator when repeated outcome measurements are made on the same “individual”. The course will emphasize a re- gression model approach. The course will con- centrate on current outcome data and linear mod- els but we will also examine other sorts of data (e.g., binary and count data) and perhaps other nonlinear re- peated measurement models. The primary focus of the course will be from the analysis side. Lecture time will be spent both discussing the statistical methodology and techniques for implementing this methodology in both Splus and SAS. The statistical mathematical ma- terial for this course includes normal linear models, maximum likelihood estimation, Bayes estimation, mul- tivariate normal distribution and matrix algebra for statistics. Offered even-numbered years. (F) Hubbard

243A-243B. Special Topics in Biostatistics. (1-3) One to three hours of lecture/discussion per week. Current issues in biostatistics research. Topics will vary from term to term depending on student demand and faculty availability. Possible topics include classics, meta- analysis, computational methods, statistical consul- ting, covariance structure models, bootstrap and jackknife methods, artificial intelligence techniques in biostatistics. (F) Van Brun

243C. Information Systems in Public Health. (2) Two hours of lecture/discussion per week. An introduction to new information systems, such as the Inter- net and interactive television, and how they may be used to improve human health. The course has three objectives: first, to familiarize students with new in- formation technologies; second, to review how these technologies will be used by public health profession- als, consumers, health care providers, and others; and third, to study related ethical and legal issues such as privacy, access, and liability. The course is de- signed for people with minimal understanding of inter- active technologies. (SP) Van Brun

244A. Stochastic Processes in Biology and Health. (3) Three hours of lecture per week. Prerequisites: A course in linear algebra or consent of instructor. Dis- crete time processes. Topics include probability gener- ating functions; branching process, random walk, and ruin problems; random walks on graphs; renewal processes; and applications in biology and health. Offered odd-numbered years. (F) Chiang

244B. Stochastic Processes in Biology and Health. (3) Three hours of lecture per week. Prerequisites: 244A, a course in linear algebra, or consent of Instructor. Continuous time processes. Topics include the Poisson processes; birth processes, death pro- cesses, migration processes; general birth process; a stochastic model of epidemics; birth-death pro- cesses; queueing processes; Neyman-Fix processes; survival and stages of disease; finite Markov pro- cesses; and illness-death processes. Offered odd- numbered years. (SP) Chiang

245. Introduction to Multivariate Statistics. (4) Three hours of lecture and two hours of discussion per week. Appropriate for advanced masters and Ph.D. students, provides expo- sure to a wide variety of biostatistical analysis techniques with emphasis on data applica- tions. Offered odd-numbered years. (SP) van der Laan

246B. Exploratory Data Analysis. (3) Three hours of lecture per week. Prerequisites: College calculus and linear algebra. Introduction to fundamental concepts and techniques in exploratory data analysis and basic statistical inference. Material presented will focus on exploratory analysis of one and two samples. Topics include basic probability and statistical concepts, de- scriptive methods, one- and two-sample inferences, nonparametric methods, and computer-interactive meth- ods. Offered even-numbered years. (F) Chen

248. Statistical/Computer Analysis Using SPLUS. (3) Three hours of lecture per week. Prerequisites: Statistics 200A (may be taken concurrently) or 142A and 142B. Formerly 249. The material to be presented will focus on learning the programming language SPLUS, which will be taught in the context of reviewing and introducing a number of statistical meth- ods. Four topic areas that each research design are focus on implementation: descriptive methods, simulation techniques, linear models, and estimation. The goal of the course is to provide a package of statistical tech- niques along with new and advanced computer tools for implementation. (F) Selvin

249. Biostatistical/Epidemiologic Data Applica- tions. (3) Two hours of lecture/discussion per week. Prerequisites: 245 and 248. Formerly 249. This course focuses on advanced biostatistical methods applied to real data. Fifteen data sets are ana- lyzed each representing a different study design (e.g., case/control, matched data, vital statistics data, survival data). These data sets are taken from articles published in journals and illustrate the use of statistical techniques to ad- dress substantive problems. The primary goal of the course is to develop data analysis skills using statistical methods (e.g., logistic, Poisson, Cox re- gression techniques) by exploring these data sets. En-rolled students are expected to produce a brief written analysis of the data set of the week and participate in discussions of the various analytic approaches. (SP) Selvin

250A. Epidemiological Methods I. (3) Three hours of lecture and one hour of discussion per week. Prereg- isquisites: 142A (may be taken concurrently). Principles and methods of epidemiology: study design, selection, and definition of cases and controls; sampling, data collection, analysis, and interpretation of results provides an opportunity to apply methods to problem sets and to discuss issues presented in lectures. (F) Seigel, Smith, Wiemels

250B. Epidemiological Methods II. (4) Four hours of lecture and two hours of laboratory per week. Prereq- isuits: 250A or an equivalent introductory course in epidemiology or consent of instructor. This course is intended as an intermediate level course in the field of epidemiology. Topics include causal inference; measure- ment of disease rates; inferential reasoning; and study design studies including ecologic, case-control, cohort, interview trials, and meta-analytic de- signs (potential sources of bias, confounding, and ef- fect modification). Research design is explored in depth; topics in clinical epidemiology including the use of likelihood ratios, receiver operator curves, and the sensitivity, specificity, predictive value of a test; and a brief introduction to logistic regression, survival anal- ysis, and decision analysis. The readings from this course are drawn primarily from advanced epidemi- ology textbooks (Kleinbaum, Rothman, Miettinen). The course is intended to provide a firm foundation for stu- dents who will subsequently enroll in 250C. (F) Colford

250C. Epidemiological Theory. (3) Four hours of lec- ture and two hours of laboratory per week. Prereq- isuits: 250B, and consent of instructor. This course is a continuation of 250B. Topics that follow from 250B include causal in- ference, the interrelation between disease and time, frequency, the theory that underlies case-control stud-
ies, and further exploration of the quantitative aspects of bias, confounding and measurement error. An introduction to the theory of ecological studies also is provided. Readings are primarily from the epidemiology-texts and practice exercises on epidemiology are assigned. Exercises are designed to teach use of computer software and the interpretation of scientific literature. Students are required to complete computer assignments, an oral presentation of a literature review with handouts for class, a final presentation (as would be presented at a scientific meeting), and a final report in a style for a publishable manuscript. (SP) Eskenazi

251C. Causal Inference and Meta-Analysis in Epidemiology. (2) Two hours of lecture per week. Prerequisites: 241B, 245, 250A; or consent of instructor. Advanced treatment of epidemiologic techniques, discussion of bias and power analysis, cohort data, cluster data, and contingency tables; logistic regression; analysis of time-dependent data including life tables, Kaplan-Meier estimation, and proportional hazard models. (SP) Selvin

252. Epidemiological Analysis. (3) Three hours of lecture per week. Prerequisites: 241B, 245, 250A; or consent of instructor. 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 course. The computer laboratory will consist of exercises that develop skills for using computers to draw samples and to solve sampling 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

252B. Modeling the Dynamics of Infectious Disease Processes. (2-4) Two hours of lecture and three hours of laboratory per week. Prerequisites: Calculus (e.g. Math 1A-1B), statistical programming packages (247, 249, or equivalent). This course will cover the basic tools required to both critically read modeling papers and to develop and use models as research tools. Emphasis will be placed on using models to understand infectious disease processes and to evaluate potential control strategies. The class meeting will consist of both lecture material covering conceptual issues and a computer lab to apply these concepts using standard infectious disease models. (SP) Eisenberg

253A. Topics in Disease Surveillance. (2) Two hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. Ways of doing surveillance for infectious and non-infectious diseases; how the reasons for doing surveillance determine the system selected; whether or not a given surveillance is providing the data needed to meet 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: Consent of instructor. A discussion of major infectious diseases with emphasis on disease surveillance, investigation, control, and prevention. Emphasis is on current problems in health agencies at a state, national, and international level. (SP) Reingold, Vugia, Werner

253C. An Overview of the AIDS Epidemic. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. The aim is to understand the origin, 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. The course compares the cost of care and prevention and analyzes 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 to preventive measures from the USA and around the world. (SP) 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 apply these perspectives to problems of HIV treatment and prevention, particularly in the developing world. Throughout the academic term, students will apply knowledge of social science, epidemiology, quantitative and qualitative methods in the analysis of developing and evaluating HIV-related treatment and prevention interventions, including policy interventions. Course requirements will include the preparation of a major paper recommending interventions, country level budgets and evaluation designs for specific developing countries. Specific requirements for this paper will be distributed during the third class session. (F) Ekstrand

254A. Environmental and Occupational Epidemiology. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Principles and methods of epidemiology with a focus on interpreting and critiquing published occupational and environmental epidemiology studies and making causal inferences from them. The course is designed for students whose primary interest is in occupational and environmental health. (F) A. Smith

254B. Advanced Occupational and Environmental Epidemiology. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Advanced epidemiological studies of persons occupationally or environmentally exposed to chemical and physical agents. The course builds on material in 254A, but 250A is sufficient as a prerequisite. (SP) A. Smith

255. Perinatal Epidemiology. (2) Two hours of discussion per week. Prerequisites: Consent of instructor. Critical review and discussion of social and psychological factors that influence the distribution of disease in populations. The course will cover those risk factors that have been studied most extensively with special attention to methodology and research design issues, problems in definition and assessment, and problems of confounding. Detailed attention will be paid also to the biological pathways that link psychosocial factors and physiologic function. (SP) Boyoó, Satariano

256B. Infectious Disease Laboratory. (2,4) Three hours of lecture and three hours of laboratory per week. Prerequisites: 260A or consent of instructor. Review of genetic epidemiology with emphasis on novel methods of molecular biology and genetics, including role of genetic factors in human disease and their interaction with environmental and cultural factors, population polymorphisms, role of inbreeding, and epidemiology of infectious and inflammatory diseases. Molecular epidemiology and the use of biological markers will be explored with the goal of illustrating both the power and limitations of biomarkers currently available for epidemiologic research. Laboratory work and Internet demonstrations will provide students with hands-on experience with modern methods of molecular epidemiology. (F) Hollan, Sensabaugh

257. Outbreak Investigation. (1,3) One hour of seminar per week and field work outside class time. Prerequisites: Consent of instructor. This course will teach students why and how clusters of illnesses/epidemics are investigated. Methods and approaches required for such investigations will be discussed in detail, using published articles from the scientific literature to provide examples. Field work, to be conducted outside regular class hours, will involve the investigation of actual outbreaks and clusters in conjunction with nearby county health departments and under the supervision of the instructor. Students may opt to take the seminar component without the field work for 1 unit. (F,SP) Reingold

258. Epidemiology of Neonatal Diseases. (3) Three hours of lecture per week. Prerequisites: 150A or 250A. For students with a basic understanding of epidemiology, biostatistics, and tumor biology. An introduction to the epidemiology of some major site-specific cancers, considering epidemiological approaches to the study of their causation, and implementation will be required. (SP) Buffler

259B. Applications of Epidemiologic Methods in Developing Countries. (3) Three hours of lecture per week. Practical application of epidemiologic methods in the developing country settings, including surveillance, surveys, control strategies, and intervention trials. The applications of these methods to the study of infectious and non-infectious disease problems common in developing countries will be presented. (F) Reingold

260A. Principles of Infectious Disease. (3) Three hours of lecture per week. Prerequisites: Upper division course preparation in biology, molecular biology, immunology, or consent of instructor. This course presents general principles of microbial interactions with humans that result in infection and disease. Common themes are developed using examples of viral, bacterial, and parasitological pathogens that exemplify mechanisms of infectious disease. Emphasis is given to the unique attributes of pathogens that promote interactive interactions with the cellular, immunological, and anatomical features of the host. (F) Riley

260B. Infectious Disease-Host-Parasite Interactions. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. A critical analysis of the host-parasite interactions that occur and infection of humans with various infectious disease agents, including representation of bacteria, protozoa, tammata, cestodes, protozoa, fungi, bacteria, viruses, and prions. The epidemiology, pathogenesis, host immune response, diagnosis, treatment, and control. Offered for 1 credit in fall or spring. (SP) Swartzberg

260C. 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. Module 1: Practice in standard techniques for the isolation, identification, and characterization of infectious agents; laboratory safety. Module 2: Application of molecular methods to the identification and characterization of infectious agents, vectors, and hosts. (F,SP) Sensabaugh

260D. Infectious Diseases Laboratory. (2-4) Course may be repeated for credit. Three hours of laboratory per unit. Prerequisites: 260A or consent of instructor. Practice in application of methods used in infectious diseases research. Projects vary from year to year. (SP) Staff

260E. 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 approaches in the use of molecular laboratory techniques
to address infectious disease epidemiologic problems. It is designed for students with experience in the laboratory or in epidemiology, but not both. The prerequisites to be discussed will include the use of molecular techniques in outbreak investigations, characteristics of dynamic behavior of bacterial pathogens, identification of vehicles, and quantifying attributable risks in sporadic infections, refining data stratification to assist case-control studies, distinguishing pathogens from non-pathogenic variants of organisms, doing surveillance and identifying genetic determinants of disease transmissions. 3-units if a five-page paper completed. (F) Riley

260F. Infectious Disease Research in Developing Countries. (2) Two hours of seminar per week. The objective of this course is to provide M.P.H. and Ph.D. students with an appreciation and understanding of the contributions 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 interaction. 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 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 give presentations 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. Analyze and identify viral and host factors that play a 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, Botchan, Penhoet

262. Molecular and Cellular Basis of Bacterial Pathogenesis. (3) Three hours of lecture/discussion per week and one hour of literature review. Prerequisites: Consent of Instructor. A course for graduate students will explore the molecular 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 cell biology of host-parasite interactions. Taught concurrently with. Students enrolled in 262 also 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

263. Public Health Immunology. (3) Three hours of lecture per week. Prerequisites: Some prior knowledge of immunology is desirable. Current immunological developments in relation to hypersensitivity, tolerance, immunologic disorders, auto-immune diseases, transplantation and immune responses to infections. (SP) Telford

264. Current Issues in Infectious Diseases. (2) One hour of lecture and one hour of discussion per week. Prerequisites: Graduate standing. 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 debate. 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 ten weeks. Prerequisites: Upper division microbiology, parasitology, biochemistry, immunology, microbiology, or consent of instructor. Familiarity with reading primary research is recommended. Advanced course in the molecular aspects of the parasite transmission, immunology, molecular biology, genetics, and genomics. For each parasite, the following areas will be covered: biology; disease specific targets; treatment; vaccine development. The lectures will focus on "state-of-the-art" research in relation to molecular mechanisms of disease, mechanisms of parasite adaptation 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) Lessing

266. Viruses and Human Cancer. (3) One hour of lecture and one hour of discussion of assigned readings per week. Prerequisites: Course in basic virology or microbiology. Topics include the molecular biology of tumor viruses; mechanisms of viral carcinogenesis; in vitro & in vivo characteristics of virally transformed cells; the epidemiology, pathology, diagnosis, treatment, and prevention of virally caused cancers; problems of proving the etiology of virally caused cancers. A term paper or grant proposal is required. Offered even-numbered years. (SP) Bluhering

267A. Engineering Control of Airborne Chemicals. (3) Three hours of lecture per week. Prerequisites: Graduate standing in environmental health sciences or consent of instructor. Principles of hazard evaluation and control of airborne chemicals in industry that have an impact upon the occupational and community environments. Particular emphasis is placed on air pollution control and industrial ventilation. Students develop and present on case covering specific situations. (SP) Kosherland

267B. Characterization of Airborne Chemicals. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing in environmental health sciences or consent of instructor. Principles underlying the use of air monitoring methods in industry and the environment. Topics include methods for sampling of gases, vapors, and aerosols; mechanisms of absorption and elimination of inhaled toxicants; methods for measuring airborne chemical concentrations. Three hours of lecture per week. (SP) Robinson

268C. Industrial Hygiene: Professional Practices. (3) Six hours of lecture/laboratory or discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Formerly course number 268. Study of industrial hygiene field, including issues of worker's compensation, indoor air quality and respiratory protection, hearing conservation, ergonomics, bioaerosols, radiation, blood-borne pathogens, and OSHA guidelines. Three hours of lecture per week. (SP)

268A. Industrial Hygiene: Physical Agents. (3) Three hours of lecture per week. Prerequisites: 267A. Noise and radiation as occupational hazards, including environmental evaluation and related damage-risk criteria. (SP) Smith

269A. Principles of Occupational and Environmental Diseases. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. An advanced course in the prevention and control of occupational and environmental diseases including pulmonary, dermatologic, musculoskeletal, neoplastic, and neurologic. Specific disease-causing agents (solvents, metals, pesticides, and others) will be discussed. The course will cover disease etiologies, manifestations, and prevention. The class does not require previous medical/clinical background. (F) Harrison, Seward

269B. Occupational Safety. (2) Must be taken on a letter-grade basis. Two hours of lecture per week. Prerequisites: 267A. Safety management, risk assessment and control. Application of the principles of risk assessment, and target organ toxicity. (F) M. Smith

270A. Exposure Assessment and Control. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Introduction to toxicology covering basic principles, dose-response, toxicity testing, chemical metabolism, mechanisms of toxicity, carcinogenesis, integration of toxicological data and risk assessment. A term paper or grant proposal is required. Offered alternate years. (F) Rempel

270B. Toxicology I. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Introduction to toxicology covering basic principles, dose-response, toxicity testing, chemical metabolism, mechanisms of toxicity, carcinogenesis, integration of toxicological data and risk assessment, and target organ toxicity. (SP) Hammond, Nicas

270C. Advanced Pharmacology and Toxicology. (2) Course may be repeated for credit. Two hours of lecture/discussion per week. Prerequisites: Consent of instructor. Current topics in research on chemical effects on biological systems. (SP) Weil

270D. Mathematical and Statistical Aspects of Exposure Assessment. (3) Three hours of lecture per week. Prerequisites: Statistics and concurrent enrollment; first year calculus. This course provides a quantitative framework for estimating exposure and dose to occupational and environmental toxicants. Statistical theory is applied to describing exposure variability over time, and to organizing efficient exposure monitoring programs. Statistical issues involving simultaneous exposure to multiple toxins are also explored. Mathematical theory is applied to the prospective and retrospective estimation of exposure intensity. The same theory is applied to physiologically based pharmacokinetic modeling and estimation of the dose received at target tissue sites in the body. (SP) Nicas, Snow

270E. Quantitative Risk Assessment. (3) Three hours of lecture per week. Prerequisites: 250A, 270A, 270B, or equivalent courses recommended, or consent of instructor. The purpose of this course is to teach the skills of quantitative risk assessment by means of lectures and a group risk assessment project. A number of scientific disciplines are involved in risk assessment, including those such as toxicology, biochemistry, molecular biology, exposure analysis, environmental chemistry, pathology, medicine, public health, and statistics. This course provides students the opportunity to learn in detail how these

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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 & Q requirement
AC suffix/course satisfies American cultures requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
‡Recipient of Distinguished Teaching Award
*Professor of the Graduate School
**Professor of the Graduate School
fields are integrated within the process of quantitative risk assessment. Topics covered include the use of human and animal data to classify chemicals with regard to carcinogenicity and other toxic effects; methods for constructing mathematical dose-response relationships using epidemiology, toxicology, studies, animal studies, and the associated statistical, stochastic, and biologically-based models; methods for assessing population exposures from multiple pathways; and risk characterization with the formal analysis of uncertainties. (SP) McKone, A. Smith

271B. Reproductive Hazards of Industrial Chemi-
cals. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instruc-
tor. The scientific knowledge necessary to assess the hazards of chemical exposure to human male and female reproductive health. Includes the effects of exposures in the environment. Nonchemical hazards to repro-
duction, e.g., radiation, are not discussed. (F) Eskinazi

271D. Global Burden of Disease and Comparative Risk Assessment. (3) Three hours of lecture/discussion per week. Prerequisites: Graduate standing or consent of instruc-
tor. The scientific knowledge necessary to assess the hazards of chemical exposure to human male and female reproductive health. Includes the effects of exposures in the environment. Nonchemical hazards to repro-
duction, e.g., radiation, are not discussed. (F) Eskinazi

271E. Policy for Health and Environment. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. The course introduces students to technical, legal, administrative, and political aspects of health policy in the U.S. and how their interplay shapes policy decisions. The course covers major approaches to making policy decisions for environmental con-
taminants; technical methods used in policy analysis including risk assessment, cost-benefit analysis, and technology-related debates; the role of legislative and administrative institutions; and the role of interests and political actors in policy debates, particularly those with technical components. The course will also examine emerging approaches to assessment of environmen-
tal and health problems including use of precautionary principles and environmental justice, comparing these to the currently-prevalent environmental manage-
ment paradigm. (SP) Smith

280A-280B. Clinical Aspects of Human Genetics, (3-3) Three hours of lecture per week. Prerequisites: Consent of instructor. The clinical delineation of single-gene and multigene human genetic diseases, including chromosomal abnormali-
ties and polygenic disorders. Genetic diagnosis, clin-
ical management, and developmental aspects of dis-
ease states. (F,SP) Hook

282. Topics in the History of Medicine and Public Health. (2) Three hours of lecture per week. Prerequisites: Graduate standing. A series of lectures providing an overview of the history of medicine and public health and a guide to its literature in the fall semester, followed by a series of seminars on selected topics by faculty both within and outside of the School of Public Health, which will continue into and through the spring semester. The content of the latter will vary from year to year. Most disciplines in public health will be the subject of at least one lecture each year. Themes in the medical and selected ancillary sciences will also be addressed. Students electing to take the course for 3 units will be assigned a research topic. (F,SP) Hook

285. Planning for Traffic Safety and Injury Con-
trol. (3) Three hours of lecture per week. Prerequisites: Graduate standing or consent of instructor. Multidis-

287. Special Topics in Health Economics. (2) Two hours of seminar per week. Prerequisites: Consent of instructor; enrollment in Ph.D. program. Formerly 287. This seminar features current research of faculty, from UC Berkeley and elsewhere, and advanced doctoral students who are investigating recent theories and em-
pirical work in health economics. Participating de-
partments include economics and the graduate group in Health Services and Policy Analysis. A survey of the literature will be conducted and students will be re-
quired to write an original paper for the course. Also listed as Economics 287C. (F,SP) Staff

288. Preventive Medicine Residency Seminar. (1-8) Course may be repeated for credit. Two hours of seminar per week with additional credits for supervised ex-
pertise in public health and/or preventive medicine settings. Prerequisites: Admission into Preventive Medicine Residency Program or consent of instructor. Integration and discussion of academic concepts in re-
lation to practical issues in public health and profes-
sional practice in preventive medicine. (F,SP) Ruther-
ford, Seward

288A. Preventive Medicine Residency Seminar: Public Health Practice. 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 physi-
cians 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 preventive medicine. The objectives of this seminar are to review basic principles and practices of health care delivery for the underserved and to de-
scribe the role of the preventive medicine physician in health care organizations. (SP) 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 physi-
cians 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 preventive medicine. The objectives of this seminar are to review basic principles and practices of health care delivery for the underserved and to de-
scribe the role of the preventive medicine physician in health care organizations. (SP) Rutherford, Seward

289. Health Issues Seminars. (1-4) Course may be repeated for credit. One to four hours of seminar per week. A discussion of current developments and is-
sues in public health of interest to faculty and students of the department as a whole. Content varies from semester to semester depending upon current issues and interests. (F,SP) Staff

291. Preparation for Public Health Practice. (1-3) Course may be repeated for credit. One to three hours of lecture per week per unit. Must be taken on a sat-
isfactory/unsatisfactory basis. Seminars and profes-
sional developments workshops. It is recommended that students enroll in this course as preparation for public health practice experience. This course com-
pliments the core curriculum by preparing students for Public Health Practice field work. Topics may include focus group facilitation, strategic planning, legislative process, leadership, and oral and written communi-
cations. (F,SP) Staff

291A. Preparation for Public Health Practice. (2) Two hours of workshop every other week. Must be taken on a satisfactory/unsatisfactory basis. Formerly 291. A series of skills-based workshops designed to in-
troduce the student to specialized skills needed in the public health workplace. These workshops are de-
signed to complement the core curriculum of the School of Public Health and are selected on a regular basis from faculty, public health practi-
tioners, and students. Workshop facilitators include consultants, CPHP field supervisors, and public health practitioners with expertise in the subject. This course or series of workshops is open to all M.P.H. and D.P.H. students. The student selects from a list of 1 1/2 and two-hour workshops to total 1 unit equal to 15 hours of class time, plus readings that are assigned for many of the workshops. Workshop topics have included writing for publication, for the media, or for policymakers (three separate workshops); management styles; cost-effec-
tiveness and cost-benefit analysis techniques; oral pre-
presentations; diversity in the workplace; negotiation and conflict resolution; tools for facility and capital budgeting, using PowerPoint; strategic planning; and legislation in action. (F,SP) Staff

291B. Public Health Internship Preparation Semi-
nar. (1) Two hours of seminar every other week. Must be taken on a satisfactory/unsatisfactory basis. Seminar providing area of concentration-specific prepara-
tion for M.P.H. internship. Emphasis on integrative ac-

tivities with second-year students and completion of prerequisites for N297. (F) 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. Current topics and special issues in the 
health field. (F,SP) Staff

293. Doctoral Seminar. (1-4) Course may be re- 
peated for credit. One to four hours of seminar per 
week. Discussion and analysis of dissertation research 
projects, as well as conceptual and methodological 
problems in planning and conducting health research. 
(F,SP) Staff

294. Post-Residency Seminar. (2-3) One hour of 
seminar per week. Prerequisites: Supervised residency 
in public health practice. Comparative analysis of field 
residency experiences as related to academic work, 
theory, and practical issues in public health, and 
professional practice in the student’s chosen public 
health discipline. Emphasis upon integration of con- 
ccepts and skills as this furthers each student’s pro- 
fessional 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 re- 
peated for credit on a pass/fail basis. Designed to 
permit any qualified graduate student to pursue special study un- 
der 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 pub- 
lc health in off-campus organizations for graduate stu- 
dents. Regular individual meetings with faculty sponsor and 
written reports required. (F,SP) Staff

298. Group Study. (1-9) Course may be repeated 
for credit. Independent study. (F,SP) Staff

299. Independent Research. (1-12) Course may be 
repeated for credit. Independent study and research. 
(F,SP) Staff

Professional Courses

300. Instructional Techniques in Biostatistics. (2) 
Course may be repeated for credit. Two hours of lec- 
ture and one hour of discussion per week. Must be taken on a satisfactory/unsatisfactory basis. Discussion and practice of tech- 
niques in teaching biostatistics as applied to public 
health practice. (F,SP) Staff

Interdepartmental Studies Courses

Upper Division Courses

IDS 114A-114B. Advances in Aging. (2,2) Course 
may be repeated for credit. Two hours of lecture per 
week. Prerequisites: High school biology and chem- 
istry. This interdisciplinary course will single out specific topics in aging of great current interest and present lect- 
ers on several aspects of each topic (biomedical, health, 
socio-economic, legal, and ethical). Each semester a different topic will be presented. Invited specialists will provide in-depth expertise in these areas will par- 
ticipate. Sponsoring departments: Molecular and Cell 
Biology, Optometry, Public Health, and Social Welfare. (F,SP) Timiras

IDS 130. Seminar on Social, Political, and Ethical 
Issues in Health and Medicine. (2) One hour of lec- 
ture and one hour of discussion per week. Must be taken on a pass/fail basis. An interdisciplinary approach to health and medicine. Guest lec- 
turers will speak on the social, political, and ethical as- 
pects of health and medicine; students will then discuss and present papers in these themes. Students will also be able to work on their own independent projects. (F) Duhl

Public Policy

Richard & Rhoda Goldman School of Public Policy

Office: 2607 Hearst Avenue, (510) 642-4670 http://gppp.berkeley.edu/
Dean: Michael V. stadium, Ph.D.
Assistant Dean: Michael R. Tension, M.E.D. J.D.

Professors

Eugene Bardach, Ph.D. University of California, Berkeley. Regulation, implementation, social theory.
Robert Barzilai, Ph.D. University of Minnesota, History, higher education.
Henry E. Brady, Ph.D. University of Chicago. Quantitative Methodology, American and Canadian politics, policy.
John W. Ellsworth, Ph.D. Johns Hopkins University. Policy process, public budgeting, organizational behavior.
Lars B. Friedman, Ph.D. Yale University. Applied microeconomics, public sector decision-making.
Michael Happy, Ph.D. California University. Environmental and resource economics, philosophy, politics, economics.
David L. Kirp, LL.B. Harvard University. Law, politics, education, gender.
Robert J. Macoun, Ph.D. Michigan State University. Social psychology, judgment and decision making, civil and criminal justice.
Michael Nacht (Dean), Ph.D. Columbia University. U.S. national security policy, international relations and public policy, public management.
Michael C. Hann, Ph.D. Harvard University. Management, urban studies, arts and cultural policy, environmental policy.
John M. Guglielmo, Ph.D. Harvard University. Microeconomics, public finance, health care, University of California, Berkeley. Urban and labor policy, Economics of racial inequality.
Suzanne Scudder, M.D. University of California, Berkeley. Economics of health care, health care financing, health policy, economic analysis, welfare economics.
Michael R. Tension, Ph.D. (Assistant Dean), M.E.D. J.D. University of Washington.

Assistant Professors

Jack Glass, Ph.D. University of California. Social and political psychology, prejudice and discrimination, hate crime.
John Maudlin, Ph.D. Princeton University. Health policy and economics, urban planning, demography.

Academic Programs

Master of Public Policy

Undergraduate Courses

The undergraduate courses in public policy deal with the substance of public policy, but how it is made, how its effects can be gauged, and what the pur- poses of policy should be. The courses consider both the policy process and particular policy issues. By examining different policy problems in their po- litical and social contexts, students gain a greater sensitivity to the forces which shape and carry out public policies and to the impact of social, political, economic, and legal power.

Courses are designed for students in diverse dis- ciplines and professional schools. There are no prerequisites for enrollment in the courses unless specifically noted otherwise in the course de- scriptions. The training provided by the courses is useful to those interested in combining the sub- stantive perspectives of the social sciences with the immediacy of contemporary problems, to those considering professional study; and to the informed and politically aware citizen.

Minor Program. The undergraduate minor in pub- lic policy introduces students from other depart- ments and colleges to the tools and special ap- proaches necessary for policy analysis. The minimum requirements are five courses in public policy, at least three of which must be from one discipline. All courses must be taken at the School of Public Policy.

PP 101 is required of all students in the minor. Stu- dents must achieve at least a C average (2.0) in the five courses. When students complete the min- or, the school notifies the Office of the Registrar. Completion of the minor will be noted on the stu- dents’ transcripts of Berkeley work.

Graduate Courses

Through an examination of domestic and some in- ternational 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, quantita- tive, and legal analysis to the full range of the policy pro- cess—from policy initiation through policy adoption, implementation, and evaluation. By developing these skills, students from the professional schools and academic disciplines should find their strength- ened analytical capabilities of direct use when ap- plied to their own field of concentration.

Master’s Degree in Public Policy

The professional degree, the Master of Public Pol- icy, is designed to provide students with the knowl- edge, analytical skills, and sensitivities needed to conduct public policy studies. Students from di- verse disciplinary backgrounds are accepted into this program. Those completing the master’s pro- gram are qualified to take on a variety of significant policy roles in the U.S. and abroad. They work within the public sector at all government levels, in non-profit organizations, and in private consulting firms. Examples of jobs include staff analyst in a regulatory agency or planning office, special as- sistant to a senior executive, legislative aide, pro- ject officer or program manager in an operating agency or staff member in a non-profit management consulting or policy research firm.

The two-year master’s degree program consists of a required first-year core curriculum, a summer in- ternship, and a second year devoted mostly to elective courses and a policy study of the student’s choice. The core curriculum includes a course in po- litical and organizational analysis, economic analy- sis, quantitative techniques, legal analysis, and a workshop where students perform policy studies on selected issues.
Coordinated Degree Programs with Other Berkeley Colleges and Schools

The M.P.P. may be earned in combination with an advanced degree from the following Berkeley schools and colleges under a coordinated program:

- M.P.P./J.D. with the Boalt School of Law
- M.P.P./M.P.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
- M.P.P./M.S. with the College of Engineering

Ph.D. in Public Policy

The Ph.D. program prepares students for careers in advanced public policy research in academic institutions, research institutes, and government agencies. The Ph.D. program is oriented toward the generation of knowledge, and includes methodologies in public policy analysis. The program is small and admission is highly selective.

Further Information

Brochures and information on admissions procedures and student financial assistance are available from the Richard & Rhoda Goldman School of Public Policy, University of California, Berkeley, 2607 Hearst Avenue #7320, Berkeley, CA 94720-7320.

Lower Division Courses

1. Public Policy in California, (4) Three hours of lecture and one hour of discussion per week. Prerequisite: Course open to freshmen and sophomores only. An interdisciplinary introduction to some of the major policy issues facing the American voter. Emphasis is on how difficult it is to arrive at an informed decision—not on determining what that decision ought to be. The roles of politics, economics, law, technical issues of administration and implementation, and ethics will be illustrated. Problem areas will vary from semester to semester. Participating faculty will vary along with the issues emphasized. Among the potential topics are: Mexico and the United States; Gay's in the Military; National Health Insurance; Placing Hazardous Facilities. Guest lectures from legislators, the media, the bureaucracy, the lobbying community, etc., will be integrated into the course. (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 letter-grade basis. Sections 4-6 to be graded on a pass/no pass basis. Freshman Seminar is a one-semester, preprofessional seminar program designed to provide an opportunity for students to explore an intellectual topic with a faculty member in a small 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)

39. Freshman/Sophomore Seminar. (2) Two hours of seminar per week for 10 weeks. Sections 1-2 to be graded on a letter-grade basis. Sections 3-4 to be graded on a pass/no pass basis. Freshman and sophomore seminars offer lower-division students the opportunity to explore an intellectual topic with a faculty member in a small 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

38. Group Study in Public Policy. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass 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 and critical approach to evaluating and designing public policy. Covers theory and application to particular cases and problems. Diverse policy topics, including environmental, health, education, communications, and arts policy issues, among others. (F,SP) Staff

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 public 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) Kirp

142. Applied Economometrics and Public Policy. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 140 or 141 or consent of instructor. This course focuses on the application of econometric methods to empirical problems in economic 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 used in 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.

156. Program and Policy Design. (4) Three hours of seminar per week. Studio/labatory in the design of nongovernmental organizations. Combines 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. Course 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 103. Survey of government policy toward the arts (especially direct subsidy, copyright and regulation, and indirect assistance) and its effects on artistic careers and institutions. Emphasizes "highbrow" arts, U.S. policy, and the 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. (SP) O'Hare

158. Risk and Uncertainty in Public Policy. (3) Three hours of lecture per week. Risk and uncertainty are at the core of many of our major social problems, including sexually transmitted diseases, medical technology, food safety, street crime, hazardous wastes, alcohol and drug use, nuclear energy, earthquakes, and terrorism. This course examines how individuals manage risk and uncertainty in their private lives, and how societies manage risk and uncertainty through public policy. We will examine how citizens make decisions under risk and uncertainty and contrast these approaches with more formal methods recommended by experts. We will then examine the implications of these lay and expert perspectives for public policies involving health, nutrition, energy, workplace safety, transportation, criminal justice, and other concerns. This course is recommended for students in the psychology department for its majors. (SP) MacCoun

159. Applied Policy Analysis: Criminal Justice Issues. (3) Three hours of lecture per week. Prerequisites: Criminal justice one of the following or required as a prequisite: introductory statistics recommended. Course organized around current controversies in criminal justice policy, such as gun control; drug legalization, and "three-strikes-and-you-are-out" sentencing laws. Includes introductory presentations by the instructors on major criminological theories, trends in crime and punishment, and a historical survey of criminal justice policy. Emphasis on in-depth examination and discussion of current controversies studied by students. A group project serves as the final exam. Undergraduate level of 260. (F) MacCoun

C162. Drug, Tobacco, and Alcohol Policy. (3) Three hours of seminar per week. Prerequisites: 101 or equivalent or consent of instructor. Together, the use of illicit drugs, alcohol, and tobacco cost us well over $200 billion a year in losses due to medical treatment, accidents, and crime. Despite many pharmacological, behavioral, and economic parallels, policies regarding these three classes of substances have evolved independently. Critics of the current drug regime call for prohibition. The purpose of this course will be to evaluate these debates from a policy analytic perspective, drawing on theory and research from the behavioral sciences, epidemiology, and economics. (F) MacCoun

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 and local government 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

170. Ethics in Public Policy. (4) Three hours of lecture per week. Those who seek to serve the public’s multiple and often contradictory interests are constantly confronted with questions of value and moral reasoning. In posing and sharpening those questions, this course provokes reflection on the challenges and responsibilities of policy making in a democracy. Using case studies ranging from abortion and AIDS to nuclear power and Iran-Contra, the course focuses on the importance of clear reasoning about the values involved in public problem solving, and so invites hard questions about the responsibilities of a career in public service. (SP) Kirp

172. Health Care Policy. (4) Three hours of lecture and one hour of discussion per week. Examines the structure, conduct, and performance of the U.S. health care system. Course is a vehicle for considering problems that arise in the design and implementation of health care policy specifically, and public policy analysis generally. The course uses the tools of many disciplines, but particularly those of economics and ethics, to analyze various contemporary health care issues and to weigh the associated corrective proposals. The focus is on the U.S. public sector, but international comparisons will also be explored. (SP) Staff

Science and Technology Policy. (4) Three hours of lecture and one hour of discussion per week. This course will consider the implications of scientific and technological advance, particularly those of economics (e.g., public/private funding, intellectual property protections), the medley of science/technology oversight mechanisms (administrative, social, political, legal), and the “principal-agent” relationship between citizens, technical experts, and public officials. (F) Staff
179. Public Budgeting. (4) Three hours of lecture per week. Public sector budgeting incorporates many, perhaps most, of the skills of the public manager and policy 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 the student to gain and understanding of the effects and consequences of public sector budgeting, its processes and participants, and the potential impacts of various reforms. Undergraduate level of Public Policy 259. This course can be applied to the political science major. (SP) Ellwood

180AC. AIDS and the American Culture. (4) Three hours of lecture per week. AIDS is a cultural and constructed, as well as a biological and natural, phenomenon. In culturally specific ways, it reconfigures and is reconfigured by the communities it touches. Examining responses to AIDS in the African American, Latino, Asian American, Native American, and homosexual communities—as well as investigating the appropriateness of culturally specific strategies for AIDS research, education, and treatment—the course is an extended case study of multiculturalism and public policy. This course satisfies the American cultures requirement. (SP) Krip

184. The Economics of Public Problem-Solving. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Economics 100A or 101A or equivalent. The course examines the implications of microeconomic theory as required for use in practical public policy analysis. Case studies of the techniques and problem-solving from diverse policy application: welfare reform, national health insurance, public employment, energy shortage; public regulation and others. (F) Friedman

188. Policy Issues in Urban and Industrial America. (3) Three hours of lecture per week. Prerequisites: Mathematics 1A-B and Economics 100A or consent of instructor. This course will cover (1) Biotechnology: history and development; (2) The industry, patents, law, and patent races (the Economics literature); regulation, ethical issues; (2) Consumer Product Safety: We will discuss the economic literature on whether market forces can be trusted to ensure efficient quality and safety, American regulation of product safety, and relevant liability law; (3) Suing Hazardous Wastes: recent proposals to solve this problem, as well as the extent of the problem.

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) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Must be taken on a pass/no pass 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 pass/no pass basis. Prerequisites: Consent of instructor. This course gives upper-division students wishing to pursue special study and directed research under direction of a member of the staff. Enrollment restrictions apply; see the Introduction to Courses and Curricula section of this catalog. (F,SP)

Graduate Core Curriculum

Note: Core curriculum courses are open only to students in the School of Public Policy.

200. Introduction to Policy Analysis. (4) Four hours of lecture 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 statistics to case studies of policymakers and managers making decisions. Students learn to use the techniques of social science to evaluate projects and programs. 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 thorough research on a policy question. In this research, students will apply the interdisciplinary methods, approaches, and perspectives studied in the core curriculum. (SP) Ellwood

210A-210B. The Economics of Public Policy Analysis. (4,4) Three hours of lecture/discussion and one hour of seminar per week. Prerequisites: Open only to students in the Graduate School of Public Policy. Theories of microeconomic behavior of consumer, 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 actual applications of theory and a variety of policy strategies. (F,SP) Friedman

220. Law and Public Policy. (4) Four hours of lecture per week. Prerequisites: Open only to students in the Graduate School of Public Policy. Focus on legal aspects of public policy by exposing students to primary legal materials, including court decisions and legislative and administrative regulations. Skills of interpreting courts in America, drafting regulations, and discussing the economics literature on whether market forces can be trusted to ensure efficient quality and safety, American regulation of product safety, and relevant liability law; (3) Suing Hazardous Wastes: recent proposals to solve this problem, as well as the extent of the problem. (F) Friedman

220A-220B. Political and Agency Management Aspects of Public Policy. (4,4) Four hours of lecture/discussion and one hour of seminar per week. Prerequisites: Open only to students in the Graduate School of Public Policy. 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,SP) Friedman

224A-224B. 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 and econometric analysis of policy-relevant 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)

225. Introduction to Public and Nonprofit Management. (3) Three hours of seminar per week. Prerequisites: Open only to students in the Graduate School of Public Policy. This integrated course on the use of quantitative techniques in public policy analysis: computer modeling and simulation, linear programming and optimization, decision theory, and statistical and econometric analysis of policy-relevant 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)

225. Microeconomic Organization and Policy Analysis. (3) Two hours of seminar and one hour of conference per week. Prerequisites: Business Administration 1018B or Economics 204A or equivalent, and consent of instructor. Research seminar to develop public policy analyses based on microeconomic theories of organization, including collective demand mechanisms, behavior of non-economic organizations, and productivity. (SP) Friedman

225. The Politics of Policy Advising. (3) Three hours of seminar and one hour of conference per week. An examination of the political environment surrounding policy advising and the application of analytical information to policy-making. By exploring the interactions of clients and advisers, engineers, policy analysts, and other professionals, we will be in a better position to assess the likely effectiveness of their advising. (SP) Ellwood

253. 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 emphasizes the 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 Agricultural and Resource Economics 253. (F) De Janvry, Sadoulet, Zilberman

256. Program and Policy Design. (4) Three hours of seminar per week. Formerly 206. Studio/labatory in the development of research on how government policy toward the arts (especially direct subsidy, copyright and regulation, and indirect assistance) and its effects on artists, audiences, and institutions. Emphasizes "highbow" arts, U.S. policy, and the 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. Graduate level of 157. (SP) O'Hare

257. Arts and Cultural Policy. (3) Three hours of lecture per week. Formerly 219. Survey of government policy toward the arts (especially direct subsidy, copyright and regulation, and indirect assistance) and its effects on artists, audiences, and institutions. Emphasizes "highbow" arts, U.S. policy, and the 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. Graduate level of 157. (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 cost-benefit analysis, and analyzes in depth some important applied aspects such as endogenous prices of other commodities, methods to infer willingness to pay, valuation of life, uncertainty and the rate of discount. (F) Scotchmer

260. Applied Policy Analysis: Criminal Justice Issues. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. This course discusses and critiques the conceptual foundations of criminal justice policy as well as some empirical research, especially on the relationship between crime and punishment. (F) McKernan

261. Reforming Education for the Next Generation. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Current controversies in public school reform are explored. The seminar examines current reform strategies—including “highbow” arts, U.S. policy, and the 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. Graduate level of 157. (SP) MacCoun

262. Drug, Tobacco, and Alcohol Policy. (3) Three hours of seminar per week. Prerequisites: Consent of instructor. Together, the use of illicit drugs, alcohol, and tobacco cost us well over $200 billion a year due to medical treatment, accidents, and crime. De-
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 US and abroad. (SP) Mauldon

266. Health Policy in the Public and Private Sectors. (3) Three hours of seminar per week. Prerequisites: A course in microeconomic theory or health economics. An examination of the government policy in health in the private market. Topics include health care finance and insurance, profit and nonprofit health care institutions, and the adequacy of the supply of health professionals. (SP) Banks

267. Evaluating Welfare, Health, and Education Programs. (3) Three hours of seminar per week. Prerequisites: Course in inferential statistics or consent of instructor. This course is for students who want to study the broad principles and the nitty-gritty practical problems of program evaluation. Topics will include the uses of different types of evaluations; "process" evaluations, data sources and diverse data collection methods; uses of administrative data in evaluation; sampling, sample sizes, power analysis; common statistical tests used in evaluations; assessing the strengths and weaknesses of published evaluations; methods of measuring program costs; ethical issues in evaluations. (SP) Mauldon

268. Public Budgeting. (4) Three hours of lecture/discussion per week. Formerly 209. Public sector budgeting is an activity that incorporates many, perhaps most, dimensions of the public managerial and analyst. The goal of this course is to develop and further develop these skills. Using cases and readings from all levels of American government, the course will allow the student to study the effects and consequences of public sector budgeting, its processes and participants, and the potential impacts of various reforms. Graduate level of Public Policy 179. (F) Ellwood

272. Health Care Policy. (3) Three hours of lecture and one hour of discussion per week. Examines the structure, conduct, and performance of the U.S. health care system. Course is a vehicle for considering problems that arise in the design and implementation of health care policy specifically, and public policy generally. The course uses the tools of many disciplines, but particularly those of economics and ethics, to analyze various contemporary health care issues and to weigh with the appropriate corrective proposals. The focus is on the U.S. system, but international comparisons will also be explored. (F) Staff

C274. Public Sector Microeconomics. (3) Two hours of lecture and three hours of seminar per week. Prerequisites: 210A or equivalent. This course considers the economics of urban housing and land markets from the viewpoints of investors, public and private monies, and consumers. It considers the interactions between private action and public regulation—including land use policy, taxation, and government subsidy programs. We will also look at other effects of primary and secondary mortgage markets, securitization, and liquidity. Finally, the links between local housing and related markets—such as transportation and public finance—will be explored. Also listed as City and Regional Planning C234. (F) Quigley

277. Knowing and Valuing in Public Policy. (4) Three hours of seminar per week. Prerequisites: Consent of instructor. This course confronts a series of fundamental policy problems. How does one position oneself in relation to the problem being analyzed? How does one choose among competing kinds of data and competing models of individual and collective behavior? What role do normative judgments play? Discussions and papers will link seminal readings to concrete policy issues. (F) Karp

278. Psychology and Public Policy. (3) Three hours of lecture per week. This course surveys contributions to policy analysis provided by the behavioral sciences (especially social and cognitive psychology). The objectives of the course are (a) to make you an informed consumer of behavioral science research—enthusiastic yet critical, (b) to understand how and when social behavior can be measured, understood, and influenced, and (c) to understand the psychological processes that influence judgment by policymakers and policy analysts. (F) MacCoun

279. Research Design and Data Collection for Public Policy Analysis. (3) Three hours of seminar per week. Prerequisites: At least one semester of statistics. Public policy analysis requires a sophisticated understanding of the variety of types of data. Empirical arguments and counterarguments play a central role in policy debate. Quantitative analysis teaches you how to analyze data; this course will introduce 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

289. The Uses and Abuses of Social Science in Social Policy Making. (3) Two hours of seminar per week. Examines applications of social science research in social policy making by government through case studies in the field of human resources as policy. Linkages between research and policy making and the dissemination and application of research findings will be emphasized. (SP) Friedman

290. Special Topics in Public Policy. (1-4) Course may be repeated for credit. Open to qualified graduate students wishing to pursue special study and research under direction of a member of the staff. (F,SP) Staff

298. Directed Advanced Study. (1-12) Course may be repeated for credit. Open to qualified graduate students wishing to pursue special study and research under direction of a member of the staff. (F,SP) Staff

295. Supervised Research Colloquium. (1-9) Course may be repeated for credit. Open to qualified graduate students wishing to pursue special study under direction of a member of the staff. (F,SP) Staff

299. Independent Study in Preparation for the Master’s Essay. (3) Credit to be awarded on completion of the Master’s essay. Prerequisites: Consent of faculty. By arrangement with faculty. Open only to qualified second-year graduate students working toward the M.P.P. May be repeated for credit. (SP, F, M, S)

602. Individual Study for Doctoral Students. (1-10) Course may be repeated for credit. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: For candidates for Ph.D. 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 be repeated for credit. (SP, F, M, S)

Range Management

(Office of Natural Resources, Interdepartmental Graduate Groups)

Office: 133 Mulford Hall, (510) 642-6410
Chair: James Bartolome, Ph.D.

Professors
Barbara H. Allen-Diaz, Ph.D. Rangeland ecology and management (Environmental Science, Policy, and Management)
Regnard H. Barrett, Ph.D. Wildlife biology and management (Environmental Science, Policy, and Management)
James W. Bartolome, 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. Dahilton, Ph.D. Forestry entomology, biological control (Environmental Science, Policy, and Management)
William E. Dietrich, Ph.D. Fossil clastic and fluvial geomorphology (Earth and Planetary Science)
Mary K. Fristrom, Ph.D. Soil microbiology, nutrient cycling (Environmental Science, Policy, and Management)
Louise P. Fortmann, Ph.D. Natural resource sociology (Environmental Science, Policy, and Management)
Dale R. McCullough, Ph.D. Wildlife biology and management (Environmental Science, Policy, and Management)
Jeffrey M. Porr, Ph.D. Natural resource and environmental policy (Environmental Science, Policy, and Management)
Wilford R. Gardner (Emeritus), Ph.D. Forest genetics and silviculture (Environmental Science, Policy, and Management)
Harold F. Headly (Emeritus), Ph.D. Range ecology and management (Environmental Science, Policy, and Management)
John A. Heims (Emeritus), Ph.D. Silviculture (Environmental Science, Policy, and Management)
William Z. Liddle (Emeritus), Ph.D. Mammalogy and Ecology (Environmental Science, Policy, and Management)
Robert E. Martin (Emeritus), Ph.D. Wildland fire control and management (Environmental Science, Policy, and Management)
Thelma E. Powell (Emeritus), Ph.D. Primates behavior and reproductive cycles (Integrative Biology)

Associate Professors
John Battlos, Ph.D. Forest community ecology (Environmental Science, Policy, and Management)
Carlo D’Antonio, Ph.D. Plant population biology (Integrative Biology)
Lynn Hunsinger, 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. Merenfelder, Ph.D. Ecology, conservation biology, landscape ecology using GIS (Environmental Science, Policy, and Management)

Specialist
Richard B. Standford, Ph.D. Wildland economics and management (Environmental Science, Policy, and Management)

Graduate Adviser: Barbara Allen-Diaz.
Religious Studies (College of Letters and Science)

Group Major Office: Division of Undergraduate and Interdisciplinary Studies, 301 Campbell Hall, (510) 642-2364
http://ls.berkeley.edu/ugis/religiousstudies

Advisory Committee

Thomas Brady (History)
Geraldine Brady (History)
Vasudha Balima (South and Southeast Asian Studies)
Alan Dundes (Anthropology)
Susanna Ellis, Director (History)
Marjorie Fimite (Anthropology)
Robert Gordon (South and Southeast Asian Studies)
Enric Gruen (History)
Ronald Harner (Near Eastern Studies)
David Hollinger (History)
Steven Justice (English)
Geoffrey Kaznel (Near Eastern Studies)
Niklaus Langer (German)
Margaret Larkin (Near Eastern Studies)
Carolin Redmuth (Near Eastern Studies)
Nancy Rutterbong (Comparative Literature and English)
Randy Starn (History)
David Strong (Near Eastern Studies)

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 study of religion and includes the following:

Buddhism: East Asian Languages (Chinese) 120, 122, 123, Additional courses: East Asian Languages (Chinese) 140, South Asian 127, 140. Recommended: Students intending to do graduate work in Buddhism should study Tibetan, Chinese, Sanskrit, Tamil, or Hindi.


Christianity: Religious Studies 120A, or History 185A, Religious Studies 120B or History 156A, History 156B or 156C. Recommended: Additional courses: Classics (Greek) 105, English 110A, 110B, History 108, Italian 109A, 109B, Italian 130, Near Eastern Studies 131, 132, 134, Philosophy 182, 184, Religious Studies 190 (where 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 in their field of interest. Students may complete the minor administratively distinct from their major. Students wishing to receive a minor in religious studies must 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 grade-point average 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 their senior year. 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 as a culmination of one or two semesters of the sequence. Religious Studies 101A-H (the thesis) must be approved by both the adviser and the student’s thesis director, if these are different.

Lower Division Courses

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 fifteen freshmen. (F,SP) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the methods and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

90A-90B. Introductory Topics in Religious Studies. (4-5) Three hours of lecture per week. Selected introductory topics in the study of religion. Also listed as South and Southeast Asian Studies C51. (SP) Staff

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 during the Viking Age in Scandinavia and their manifestations in later forms of popular culture and in the art and literature of the Renaissance. Also listed as Near Eastern Studies C104.

C105. Buddhist Myth and Religion. (4) Three hours of lecture per week. Religious beliefs and practices among the peoples of South and Southeast Asia. Also listed as Religious Studies C140.

C106. Celtic Mythology and Oral Tradition. (4) Three hours of lecture per week. Introduces students to the pre-Christian beliefs of the
Celtic and Indo-European worlds, to the historical narratives in which such beliefs are embodied, and to the methodologies 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 hermeneutics or biblical interpretation with special emphasis on rhetoric, theological, symbolic, and allegorical language as the bearer of persuasive intention. Also listed as Rhetoric C131. Staff

115. Mysticism. (4) Three hours of lecture and one hour of discussion per week. Studies in the literature and piety of various mystical traditions, including readings of scripture, lyrical poetry, spiritual discourse, autobiography, etc. The relationship of several forms of mysticism to their religious traditions will be treated. Staff

C116. The Mystical Tradition in Literature. (4) Three hours of lecture per week. Formerly 116. A survey of the major concepts in the philosophy of mysticism and their expression in literary form. Examples drawn from at least one Eastern and one Western tradition; emphasis will be given to the verse and individual fulfillment. Also listed as Comparative Literature C125.

C118. Western Mysticism: Religion, Art, and Literature. (4) Three hours of lecture and one hour of discussion per week. The course will focus on examples of mystical thought from the traditions of Christian and Jewish mysticism since the Middle Ages. In addition to the introduction to the students to basic texts and concepts we will discuss the effects of mystical thought on art and literature from the Middle Ages up to today. Also listed as German C113. (F,SP) Largier

C119. The English Bible As Literature. (4) Three hours of lecture per week. Formerly 119. Introduction to the English Bible treated as a literary work. Also listed as English C107.

120A. Origins of Christianity. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 90A or 90B, History 4 or consent of instructor. The early Jesus movement in its social and historical setting. Particular attention to the transformations of various Jewish religious concepts; traditions about Jesus; political and religious eschatology; Paul and his interpreters. Elm

120B. Origins of Christianity. (4) Two hours of lecture. Prerequisites: 90A or 90B, History 4 or consent of instructor. Varieties of early Christianity. Conflicts of interpretation between Old Testament and Christian message; Marcionism; Gnostics; virginity; martyrdom; radical prophecy; the idea of heresy. Elm

123. Europe in the Middle Ages. (4) Three hours of lecture and one hour of discussion per week. Formerly 123. Survey of Western civilization; stress on tribal settlement, the Carolingian Empire, and Christian foundations. 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 middle of the seventeenth century. Political, social, and economic developments during this transitional period will be examined, together with the rise of Renaissance culture, and the religious upheavals of the sixteenth century. Also listed as History C157.

125. The Reformation. (4) Three hours of lecture and one hour of discussion per week. This course is about the Reformation, the upheaval in Christendom during the sixteenth century. It aims to uncover the causes, processes, and outcomes that transformed the Western European civilization called Christendom into a secular civilization called Europe and a group of religions, called Christianity, which are of much wider extension. Staff

Introduction to Judaism. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 90A or 90B or consent of instructor. The nature of classical Judaism, its major cultural and intellectual expressions in the Middle Ages, and transformations in the modern period. Also listed as South Asian C135. Staff

C132. 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 building 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 societies and cultures, the history of Israelite religion, the literary features of biblical narrative, and the Dead Sea Scrolls. Also listed as Near Eastern Studies C135 and Undergraduate Interdisciplinary Studies C152. Staff

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 pieties, institutions, thought, and literature. Also listed as Near Eastern Studies C133 and Undergraduate Interdisciplinary Studies C153. Staff

C134. Jewish Civilization: Middle Ages. (4) Three hours of lecture and one hour of discussion per week. This is the third course in a four-course sequence in the history of Jewish culture and civilization. It covers the middle ages and the Jewish communal and individual identity in the modern world. Topics to be treated include the breakdown of traditional society, enlightenment and 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 C175B and Undergraduate Interdisciplinary Studies C155. Staff

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 history from 1750 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 breakdown of traditional society, enlightenment and 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 C175B and Undergraduate Interdisciplinary Studies C155. Staff

C136. Early Chinese Thought. (4) Three hours of lecture per week. An examination of early Chinese thought via a study of representative thinkers and texts. Topics include pre-Ch’ing Confucianism and Taoism, development of Confucian thought in the Han dynasty and of Taoist thought in the Wei-Ch’in dynasties, development of Buddhist thought. Also listed as Philosophy C151. Staff

C137. Later Chinese Thought. (4) Three hours of lecture per week. This course begins with an introduction to early Chinese thought, including the development of Confucian, Taoist, and Buddhist thought up to the ninth century. It then continues with an in-depth examination of the evolvement of Confucian thought in response to and under the influence of Taoism and Buddhism, via a study of representative thinkers from the Sung, Ming, and Ch’ing dynasties. Also listed as Philosophy C152. Staff

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 developed in India 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 between religions but also some of their commonalities in philosophy, theology, and praxis. Also listed as South Asian C132. (F,SP) Staff

Religion in South India. (4) Three hours of lecture per week. Formerly 162. The development and practice of religion in South India. Emphasis will be on sources translated directly from Indian languages. Subject coverage includes: the classic contributions of Brahmans, the role of major religious beliefs and practices in the practice of Hinduism in modern South India. Also listed as South Asian C141. Staff

Religious Identities in South Asia. (4) Three hours of lecture per week. Formerly 162. This course begins with an examination of the making of religious identities in India after the coming of Islam to the subcontinent. Topics covered include the formation of Sufi silsiles in India, Krishna bhakti and the Vaishnav sects, Kabir, Nanak, Tulsidas’ Ramcharitmanas and the Ramila performance tradition, women’s religion, Islamic and Hindu reform movements, and the intersection of modern nationalisms and religious identity. Also listed as South Asian C128. Staff

Hindu Mythology. (4) Three hours of lecture per week. Formerly 142. Literary and religious aspects of Hindu myths. Reading of selected mythological texts in translation. Also listed as South Asian C140. (F,SP) Goldman

India’s Great Epics: The Mahabharata and the Ramayana. (4) Three hours of lecture per week. Prerequisites: South Asian 5A, 127, 140, or consent of instructor. The course entails a selection of readings from the great Sanskrit epic poems—the Mahabharata and the Ramayana in translated form, and selected readings from the corpus of secondary literature on Indian epic studies as well as lectures on salient issues in each. 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

Religious Pluralism in America. (4) Three hours of lecture and one hour of discussion per week. This course examines the diversity of American religious traditions as seen through the experiences of Arab, African, and Asian immigrant communities. Since ethnicity and issues of race play a defining role in the development of these religious communities, the theoretical focus of this course will center on the tensions racial and cultural differences created, the ways these communities addressed their own cultural alienation, and the means they used to ease such tensions. Special attention will be given to the ways these communities sought to preserve traditional beliefs and practices in the face of trends toward cultural accommodation as well as to the ways these communities resisted assimilation and transformed their communities and their circumstances. Theoretically, this four-part social-cultural Resistance/Adaptation model—accommodation/conflict/transformation—will frame the course lecture and discussion portions. This course satisfies the American cultures requirement.

World Religions in America. (4) Three hours of lecture and one hour of discussion per week. This course examines the diversity of America religious traditions as seen through the experiences of Arab, African, and Asian immigrant communities. Since ethnicity and issues of race play a defining role in the development of these communities, the theoretical focus of this course will center on the tensions such issues of racial and cultural difference created, the ways these communities addressed their own cultural alienation, and the means they used to ease such tensions. Special attention will be given to the ways these communities sought to preserve traditional beliefs and practices in the face of trends toward cultural accommodation as well as to the ways these communities resisted assimilation and transformed their communities and their circumstances. Theoretically, this four-part social-cultural Resistance/Adaptation model—accommodation/conflict/transformation—will frame the course lecture and discussion portions. This course satisfies the American cultures requirement.

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C175. Political Philosophy of Martin Luther King, Jr. (3) Three hours of lecture per week. Using the thought and words of Martin Luther King, Jr., this course examines the major events of the Civil Rights Movement. Readings include original works by King as well as secondary sources, with a special emphasis on African American religion, nonviolent, and integration. Also listed as African American Studies C124, (F,SP) History

C182. Sociology of Religion. (3) Three hours of lecture and two hours of discussion per week. 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. Will include a general theory of the nature of religious experience, religious symbols, and the basis of religious community. Also listed as Sociology C112.

C183. Geography of Religions. (3) Three hours of lecture per week. Formerly 183. Impact of belief systems on landscapes and environments; distribution of religions, sacred places, and spaces; pilgrimage; religious influences on population dynamics; holy cities; religion and political geography. Also listed as Geography C107.

C185A. Religion and Politics. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. Formerly 185A. The interaction of religion and politics. The primary focus is the impact of religion on modern American politics. This course will be supplemented by historical and comparative analyses of the role of religion in politics. Also listed as Political Science C163A.

C185B. Religion and Politics. (4) Three hours of seminar and one hour of discussion per week. Prerequisites: Political Science 163A and consent of instructor. Formerly 185B. Interaction of religion and politics. The primary focus is the impact of religion on modern American politics. This course will be supplemented by historical and comparative analyses of the role of religion in politics. Also listed as Political Science C163B.

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 university. Successful completion of the course will normally, but not necessarily, mean the awarding of honors. Independent study. Must be taken on a pass/credit basis. (F,SP) Staff

198. Directed Group Study. (1-4) Course may be repeated for credit. Independent study. Must be taken on a pass/credit 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 pass/credit basis. Staff

Rhetoric (College of Letters and Science)

Department Office: 7408 Dwinelle Hall, (510) 642-1415 http://rhetoric.berkeley.edu/
Chair: Judith Butler, Ph.D.

Professors
Daniel Boyarin, Ph.D. Jewish Theological Seminary of America. Talmud, Judaism and Christianity in Late Antiquity, gender, gender, rhetoric of interpretation.
Seymour Chatman, Ph.D. Columbia University. Narrative structure, film, semiotics
Daniel F. Melia, Ph.D. Harvard University. Oral literature, and literature
Anton Kaes, Ph.D. Stanford University. Film theory, film theory and semiotics, Avant Garde cinema, documentary, feminist theory.
Daniel Boyarin, Ph.D. Jewish Theological Seminary of America. Talmud, Judaism and Christianity in Late Antiquity, gender, gender, rhetoric of interpretation.

Judith Butler, Ph.D. Yale University. Feminist theory, sexuality studies, 19th and 20th century continental philosophy, philosophy and literature, social and political thought.

Anthony C. casciano, Ph.D. Harvard University. Philosophy and literature, aesthetics, the novel, critical theory, Renaissance/Elizabethan literature, early modern literature.

Carol J. Clover, Ph.D. University of California, Berkeley. Film and popular culture, oral literature, orality and literacy, medieval literature (esp. German vernacular), feminist theory.

David Cohen, Ph.D. Cambridge University, J.D. University of California. Social theory, legal and social history, legal theory, classical rhetoric, international law, human rights.

William Fitzgerald, Ph.D. Princeton University. Latin literature and society, lyric poetry, classical tradition, music and literature

Kaja Silverman, Ph.D. Brown University. Feminist theory, psychoanalytic, film theory, cultural studies.

Mihla T. Tihv, Ph.D University of Illinois. Postcolonial theory, film theory and aesthetics, Avant Garde cinema, documentary, feminist theory.

Linda Williams, Ph.D. University of Colorado. Film history and genre, melodrama and pornography, feminist theory, visual culture.

Robert L. Belbo (Emeritus), Ph.D. Northwestern University. Prosody, modern poetry, Russian poetry.

Shannon Jackson, Ph.D. Northwestern University. Political philosophy, analytic and continental, film theory, American politics.

Leonard Nathan (Emeritus), Ph.D. University of California. Poetry, translation

Barbara Shapiro (Emeritus), Ph.D. Harvard University. Early modern rhetoric.

Monica D. Ilano (Emerita), Ph.D. Northwestern University. Renaissance literature, humanist rhetoric.

Todd G. Willy (Emeritus), Ph.D. University of Iowa. The novel, Conrad, imperialism.

Associate Professors
David Bates, Ph.D. University of Chicago. European intellectual history, 18th-20th century Enlightenment thought, culture, political and revolutionary discourse, philosophy of history.

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.

Frederick Doan, Ph.D. Princeton University. Political theory, continental philosophy, theory, international relations, politics.

American political discourse, aesthetics and politics

Shannon Jackson, Ph.D. Northwestern University. Performance of local culture, social reform, the study and practice of oral performance, adaptation, and oral narrative.

Michael Maccus, Ph.D. Cambridge University. Narrative and culture and media and society, Early Modern and Modern literature, especially in Britain, Britain social and cultural history, 1500-1900

Daniel F. Melia, Ph.D. Harvard University. Oral literature, Celtic languages (Welsh, Irish), folklore, medieval history and literature.

Assistant Professors
Phong Chau, Ph.D. Cornell University. 20th century continental philosophy and critical theory, postcolonial theory and anthropology of postcolonial literatures theory of globalization philosophy and literature, legal philosophy, political and social theory, feminist theory.

Caroline Huntress, Ph.D. Cambridge University. Law and legal rhetoric, classical and late antique, history of political thought, Roman intellectual history, development of canon law and Christian orthodoxy, philosophy of history.

Ramona Nadaff, Ph.D. Boston University. Ancient Greek philosophy and literature, theory of the novel, history of philosophy, contemporary French thought, aesthetics.

Affiliated Faculty
Hubert Dreyfus, Ph.D. Harvard University. Continental philosophy, cognitive science, artificial intelligence, philosophy of technology.

Martin Jay, Ph.D. University of California Berkeley. European intellectual history, Marxist theory, visual discourse and culture.

Anton Kaes, Ph.D. Stanford University. Film theory, German cinema.

Anthony Long (Living Stone Professor of literature), Ph.D. University of London. Latin literature and Greece literature.

Hans Sluga, BPhil. Oxford University. Twentieth century European philosophy, analytic and continental.

Wittgenstein, Feuclal political philosophy.

Lecturer
Felipe Gutierrez, J.D., Ph.D. University of California, Berkeley. Contemporary rhetorical theory, social theory, legal rhetoric.

Department Overview
Rhetoric majors are trained in the history of rhetorical theory and practice, grounded in argumentation and in the analysis of the symbolic and institutional dimensions of discourse. The department offers both a pragmatic understanding of rhetorical analysis-with special attention to logic, style, tropes, figures, images, and a thorough grounding in the historical development of these elements in rhetorical theory. This combination allows students to make a disciplined grasp of the contemporary character of rhetoric and language. Through its emphasis on the history and theory of rhetoric, the department provides an understanding of the form of contemporary theories of 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 lower 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 others outside that area. Additionally, 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 and 20 with letter grades of C or better before declaring the major. These courses are prerequisite to all upper division courses unless otherwise specified. Lower division requirements should be completed by the start of 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 upon 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 intellectual developments in Europe for 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, 190.

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 public forums of the past and present. Courses in this area include 131, 141AC.
Graduate Program

The Department of Rhetoric offers an interdisciplinary Ph.D. program focusing on the study of rhetorical theory and the interaction of the historical concerns of rhetoric with contemporary critical theory across a broad spectrum of disciplines. 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 an investigation into the rhetorical constitution of the arguments of such fields as law, politics, literature, film, and social thought. The interests of faculty and graduate students thus range throughout these fields and are informed by a critical interest in the rhetoric of disciplines. During their first two years, graduate students explore major areas in the history and theory of rhetoric and pursue a variety of special topics in seminars. Beginning in their fourth semester, they concentrate in greater depth on preparation for their doctoral qualifying examinations and dissertation research. Six semester courses are required, of which at least five must be graduate courses 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 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

Note: Check with department for exact course offerings during the year.

R1A. The Craft of Writing. (4) Three hours of lecture per week. Prerequisites: Subject A or examination. Formerly 1A. Rhetorical approach to reading and writing argumentative discourse. Close reading of selected texts; written themes developed from class discussions 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. 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, fallacies, as well as various non-logical appeals. Also, the course will treat in introductory fashion some ancient and modern attempts to relate rhetoric and logic. (F,SP) Staff.

20. Rhetorical Interpretation. (4) Three hours of lecture and one hour of discussion per week. Introduction to the study of rhetorical interpretation, treating how the action of tropes, figures, and performance generates meaning in communication: from fiction and other forms of literature, to politics, to film, to visual and material culture generally. (F,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 pass/Not Pass basis. The Berkeley Seminar Program has been designed to provide new students with the opportunity to undertake the two-semester honors thesis sequence, Rhetoric H190A-H190B. Students work under the supervision of a selected rhetoric faculty member. Four units of credit (2 units each semester) for the H190A-H190B sequence may be applied toward graduation as upper division units and fulfillment of one major upper division elective. Honors candidates who complete the 4-unit course with a letter-grade of A- or better and maintain the required GPAs will receive a BA with honors in the major. Seniors eligible to enroll in the honors program must begin arrangements with the faculty member who is willing to direct their honors thesis in the semester before they enroll in H190A. See the undergraduate assistant for an approval signature and a brief orientation.

Minor Program

The goal of the minor program in rhetoric is to introduce students to the methodological procedures and interdisciplinary approach of a field that examines all disciplines from the outside and poses questions such as: how is philosophy (or law, or politics, etc.) constituted as a field? What kinds of discourses are considered legitimate within this field? And what kinds of knowledge are produced and institutionalized as a result? To this end, minors are encouraged to take Rhetoric 10, 20, 103A, and 103B. This combination provides an overview of philosophical discourse; literary and cultural discourse; theoretical inquiry into law, politics, and society; rhetoric and theory of film, as well as experience in a diachronic overview of the evolution of these fields. For further upper division courses from courses numbered between 105-179 and 196 are left to the discretion of the minor student.

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C. Narrative and the Image. This area focuses upon understanding the function of rhetoric in literary, cinematic, and visual texts, with emphasis on understanding the role of figure and image in the representation of reality. Students consider the production and reception of narrative—oral, epic, folktales, lyrical poem, novel, etc.—and film, in an attempt to understand the boundaries of the aesthetic as a rhetorical analysis of particular literary and visual genres arising in a variety of cultures and historical epochs. Courses in this area include 119, 121A-121B, 122, 123, 124, 125, 126, 127, 128, 129, 133, 134, 135, 139, 139AC, 156, 176, 178, 180AC, 196.

*If course topic is appropriate

Declaring the Major. Declare rhetoric after completing Rhetoric 10 and 20 with letter grades of C or better. Obtain a Petition to Declare the Major and the rhetoric major application from the undergraduate assistant in 7404 Dwinnelle Hall. The petition is also available from the College of Letters and Science, 113 Campbell Hall. Present a copy of your transcript along with your petition and application to the undergraduate assistant for an approval signature and a brief orientation.

Passed or Not Passed. No course taken on a pass/Not Pass basis may be used to satisfy a requirement for the major or minor.

Honors Program

Seniors must complete Rhetoric 10, 20, 103A, and 103B and maintain a minimum 3.7 GPA in rhetoric and a 3.5 overall Berkeley GPA. Students work under the supervision of a selected rhetoric faculty member. Four units of credit (2 units each semester) for the H190A-H190B sequence may be applied toward graduation as upper division units and fulfillment of one major upper division elective. Honors candidates who complete the 4-unit course with a letter-grade of A- or better and maintain the required GPAs will receive a BA with honors in the major.

Seniors eligible to enroll in the honors program must begin arrangements with the faculty member who is willing to direct their honors thesis in the semester before they enroll in H190A. See the undergraduate assistant for an approval signature and a brief orientation. Graduating honors candidates who complete the major requirements but take an incomplete in the H190A-H190B series must repeat the course to earn the degree. Neither the degree list nor honors will not appear on their official transcripts or diplomas.

39. Freshman/Sophomore Seminar. Course may be repeated for credit as topic varies. Sections 1-3 to be graded on a letter-grade basis. Sections 4-6 to be graded on a pass/Not Pass basis. Prerequisites: Priorly 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. Students must vary from semester to semester and from department to semester. Staff.

40AC. Rhetoric of Film in American Cultures. (4) Course may be repeated for credit. Three hours of lecture plus film screening per week. Prerequisites: 1A-1B or equivalent. Study of the rhetoric of film in American culture, with emphasis on topics such as the ideology of race and gender, miscegenation, “passing,” and other cultural fantasies and anxieties. This course satisfies the American cultures requirement. (F,SP) Staff.

41AC. Race and Identity: Performing American Identities. (4) Three hours of lecture per week. This course focuses on the rhetorical construction of American identity. Drawing from among African American, Native American, Asian American, Latino, and European American oral and written traditions, the course will explore what it means to be “American.” The course will analyze and compare specific performances of identity and consider how these performances construct, maintain, and revolutionize cultural and ethnic identifications. This course satisfies the American cultures requirement. (SP) Staff.

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/Not Pass basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the department, and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

98. Supervised Group Study. (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: Consent of adviser. Instruction for a small group of students on a topic initiated by those students. (F,SP) Staff.

Upper Division Courses

Note: 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 per week. Prerequisites: 10 or consent of instructor. Formerly 101. 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 per week. Prerequisites: 10 or consent of instructor. Formerly 101. 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. Ex-amination of how rhetorical principles and patterns operate in an author’s or speaker’s presentation of self in relation to the character of an intended audience. Staff.

110. Advanced Argumentative Writing. (4) This course is equivalent to R110M. 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 pathetic appeals; control of register and tone; assessment of a wide variety of real audiences; genre studies. (SP)

110M. Advanced Argumentative Writing. (4) This course is equivalent to 110. Three hours of lecture per week plus individual conferences. Prerequisites: Any 1A-1B sequence or upper division standing. Majors only. Study and practice of advanced techniques of ar- gumentation for students with well-developed writing skills. Ethical, logical and pathetic appeals; control of register and tone; assessment of a wide variety of real audiences; genre studies. (SP) Staff

119. Genre in Film and Literature. (4) Course may be repeated for credit. Three hours per week plus film screenings. Prerequisites: Consent of instructor. Study of a particular genre (e.g., detective/mystery, horror/thriller, melodrama) with attention to theories of genre in popular culture. Staff

121A-121B. Rhetoric of Fiction. (4,4) Three hours of lecture per week. Prerequisites: A is prerequisite to B.
A. Form: Definition and techniques of narrative, including voice, point of view, time orders, and related matters.
B. Content and Context: Interpretation of authorial in- tent (e.g., did the author intend a particular meaning?) or selected works of modern fiction, in terms of their cultural and historical contexts. Staff

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. (SP) Staff

123. Poetry and Performance. (4) Three hours of lec- ture per week. Prerequisites: 10 or consent of instructor. The class studies poetry from diverse cultures as performance art. It examines the creative processes of poetry through oral interpretive techniques. Students will explore their own writing in light of the work of poets and writers from diverse cultures. Three hours of lecture per week plus viewing sessions. Course may be repeated for credit. 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. (SP) Staff

125. Poetics and Poetry. (4) Three hours of lecture per week. Prerequisites: Upper division standing. Students will examine the development of poetic discourse largely defined by figures of speech and overall poetic structures. (SP) Staff

126. Rhetoric of the Realist Novel. (4) Three hours of lecture per week. Prerequisites: Upper division standing. Rhetorical analysis of the realist novel in the context of intellectual and social history. The course will explore the development of literary realism in re- lation to the social problems of industrialization and ur- banization in nineteenth-century Europe. Staff

127. Novel and Society. (4) Course may be repeated for credit with consent of instructor. Three hours of lec- ture per week. Prerequisites: 121A and 121B. Inten- sive analysis of novelistic discourse with specific refer- ence to social context. Focus on authorial intention as a form of social practice. 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

C131. Rhetoric of Religious Discourse. (4) Three hours of lecture per week. Consideration of the rhetoric of religious interpretation, both literal and spiritual, with special emphasis on the mythical, symbolic, and allegorical language as the bearer of persuasive intention. Also listed as Religious Studies C111. Staff

132. Rhetoric, Culture and Society. (4) Three hours of lecture per week. Study of the role of rhetoric in the context of social and cultural change with particular reference to the pre-industrial transition from pre-industrial to in- dustrial society in the west. (F,SP) Staff

133. Selected Topics in Film. (4) Course may be re- peated for credit as topic varies. Three hours per week plus viewing sessions. Prerequisites: Upper division standing. A study of a film topic not covered by the other film categories. This course might focus on the work of a single filmmaker, a particular cinematic “theme,” or a nonrhmonic and nongeneric category. Ex- amples: Feminist Film Practice, Gay and Lesbian Cin- ema, Race and Cinematic Representation, Alfred Hitchcock, Staff

134. National Cinema. (4) Course may be repeated for credit as topic varies. Three hours of class per week plus film viewing. Prerequisites: Upper division standing. An introduction to a major national cinema, and to the relationship between cinema and national identity. Examples: Italian Cinema after Neorealism, German Cinema before and after World War II, American Cinema, and French Cinema, Staff

135. Rhetoric of Narrative Genres in Nonliterate Societies. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. In- vestigation of the rhetorical and cultural principles com- mon to various genres of narrative, both prose and po- etic, in nonliterary societies. 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, per- suasion and play in rhetorical 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 pop- ular cultures. Staff

138. Rhetoric and Literature under the Roman Em- pire. (4) Three hours of lecture per week. Prerequi- sites: 103A, and consent of instructor. The course will examine the manipulation of rhetoric by Roman au- thors of the first century A.D., with special attention to their use of rhetoric to demonstrate their claim upon the corruption of language and mean- ing in the hands of imperial ideology. No knowledge of Latin required. Staff

139. Rhetoric of Autobiography. (4) Three hours of lec- ture per week. Prerequisites: Upper division standing. Rhetorical analysis of autobiographical discourse, with specific attention to the evolution of the genre in relation to changing modes of human subjectivity. Staff

139AC. Autobiography and American Individual- ism. (4) Three hours of lecture per week. Prerequi- sites: Upper division standing. Rhetorical analysis of autobiographical discourse in American cultures, with special attention to the ideology of individualism. This course satisfies the American cultures requirement. (F,SP) 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 dis- course of qualities, with focus on how we speak about the “howness” of things as opposed to the “whatness” of things. Topics to include questions of taste, aesthetic judgment, expression, and representation. Staff

141AC. American Cultures as a Problem of Post- Modernity. (4) Three hours of lecture per week. Drawing on fiction and philosophy, this course explores the nature of political, ethical, and aesthetic judgment in the absence of consensus and the emergence of an allencompassing, decision-making procedure. Emphasis on the relevance of modernism to American culture. This course satisfies the American cultures requirement. (F,SP) Staff

150. Rhetoric of Contemporary Politics. (4) Three hours of lecture per week. Study of the character of rhetoric in the context of social and cultural change with particular reference to the pre-industrial transition from pre-industrial to in- dustrial society in the west. (F,SP) Staff

152AC. 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

153. American Political Rhetoric. (4) Three hours of lecture per week. This course explores the history of rhetoric in the context of social and cultural change in America. Three hours of lecture per week. Examination of the ways in which American citizens have discussed their rights and obligations, and the legitimate modes of political action open to them. Readings cover the 17th through the 20th centuries and may include discussion of sermons, novels, philosophy, social and political theory, autobiographies, declassified government documents, Congressional testi- mony, and films. Staff

154. Rhetoric of the Political Novel. (4) Three hours of lecture per week. Examination of major 19th and 20th century works of fiction in which political stances are central to the development of the character and the relationship between the two. 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. (SP) Staff

155. Rhetoric of the Political Theorist. (4) Three hours of lecture per week. Study of the theoretical and historical materials as well as legal and governmental documents. This course satisfies the American cultures requirement. Staff

157A. Rhetoric of Modern Political Theory. (4) Three hours of lecture per week. Formerly 157. Study of the theoretical and historical materials as well as legal and governmental documents. This course satisfies the American cultures requirement. Staff

157B. Rhetoric of Contemporary Political Theory. (4) Three hours of lecture per week. Study of the theoretical and historical materials as well as legal and governmental documents. This course satisfies the American cultures requirement. Staff

159A. Great Theorists in the Rhetoric of Political and Legal Theory. (4) Three hours of lecture per week. Prerequisites: Permission of instructor. This course explores the development of one or two theo- rists or an important theme or issue, with close read- ings of major texts as well as attention to important commentators. Staff

159B. Great Theorists in the Rhetoric of Contem- porary Political and Legal Theory. (4) Three hours of lecture per week. Prerequisites: Permission of in- structor. This course concentrates on aspects of 20th century political, social, and legal theory that are too complex to be treated comprehensively as one section of the courses in modern theory. Staff

160. Introduction to the Rhetoric of Legal Dis- course. (4) Three hours of lecture per week. The ap- plication of rhetorical methodology to all categories of legal texts. (F,SP) Staff

162AC. 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

163AC. Law, Ethnicity, and the Rhetoric of National Security. (4) Three hours of lecture per week. Prerequisites: Upper division standing. Staff

165. Argument and the Legal Process. (4) Three hours of lecture per week. This course examines the way in which the category of “na- tional Security” has emerged in political and legal discourses and how it has affected the relationship between citizens and the state. Focus on American constitutional law as it affects the rights of individuals. Course will cover particular attention to the role which framing a debate on political discourse on national security and the concept of “national Security” in the way in which the category of “na- tional Security” has emerged in political and legal discourses and how it has affected the relationship between citizens and the state. Focus on American constitutional law as it affects the rights of individuals. Course will cover particular attention to the role which framing a debate on political discourse on national security and the concept of “national Security” in the way in which the category of “na- tional Security” has emerged in political and legal discourses and how it has affected the relationship between citizens and the state. Focus on American constitutional law as it affects the rights of individuals. Course will cover particular attention to the role which framing a debate on political discourse on national security
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genics movement and its impact on immigration poli-
cies and legalized sterilization, the internment of Japan-
ese-Americans and other groups during World War II, and
the role of racial ideologies in national and
international politics in World War II and the post-war
era. This course satisfies the American cultures re-
quirement.

164. Rhetoric of Legal Theory. (4) Three hours of
lecture per week. Rhetorical methodology applied to
close analysis of the argumentative framework of im-
portant works in modern legal theory. (F, SP) Staff

165. Rhetoric of Legal Philosophy. (4) Three hours
of lecture per week. Consideration of basic philo-
sophical issues related to the political and moral foun-
dations of the law. Staff

166. Rhetoric, Law, and Politics in Ancient Greece.
(4) Three hours of lecture per week. Examination of
the role of rhetoric in Greek legal and political thought.
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 consid-
eration of particular rhetorical themes in the field of le-
gal theory, legal philosophy, and legal argumentation.
(F, SP) Staff

168. Rhetoric, Law, and Political Theory, 1500-
1700. (4) Three hours of lecture per week. Examina-
tion of the European political and legal discourse from
1450 to 1700. (F, SP) Staff

169. Rhetoric of Social Science. (4) Three hours
of lecture per week. Analysis of the ways in which polit-
ical 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 “strate-
gies” through which social knowledge is transformed
into objective information. Staff

170. The Problem of Mass Culture and the Rhetor-
ic 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 scrutiny 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. Examination of the rhetor-
ical practices of selected narrative historians such as
Gibbon and Carlyle; historical discourse considered as
a theoretical act. Staff

175. Rhetoric of Philosophical Discourse. (4) Three
hours of lecture per week. Introduction to theoretical is-
sues involved in applying rhetorical analysis to philo-
sophical discourse intensive analysis of selected philo-
sophical works. Staff

177. Language, Truth and Dialogue. (4) Three
hours of lecture per week. Examination of philosophical
dialogues from Plato to Heidegger. Focus on the inter-
action within the dialogue, the participation required of
the reader/listener, and the relation of such interaction and
participation to thinking, speaking and knowing. Staff

178. The Rhetoric of the Novel. (4) Course may be
repeated for credit. Three hours of lecture/discussion
per week. Prerequisites: Any 1A-1B sequence or up-
per division standing. A study of the origins and trans-
formations of the genre as a whole, with special ref-
course to the relationship between the rhetoric of
novelistic discourse and the social history of the mod-
ern individual. Readings will be drawn from primary
and secondary sources in the Western tradition, in
translation where appropriate. Staff

179. Rhetorics of Sexual Exchange. (4) Three hours
of seminar per week. Prerequisites: Consent of in-
structor. This course will examine how the figure of
woman as gift or object of exchange has developed in
the theoretical work that has influenced contemporary
debates in feminist and gay studies such as
critical race theory. Readings will include Marx, Levi-
Strauss, Mauss, Juliet Mitchell, Gayle Rubin as well as
essays on prostitution, slavery, property, and AIDS.
The course will seek to underscore both the impor-
tance and limitations of the model of exchange for con-
temporary cultural analysis. (F, SP) Staff

180AC. Rhetoric of Race and Science. (4) Three
hours of lecture per week. Analysis of how science has
been used to establish or undermine the authority of
particular views about ethnic or racial groups, the role
of those groups in formulating scientific discourse, and
the rhetorical strategies used to transform social agent
issues into scientific fact. This course satisfies the Amer-
ican cultures requirement. (F) Staff

181. Undergraduate Seminar on the Theory and
Practice of Reading and Interpretation. (4) Three
hours of lecture per week. Prerequisites: Any 1A-1B
sequence and consent of instructor. Introduction to
contemporary theories of reading and interpretation in
the humanities, from structuralism through psycho-
analysis, with an emphasis on theories of the sign
(semiotics). Examples drawn from such fields as con-
temporary literature, architecture, history, painting, film,
and popular culture. Staff

H190A-H190B. Honors Thesis. (2, 2) Tutorial. Stud-
dents 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 direc-
tor 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 topics. Three hours of lecture/se-
minar per week. Prerequisites: Consent of instructor.
Staff

198. Supervised Group Study. (1-3) Course may be
repeated for credit. Tutorial. Must be taken on a passed/not passed basis. Prerequisites: 3.0 GPA. 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. Staff

(3) Three hours of seminar per week. Prerequisites:
Graduate status. A detailed examination of the de-
velopment of the Western rhetorical tradition in ancient
Greece and Rome. This course is normally required of all
graduate students. Staff

205. Contemporary Rhetorical Theory and Criti-
cism. (4) Three hours of seminar per week. Prereq-
usites: Graduate status. Intensive examination of the
central issues confronting rhetorical criticism in the
twentieth century. Normally required of all graduate
students. Staff

C221. Aesthetics as Critique. (4) Three hours of lec-
ture per week. Formerly 221. A close reading and dis-
cussion 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.

(4) Course may be repeated for credit as topic varies.
Three hours of seminar per week. Prerequisites: Grad-
uate status. Study of historical and theoretical aspects of
rhetoric in ancient Greece, Rome, the Greek and Roman
periods, the Renaissance, the 17th century Enlightenment,
and so forth) may be specified. (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. Ad-
vanced investigation of the rhetorical dimensions of
various modes of discourse. Specific topics to be an-
nounced. Staff

240A. Poetry. (4) Staff

240B. Novel. (4) Staff

240D. Nonfictional Prose. (4) 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 an-
alytic 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 de-
veloping techniques for further analysis of the role that
cultural norms of gender have played in the history of
science. Staff

240J. Film Theory. (4) Course may be repeated for
credit as topic varies. Three hours of seminar per
week. Prerequisites: Graduate status. Advanced in-
vestigation of the rhetorical dimensions of various
modes of discourse. Specific topics to be announced.
Staff

241. Advanced Rhetorical Studies of Genre in Me-
dia and Literature. (4) Course may be repeated for
credit as topic varies. Three hours of seminar per week
and cinema. Examples: New German Cinema, Japanese
Cinema, American Sound Cinema, and Cinema and Na-
tional Identity. Staff

243. Special Topics in Film. (4) Course may be
repeated for credit as topic varies. Three hours of sem-
inari per week plus two film viewings. Prerequisites:
Graduate standing. A theoretical investigation of a major
national cinema, or the question of national identity through
a series of national cinemas. Examples: New German
Cinema, Japanese Cinema, and Cinema and Na-
tional Identity. Staff

245. Film and Cinema and National identity.
(4) Three hours of seminar per week plus two film viewings.
Prerequisites: Graduate standing. A theoretical investigation of a major national
cinema, or the question of national identity through
a series of national cinemas. Examples: New German
Cinema, Japanese Cinema, American Sound Cinema,
and Cinema and National Identity. Staff

246. Special Topics in Film. (4) Course may be
repeated for credit as topic varies. Three hours of sem-
inari per week plus two film viewings. Prerequisites:
Graduate standing. Staff

247. Rhetorical Theory and Criticism. (4) Course
may be repeated for credit as topic varies. Three hours of
seminar per week. Staff

248. Graduate Study 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 crit-
ized. Focus may be on the rhetoric of a particular im-
age or set of images, or on more broadly theoretical
writings about image. (F, SP) Staff

270. Proseminars in Rhetoric. (2-4) Course may be
repeated for credit. Three hours of seminar per
week. Prerequisites: Graduate status. Staff

C291A. Oral Performance: Noetics and Poetics. (4)
Course may be repeated for credit. Three hours of
seminar per week. Prerequisites: Consent of instruc-
tor. Formerly 291A. This seminar will explore how oral
performance traditions organize and manage knowl-
edge. Emphasis will be placed upon the totality of the
performance, with a focus upon music as a coter-
minant of the meaning and a catalyst for composing the
text. Also listed as Music C291A and Southeast
Asian C291A.
Scandinavian / 433

Scandinavian
(College of Letters and Science)

Graduate Office: 6303 Dwinelle Hall, (510) 642-4484
http://ls.berkeley.edu/dept/scandinavian
Graduate Adviser:
Mark Sandberg, Ph.D. University of California, Berkeley. Lyric, history, learning
Graduate Courses

212. The Romance Epic. (3) Three hours of seminar per week. Problems in the study of French, Spanish, and Provençal epic: origins, development, textual transmission, style, structure, the role of the court in the context, and relationships to other genres. Duggan

299. Special Advanced Study. (1-12) Course may be repeated for credit. Variable. Must be taken on a satisfactory/unsatisfactory basis. Individual research. (F,SP) Staff

Department Overview

The Department of Scandinavian offers undergraduate and graduate instruction in the languages, cultures, and literatures of northern Europe. Languages taught are Danish, Finnish, Norwegian, Swedish, and Old Norse-Icelandic. Lower division Reading and Composition courses based on Scandinavian materials are also offered. Lower and upper division lecture courses, all based on readings in English and open to those without a knowledge of Nordic languages, cover a wide variety of topics. The undergraduate major involves a program integrating the study of Danish, Norwegian, and Swedish literature with important aspects of Scandianvian culture and literature, and an undergrad-

Romance Languages and Literatures
(College of Letters and Science)

Graduate Office: 5309 Dwinelle Hall, (510) 642-8037

Advisers
Albert R. Ascoli, Ph.D. (Italian Studies)
Steve Berg, Ph.D. (Italian Studies)
Dru Dougherty, Ph.D. (Spanish and Portuguese)
David F. Hult (French)
Ignacio Navarrete, Ph.D. (Spanish and Portuguese)
Nicholas Paige, Ph.D. (French)

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 literatures, phonology, syntax, semantics, pragmatics, sociolinguistics, philology (textual criticism, medieval literature), and the application of linguistics to literature. Plan II requires a detailed knowledge of the major language and its history, or the structure, on whether the student’s preferred orientation is diachronic or synchronic. Plan III requires a detailed knowledge of the 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, Rumanian, or Romance-based creoles); (c) a breadth of applied linguistics (phonology, morphology, syntax, semantics, pragmatics, sociolinguistics), philology (textual criticism, medieval literature), and the application of linguistics to literature, the 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.

Students are admitted for one of the three plans whose prerequisites vary slightly. Plans I and II require a B.A. degree with studies in Spanish, Italian, or French, approximately 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, or a B.A. in linguistics with expertise in at least two major Romance languages.

Students are admitted to the department of the language and literature of major emphasis.

Plan I requires a detailed knowledge of the major language, knowledge of one collateral language 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, faculty members of the dissertation committee together. The dissertation is expected to embody the results of original research on a subject chosen in consultation with the dissertation committee.

The normative time allowance for completing the doctoral program is six years.

Graduate Courses

Students in the Romance Languages and Literatures degree program draw upon the full range of courses offered by the Departments of French, Italian Studies, and Spanish and Portuguese. Please refer to departmental listings in this catalog.

Graduate Courses

201. Special Topics I. (1-5) Course may be repeated for credit. Must be taken in consultation with the director. (F,SP) Staff

202. Special Topics II. (1-5) Course may be repeated for credit. Must be taken in consultation with the director. (F,SP) Staff

203. Special Topics III. (1-5) Course may be repeated for credit. Must be taken in consultation with the director. (F,SP) Staff

299. Special Advanced Study. (1-12) Course may be repeated for credit. Variable. Must be taken on a satisfactory/unsatisfactory basis. Individual research. (F,SP) Staff
The Major

The major emphasizes one of three Scandinavian languages, as noted above, but in their course work students explore all phases of Scandinavian literature and cultural history from the medieval to the modern across national boundaries. The major affords students the opportunity to pursue interdisciplinary interests through Scandinavian departmental courses and through double majors with other fields. Several of the areas in which Scandinavia has made a major contribution are history, drama, medieval literature, folklore, architecture, public policy, linguistics, international studies, peace studies, political science, film, economics, and environmental studies. Students should consult with the undergraduate faculty adviser early on for advising and course planning to assist in achieving their goals.

Total units for the major: 46.

Lower Division (8 units). Three courses from the following course sequences: Scandinavian 1A-1B (Swedish), 3A-3B (Norwegian), or 4A-4B (Danish), or their equivalents.

Upper Division (38 units). Nine upper division courses, including the two-semester advanced language course sequence: Scandinavian 100A-100B or the equivalent plus two units of Major Research (Scandinavian 149). Two-semester upper division language sequence (8 units): Scandinavian 100A-100B (4-4, Scandinavian Languages and Linguistics, equivalent of Intermediate Danish, Norwegian, or Swedish).

Two history courses from the following (8 units): Scandinavian 123 (4), 127 (4), or 128 (4).

Five courses in literature, culture, or folklore chosen from the following (20 units): Scandinavian 106, 107, 108, 111, 116, 117, 123, 125, 127, 128, 140A, 140B, 150, 160, 165, 170, or 180 (4 units each).

Note: The undergraduate faculty adviser may approve substitutions for relevant courses taken in other departments or from the Education Abroad Program. Since Scandinavian 140A-140B is not offered consistently, the upper division course sequence and one history, literature, culture, or folklore course may be used as substitutes by permission of the undergraduate faculty adviser.

Scandinavian 149, Major Research (2 units): 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 consult 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. 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.

Note: Students with credit from Education Abroad courses should consult with the undergraduate 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 are taught in the same courses as in the major and courses taken in the program may be applied toward 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 Berkeley Programs for Study Abroad, 160 Stephens Hall, (510) 642-1356; http://www.ias.berkeley.edu/bpa/

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 and interdisciplinary programs from 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 applications 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. General requirements: 24 units in Scandinavian, including at least 12 for grade only, and a minor field or 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 the major and the minor fields, with emphasis upon the literature in the major language.

The Ph.D. in Scandinavian. General requirements: an M.A. in Scandinavian, or the equivalent. 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. Students will present three subjects at their qualifying examinations, a major and two minors. Upon passing the qualifying examination, the student is advanced to candidacy and begins dissertation research.

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) Tuomainen

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 competence in both the spoken and written language within a cultural context. (SP) Tuomainen

3A. Beginning Norwegian. (4) Three hours of language instruction and one hour of computer 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

3B. Intermediate Norwegian. (4) Three hours of language instruction and one hour of computer 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

4A. Beginning Danish. (4) Three hours of language instruction and one hour of computer 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

4B. Intermediate Danish. (4) Three hours of language instruction and one hour of computer laboratory per week. Students will develop the basic elements of communicative competence in both the spoken and written language within a cultural context. (SP) Staff

R5A. Reading and Composition. (4) Three hours of lecture per week. Prerequisites: Subject A or equivalent. Formerly 5A. Reading and composition in connection with the representation of Scandinavia by outsiders and insiders. Satisfies the first half of the Reading and Composition requirement. (F,SP) Staff

R5B. Reading and Composition. (4) Three hours of lecture per week. Prerequisites: R5A or equivalent. Formerly 5B. Reading and composition in connection with the representation of Scandinavia by outsiders and insiders. Satisfies the second half of the Reading and Composition requirement. (F,SP) Staff

12. Intermediate Finnish. (4) Three hours of language instruction and one hour of laboratory per week. Prerequisites: 4A or consent of instructor. This course will further develop the students' oral communicative competence, their reading and cultural understanding. More complex grammatical structures will be analyzed and practiced. (F,SP) Tuomainen

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. 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. Freshman Seminar. (3) Course may be repeated for credit as topic varies. Three hours of seminar per week. Designed to introduce students to an area of Scandinavian culture. Topics will vary from year to year; all readings are in English. Prospective students should consult with the instructor before enrolling in the course. (F,SP) Staff

75. Scandinavian Culture and Society. (4) Three hours of lecture/discussion per week. Course to concentrate upon four historical periods: the Viking Age, the Baroque (emphasis on scientific and political developments), the late 19th century (emphasis on literary and artistic developments), and the 20th century (emphasis on the politics and culture of the welfare state). Readings and discussion in English. (F,SP) Staff
100A. Scandinavian Languages and Linguistics. (4) Two hours of language instruction and one hour of lec-
ture per week. Prerequisites: 1B, 3B, or 4B or consent of instructor. Formerly 11, 13, 14. In the context of inter-Scandinavian commu-
nication, students will further develop their commu-
nicative competence, their reading and writing abilities and cultural understanding in their own target language (Danish, Norwegian, or Swedish). Students will spend three hours of work outside class per week with one hour of individual work in the Berkeley Language Media Center. Oral and written midterm and final. (F) Miller

100B. Scandinavian Languages and Linguistics. (4) Two hours of language instruction and one hour of lec-
ture in the cultural component per week. Prerequisites: 100A or consent of instructor. Formerly 101, 103, 104. Students will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP) Staff

102. Advanced Finnish. (4) Four hours of language instruction per week. Prerequisites: 12 or consent of in-
structor. Students will focus on acquiring commu-
nicative competence necessary to function in authentic situations of language use. Emphasis on grammatical, functional, and socio-linguistic skills in their own target language (Danish, Norwegian, or Swedish). Students will read and inter-
pret authentic language in both functional and literary contexts from a cultural per-
pective. Workload: Two-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 Scandinav-
ian immigrants. Oral and written midterm and final. (SP) Miller

C107. Plays of Ibsen. (4) Three hours of lecture/dis-
cussion per week. Reading and discussion of Ibsen’s major plays. Readings and discussion in English. Also listed as Theater C107. (F,SP) Sanford

C108. Strindberg. (4) Three hours of lecture per week. Reading and discussion of Strindberg’s major works, focusing on his dramas and their significance. Readings and discussion in English. Also listed as Theater C108. (F,SP) Staff

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 im-
ages and words meet. Starting with the work from the Western “classical” tradition we will proceed to inves-
tigate how word/image constellations operate in a va-
riety of media, including sculpture and poetry, painting and prose, death masks, tableaux vivants, photogra-
phy, and advertising. Also listed as Interdisciplinary Studies C100C. (SP) Sanders

115. Studies in Drama and Film. (4) Course may be repeated with consent of instructor. Three hours of lec-
ture per week with one hour of discussion. Variable subject matter, see departmental announcement for description. Sample topics: history of Scandinavian drama; history of Scan-
dinavian cinema, 20th century drama; the films of In-
gmar Bergman and Carl Dreyer. Readings and dis-
cussion in English. (F,SP) Staff

116. Studies in Prose. (4) Course may be repeated with consent of instructor. Three hours of lecture/dis-
cussion per week. Variable subject matter; see de-
partmental announcement for description. Sample top-
ics: Knut Hamsun, Kierkegaard, H. C. Andersen, Isak Dinesen, and other storytellers. Readings and dis-
cussion in English. (F,SP) Staff

117. Studies in Poetry. (4) Course may be repeated once for credit with consent of instructor. Three hours of lecture/discussion per week. Prerequisites: Reading knowledge of Danish, Norwegian, or Swedish. Variable subject matter; see departmental announcement for description. Reading, critical analysis, and interpreta-
tion of Scandinavian poetry and versefication from the 17th century to the present. Sample topics: thirteenth-century historical poetry; modernism; forms and genres; par-
ticular historical periods. (F,SP) Staff

120. The Novel in Scandinavian. (4) Course may be repeated for credit. Three hours of lectures/discussion per week. Reading and discussion of the great Scan-
dinavian novels; the development of the novel. Read-
ings and discussion in English. (F,SP) Staff

123. Viking and Medieval Scandinavia. (4) Three hours of lecture/discussion per week. Prerequisites: 125, 160. Students attend lectures and do all work in connection with one of the following courses: Saxo Grammaticus, ballads. Emphasis on Denmark and Sweden. Clover, 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) Clover

127. Scandinavia from 1520-1800. (4) Three hours of lecture and one hour of discussion per week. Scan-
dinavian society, history, and culture from the Refor-
mation through the Enlightenment. (SP) Møller

128. Scandinavia from 1800-the Present. (4) Three hours of lecture and one hour of discussion per week. Scandinavian society, history, and culture from the Napoleonic Era to the present. (SP) Møller

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 lan-
guage. Additional work, for majors in Scandinavian and other qualified students with permission of the in-
tructor, in connection with one of the following: Scan-
dinavian C107, C108, 115, 116, 117, 120, 163. Stu-
dents attend lectures and do all written work in the “main” course and also read assignments in the Scan-
dinavian languages and write a short paper. (F,SP) Staff

150. Studies in Scandinavian Literature. (4) Three hours of lecture per week. Variable subject matter; see departmental announcement for description. Sample topics: readings in the history of the Scandinavian languages; dia-
electological. (F) Clover

151. Early Scandinavian History and Culture. (4) Course may be repeated for credit. Three hours of lec-
ture per week. Variable subject matter; see depart-
mental announcement for description. Reading and analysis of representative works. (SP) Staff

152. Modern and Contemporary Scandinavian Lit-
erature. (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 announce-
ment for description. (SP, F) Staff

159. Independent Study and Research. (2-4) Course may be repeated for credit. Three hours of lecture per week. Topics will vary from semester to semester. Additional screening time may be required for timelimit topics. See departmental an-
nouncement for offerings. (F,SP) Staff

165. Scandinavian Folklore. (4) Three hours of lec-
ture per week. Scandinavian folklore, emphasizing oral narrative traditions (legends and folk tales, folklore, 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. Nordic Folklore and Mythology in Nordic Lands. (4) Three hours of lecture per week. Survey of the folklore and mythology of the principal non-Scan-
dinavian peoples of the Nordic lands: Finns, Saamis, Greenland, Iceland. Emphasis on Nordic traditions from other cir-
cum-polar traditions and from ancient and modern Scandinavian traditions. Readings and discussion in En-
lish. (SP) Lindow

180. Special Topics in Scandinavian. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Topics will vary from semester to semester. Additional screening time may be required for timelimit topics. See departmental an-
nouncement for offerings. (F,SP) Staff

200. Introduction to Graduate Study in Scandina-
avian. (4) Three hours of session per week. A problem-
oriented course concerned with major areas of grad-
uate study in Scandinavian: linguistics and philology, folklore, history, literary criticism. (F) 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) Clover

201B. Norse Literature. (4) Three hours of lecture per week. Prerequisites: 201A or equivalent. Literary pro-
duction of early Iceland and Norway. Reading of rep-
resentative texts in the original. (SP) Lindow


206. Studies in Philology and Linguistics. (4) Course may be repeated for credit. Three hours of lec-
ture per week. Variable subject matter; see depart-
mental announcement for description. Sample topics: readings in the history of the Scandinavian languages; dia-
electology. (F) Clover

208. Early Scandinavian Literature. (4) Three hours of lecture per week. Prerequisites: 201A or equivalent. Variable subject matter; see departmental an-
nouncement for description. Course normally focuses on one of two areas: Eddic and skaldic poetry; or sagas (royal family, legendary, courtly, epic). (SP) Clover, Lindow

221. Early Scandinavian History and Culture. (4) Course may be repeated for credit. Three hours of seminar per week. Historical topics from the Viking Age to the Reformation; emphasis is on extraterritorial sources. (F) Clover, Lindow

230. Reformation Through the 18th Century. (4) Three hours of lecture/discussion per week. Reading and analysis of representative literary and cultural works. (SP) Staff

233. Studies in Romanticism and Realism. (4) Course may be repeated for credit. Three hours of lec-
ture per week. Variable subject matter; see depart-
mental announcement for description. Reading and analysis of representative works. (F) Staff

240. Modern and Contemporary Scandinavian Liter-
erature. (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 announce-
ment for description. (F,SP) Staff

249. Graduate Studies. (1) Course may be repeated for credit. One hour of discussion per week. Prereq-
ulities: Graduate standing in Scandinavian. Additional work in connection with one of the following courses: Scandinavian C107, C108, 115, 116, 117, 120, 123, 125, 160, 165. Students attend lectures and do all written work in the “main” course, and also do assignments in the Scandinavian languages, and write a final paper. (SP, F) Staff

250. Seminar in Scandinavian Literature. (4) Course may be repeated for credit. Three hours of seminar per

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The text contains a list of courses offered in Scandinavian studies, categorized by type and level. Each course entry includes details on the prerequisites, hours, and topics covered. The courses range from introductory to advanced levels, covering various aspects of Scandinavian culture, literature, and history.
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week. Investigation of selected authors, topics, or problems. Variables subject matter; see departmental announce ment. (F,SP) Staff

298. Special Study. (2-12) Course may be repeated for credit. Tutorial. Designed to explore a restricted field involving the writing of a report. May not be submitted 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

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 advisor. 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 advisor 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. Two hours of lecture and one hour of individual study 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) Møller

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) Møller, Staff

Science and Mathematics Education

(College of Letters and Science)

Group Office: 4533 Tolman Hall, (510) 642-4207

Faculty

Alice M. Aggino, Ph.D. Stanford University. Artificial intelligence and expert systems, design theory and methodology. Staff

Andrea A. Olissia, Ph.D. Massachusetts Institute of Technology. Computers in education, instruction in mathematics. (Education and Mathematics Education)

Bernard R. Gifford, Ph.D. University of Rochester. Organizational theory, policy analysis, resource allocation policies, micro-implementation, fiscal stress management, technology transfer (Chancellor's Professor). (Education and Mathematics Education)

Rogers P. Hall, Ph.D. University of California, Irvine. Computers in education, instruction in mathematics. (Education and Mathematics Education)

John Ogbu, Ph.D. University of California, Berkeley. Comparative studies of minority education, cultural and social issues, gender. (Education)

Michael Ranney, Ph.D. University of Pittsburgh. Problem solving, knowledge representation and reorganization of knowledge. (Education and Mathematics Education)

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 required to attain in their chosen 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 thesis work, students will obtain 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 doing 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 8-12 hours per week. Course meetings augment research experience with discussions of readings and interaction with guest speakers. (F,SP)

211. Cross-Cultural Cognition and Learning. (3) Three hours of lecture per week. This course will examine cognition and learning as culturally and contextually situated activities from a variety of research perspectives. Topics cover an overview of theoretical issues and forms of knowledge representation including mental models, schema and numerical systems. Emphasis will be placed on exploring how content is incorporated into research design. Course concludes with review of the impact of cognitive studies on educational practice. (F)

212. Cognition and Learning in Social Context. (3) Three hours of seminar per week. Though thinking and learning often occur in social interactions, research on cognition tends to focus on the intra-individual level. This course explores the social dimension of cognition in the contexts of mother-child dyads, peer teaching, and teacher-led small group instruction. Course includes discussion of published research and analysis of videotapes from the focal contexts. The course concludes with a critical overview of educational programs that use group approaches to learning. (F)

220A. Introduction to the Psychological Bases for Science and Mathematics Education. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. An overview of psychological theory pertinent to research and development in science and math education. The course will include topics from development, cognitive, social, and diferential psychology.

220B. Research Design in Science and Mathematics Education. (3) Three hours of lecture/discussion per week. Prerequisites: 220A or consent of the instructor. Survey of experimental, quasi-experimental, and ethnographic methods in science and mathematics education research; critical evaluation of published research papers; and development of proposal for research project. Emphasis on process of formulating, criticizing, and refining research plans.

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 instructional design and technology. Development and implementation of computer-based instruction. Includes consideration of evaluation methods and development of implementation of instruction modules for topics in science and mathematics. (SP)

290. Human-Computer Communication. (3) Course may be repeated for credit. Two hours of lecture and three hours of laboratory per week. Prerequisites: One course in programming. Design and implementation of human-computer communication systems. Software, hardware, and cognitive aspects of communication. Help systems, windowing, menus, command languages, and knowledge representation. Implications for the design of instructional computing systems. (SP)

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. 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. (1-5) 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)

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
(Formerly Slavic Languages and Literatures)

Department Overview
The Department of Slavic Languages and Literatures provides instruction in the cultures of Russian and other Slavic peoples, as well as some of the non-Slavic peoples of Eastern Europe (Bulgarian, Czech, Hungarian, Polish, and Serbian/Croatian) and Eurasia (Chechen, Georgian, Uzbek, etc.). 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 interdisciplinary "area studies" approach. For this major track, a two-year sequence of study (or the equivalent) in Russian or another language is required. The major track in Russian Language and Literature focuses specifically on Russian language and literature. It requires three years of language coursework (or the equivalent). The major track in other Slavic languages and literatures allows students to focus intensively on Czech, Polish, or Serbian/Croatian.

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. The program is carried out in the last semester after the students complete the minor coursework.

Courses for majors and minors 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 Peace and Conflict Studies. While all majors in this track will gain knowledge of the whole area, the program allows each student to (1) emphasize a specific cultural region, or (2) to compare different regions, or (3) to define a particular field of study. Students are advised to see the major adviser in advance to prepare an individualized study plan. Students are encouraged to declare the major after the successful completion of two semesters of their designated elementary language emphasis.

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 course work, intensive summer language programs, or the Education Abroad Program.
Languages offered by this department that can be used for the major are Russian, Polish, Czech, Serbian/Croatian, Bulgarian, and Hungarian. The following languages have been offered periodically in our department or other departments and may, by special arrangement, be used for this major track: Georgian, Armenian, Kazakh, Ingush, Chechen, and Lithuanian.

(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 one additional lower division course in the department relevant to the major, e.g., Slavic 37, 39, 45, 46.

Upper Division (28 units): (1) One cultural topics course: Slavic 148, Topics in Russian Cultural History, or Slavic 158, Topics in East European and Eurasian Cultural History.

(2) One relevant course in the Department of History, e.g., History 171A, 171B, or 171C, 172; 173, 177.

(3) Five courses chosen from the upper division offerings of the Slavic Department, and the following courses outside departments: Geography 55; 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. Of these courses, a minimum of one and a maximum of three courses can 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 as-codinated language relevant to the program of study can be counted toward this requirement.

Major Track Program 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. (2) Nineteenth- and twentieth-century surveys of Russian literature (Slavic 45 and 46).

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, N, or 146).

(4) One course in culture selected from the following: Russian culture (Slavic 130, 131, 140, 146, 148, 190); the literatures of the other Slavic peoples (Slavic 150, 160, 170); folklore (Slavic 147); linguistics (Slavic 137); 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—for example, history—may be substituted with the permission of the major adviser.

Major Track in Czech, Polish, or Serbian/Croatian Language and Literature (53-56 units)
With advance consultation, students may arrange majors in Czech, Polish, or Serbian/Croatian.

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, and 46 (6 units), the requirements include:

(1) 10 units of the relevant elementary literature (Slavic 25A-25B (Polish), 26A-26B (Czech), 27A-27B (Serbian/Croatian)).

(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).

(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.

Total lower division units: 26
Total upper division units: 27-30

The 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

B prefix=course business majors
C prefix=course satisfies R&C requirement
P prefix=course satisfies American culture requirement
AC prefix=courses satisfies R&C requirement
H prefix=honors course
S prefix=satisfies R&C requirement
T prefix=course satisfies American culture requirement
*Professor of the Graduate School
†Recipient of Distinguished Teaching Award
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 in the department office). This application includes a preliminary statement of the thesis topic and names and signatures of the 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 Programs

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/literatures with an emphasis in either Czech, Polish, or Serbian/Croatian 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 grade-point average of 2.0 in upper division courses applied to the minor program is required. The minor can be declared the semester after all courses are completed for the minor or up to two weeks past the date of graduation. A Confirmation of Minor form (available from the department office) must be completed with the major adviser (who must be able to review and keep a copy of the student's unofficial transcript).

Note: The language minors are not open to native speakers of the languages.

Minor in Russian Language, Literature and Culture

Prerequisites: Four semesters of elementary and intermediate Russian (Slavic 1-4 or equivalent).

Five upper division courses (3 or 4 units each) in Russian language and/or Russian and 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: 15-20

Minor in Russian Language

Prerequisites: Four semesters of elementary/intermediate Russian (Slavic 1-4 or equivalent).

Four courses of advanced Russian (Slavic 101A-101B, plus two courses chosen from Slavic 104A, 104B, 180, 181, 182, 188); advanced Russian conversation (Slavic 120A or 120B).

Total lower division units: 20

Total upper division units: 16-20

Minor in Russian Literature

Prerequisites: Surveys of Russian literature (Slavic 45, 46).

One course on the culture of Russia or other Slavic nations (chosen from Slavic 138, 140, 146, 147, 148, 150, 160, 170).

Four courses in Russian literature (chosen from Slavic 132, 133, 134A-134B-134C-134D-134E-134F-134N, 136, 140, 180, 181, 182, 188).

Total lower division units: 6

Total upper division units: 19-20

Minor in Czech, Polish, Serbian, or Croatian Language and Literature

Prerequisites: appropriate language sequence (Slavic 25A-25B, 26A-26B, or 27A-27B) or equivalent.


Literature survey (Slavic 150, 160, or 170).

Two courses in the relevant literature (Slavic 151 and 152 or 161 and 162 or 171 and 172) or substitute approved by the major adviser.

Total lower division units: 10

Total upper division units: 17-18

Education Abroad

The Slavic Department actively encourages students to participate in study abroad programs in Russia and other Slavic countries. The University of California’s Education Abroad Program, students may spend a fall semester in Moscow, which provides intensive work on Russian language, literature, and culture. There is also a program in Budapest featuring Central European studies. Other institutions also offer programs in Russia and other Slavic lands, both during the school year and summer. Please consult with the major adviser for information about these programs.

Student Organizations

The Slavic Student Association, in conjunction with the Berkeley Chapter of Dobro Slovo, the National Slavic Honor Society, sponsors special events and social activities for undergraduate students who are interested in Russian, Slavic, and American Slavic heritages. Our campus hosts many Slavic-related lectures, concerts, films, conferences, and other events. A weekly Russian conversation hour is one of the Berkeley Slavic Department’s most lively institutions. The Polish Circle and Czech Circle meet regularly for discussions and social events. Film showings, of classic and contemporary films from Russia and other countries, are periodically organized by graduate students.

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 and the graduate assistant for additional information.

Admission to Graduate Study

Candidates for higher degrees must have completed an undergraduate major in Slavic languages and literatures or received equivalent training. Prospective and current students are encouraged to acquire a background in other related fields: European languages and literatures (especially French, German, Italian and English), literary theory, Russian and Western European intellectual history are useful for candidates in literary studies; for those in linguistics, preparation in French, German, Greek or Latin, and/or in general and comparative linguistics is desirable.

New students admitted to the Ph.D. program with an M.A. in Slavic or a related field from another institution are required to pass a screening (permission-to-proceed) examination. Continuing students who have earned an M.A. degree from this department may be recommended for admission to the Ph.D. program following successful performance on the M.A. comprehensive examinations and demonstrated aptitude for advanced work.
Czech

Lower Division Courses

26A-26B. Introductory Czech. (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; 116A is prerequisite to 116B. 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 fourteenth century, the National Revival of the nineteenth 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 per week. Prerequisites: 116A. Selected readings in Czech, tailored to the academic interests of students enrolled. 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. (5,5) 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; 115A is prerequisite to 115B. Sequence begins fall semester. (F,SP) Frick

150. Polish Literature and Intellectual Trends. (3) Three hours of lecture per week. A survey of the major writers, works, and trends of the Polish literary tradition from the Middle Ages to the present. Special attention devoted to the Renaissance, the age of Romanticism, and the modern period. No knowledge of Polish required. (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

152. Topics in Polish Language and Literature. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 115A may be taken concurrently. Studies in Polish literature, linguistics, or conversation, depending on the needs of the 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

14. Russian (Self-Paced). Self-paced course equivalent to Slavic 1 through 4. Students may enter or leave at any level. Any level may be repeated up to a total of five units. The student's program, including this course, must meet the minimum study-list requirement. If units beyond those contracted for are completed, credit will be given. (F,SP) Staff

14A. Russian (Self-Paced). (1-5) One to five hours of self-paced per week. Prerequisites: Graduate student standing or consent of instructor. Staff

14B. Russian (Self-Paced). (1-5) One to five hours of self-paced per week. Prerequisites: 14A or equivalent. Staff

14C. Russian (Self-Paced). (1-5) One to five hours of self-paced per week. Prerequisites: 14B or equivalent. Staff

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. Russian conversation course, open to graduate and undergraduate students, this course helps students to improve their pronunciation, bringing it closer to the native level. The course teaches a whole spectrum of oral skills, including phonetics, intonation, and rhetoric, taking into account different functional styles. Course may be taken for 1 unit (5 weeks: basic skills), 2 units (10 weeks: advanced skills) or 3 units (15 weeks: advanced phonetics and performance). (F,SP) Staff

102. Readings in Specialized Russian. (3) Course may be repeated for a maximum of 6 units. Three hours of lecture/discussion per week. Prerequisites: 4, 14D, or equivalent. Selected readings in scientific, technical, journalistic, and business styles to acquaint the student with the peculiarities of sociocultural, grammar, and phraseology. Staff

103A-103B. Advanced Russian. (4,4) Four hours of lecture per week. Prerequisites: 4, 14D, or equivalent. Course covers advanced aspects of Russian language and culture, building, listening exercises, and speaking activities. Staff

104B. Advanced Russian Composition. (3) Three hours of lecture per week. Emphasis on writing, translation, and lexical analysis. (SP) Staff

105A-105B. Advanced Russian/English/Russian Translation. (1-3;1-3) 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, technology, law, science, and culture. Elements of literary and poetic translation. Course may be taken for one unit (5 weeks: basic translation skills), two units (10 weeks: advanced skills), or three units (15 weeks: professional skills). (F,SP) Alexeev

109. Business Russian. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 103B or equivalent. 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 negotiations, to compile business contracts in Russian, and to read Russian business magazines. Elements of the business law of Russia will also be discussed. (F,SP) Alexeev

114. Advanced Self-Paced Russian for Native Speakers. (1-6) Course may be repeated for a maximum of 6 units. Individual conferences. Prerequisites: Oral proficiency; consent of instructor. Advanced self-paced course designed specifically for native speakers of Russian born in Russia or abroad who have never studied Russian grammar formally. Students master grammar at their own pace. (F,SP) Staff

120A-120B. Advanced Russian Conversation and Communication. (2-3;2-3) 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, this course explores Russian culture through communication. 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 Writers of Russian Literature. (3) Three hours of lecture per week. Formerly 39. Readings in English of representative texts from the Russian literary tradition. (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 required. Prerequisite to admission to the Slavic major and recommended for prospective graduate students. (F) Staff

46. Twentieth-Century Russian Literature. (3) Three hours of lecture per week. 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) Staff

Upper Division Courses

130. Medieval Russian Culture. (3) Three hours of lecture per week. Introduction to Eastern Orthodox culture of Old Russia, including literature, painting, and other visual arts. Staff

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 course examining Russian literature and culture in the 20th century. The course will focus on the interaction of literature, other artistic forms (painting, photography, or film), and broader social and political changes in one of the key transitional 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 and the post-Communist 90s). 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 respond to each other, resemble each other, and differ from each other, especially in their treatment of childhood, family, love, social theory, spirituality, and narrative. (F,SP) Knapp

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 description. (F,SP) Knapp

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 133 (formerly “The Foreign Contexts of Russian Literature,” now changed to “The Novel in Russia and the West”). Supervised by the instructor of the course.
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course in which the student is also enrolled. Final research paper of 10-15 pages required. (F,SP) Staff

134A. Gogol. (3) Three hours of lecture per week. Gogol’s complete fiction and plays. Staff

134B. Turgenev and Goncharov. (3) Three hours of lecture per week. The heyday of Russian Realism in two major nineteenth-century Russian novelists. Practice in critical approaches. Staff

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) 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) Staff

134E. Chekhov. (4) Three hours of lecture per week. Studies in the innovative master of modern narrative forms: short story, drama, letter. Extensive exposure to the life and times of Anton Chekhov. Practice in critical approaches to literature and theater. Writing-intensive course. (F,SP) Staff

134F. Nabokov. (4) Three hours of lecture per week. A thorough examination of Nabokov’s work as a novelist, critic, and literary theorist. Explores Nabokov’s fiction from his European and American periods, (imagined) relation to literary predecessors, and his construction of an authorial self. Extensive outside reading required for this course. (F,SP) Staff

134N. Studies in Russian Literature. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Variable subject matter; see Department announcement for description. Staff

134R. Research in Russian Literature. (1) Course may be repeated for credit. Individual consultation. Prerequisites: Consent of instructor. Special research project to be coordinated with lecture course. Course may be repeated for credit. (F,SP) Staff

136. The Russian Novel. (3) Three hours of lecture per week. Formerly 134. A study of major novels by Russian 19th- and 20th-century authors. Lectures and readings in English. Aimed primarily at non-majors, but may be used in satisfaction of upper division requirements for the major. Variable reading list (see course descriptions in the department). (F,SP) Staff

137. Introduction to Slavic Linguistics. (3) Students who have taken 210 may not receive credit for 137. Three hours of lecture per week. Prerequisites: Two years of a Slavic language or consent of instructor. An introduction to the Slavic languages, their structures and histories, and descriptive and theoretical principles for their analysis. The origin and ancient history of the Slavs. Staff

137R. 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 137. Supervised by the instructor of the lecture course in which the student is also enrolled. Final research paper of 10-15 pages required. Staff

138. Topics in Russian and Soviet Film. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. This course will examine the Russian contribution to film history and theory, with particular attention paid to the role of the cinema in Soviet culture and Russian films complex ties to literary and political movements. Variable topics. (F,SP) Niesbet

146. East/West Encounters: The Literatures of Orientalism. (4) Three hours of lecture per week. The course will explore the ways in which Asia or the Orient has been figured in the English, French, and Russian literary traditions from the 18th to the early 20th centuries. We will be interested in the different modes of exoticism, from the stereotyped to the revelatory, that have marked the meetings between “east” and “west” in the wake of the imperial cultures of Europe. (F,SP) Ram

148. Topics in Russian Cultural History. (4) Course may be repeated for credit. Three hours of lecture/ discussion per week. This course examines various dimensions of Russian culture—social, political, artistic, literary—in public and private life. The theory and method of cultural studies will be addressed, as well as concrete historical material pertaining to Russia. Topic and period variable. Instruction and texts in English, but students with a working knowledge of Russian are encouraged to do some reading in the original. (F,SP) Staff

180. Studies in Russian Literature. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 103A (which may be taken concurrently). A thorough examination of Nabokov’s work as a novelist, critic, and literary theorist. Explores Nabokov’s fiction from his European and American periods, (imagined) relation to literary predecessors, and his construction of an authorial self. Extensive outside reading required for this course. (F,SP) Staff

181. Readings in Russian Literature. (4) Three hours of lecture per week. Prerequisites: 103A (which may be taken concurrently). Study and analysis of the development of the Russian literary language and short fiction from the eighteenth century to the present. (F) Staff

182. Pushkin. (4) Three hours of lecture per week. Prerequisites: Admission to the Russian major (or consent of instructor). Three hours of lecture per week. Prerequisites: 103B (may be taken concurrently). Course conducted in Russian. Reading, analysis, and interpretation of representative authors from the nineteenth century to the present. (SP) Staff

190. Russian Culture Taught in Russian: Country, Identity, and Language. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: Consent of instructor. Study and analysis of the development of the Russian literary language and short fiction from the eighteenth century to the present. (SP) Staff

Gogol’s complete fiction and plays. Staff

27A-27B. Introductory Serbian/Croatian. (5) Five hours of lecture per week. Prerequisites: 27A is prerequisite to 27B. Beginner’s course. Sequence beginning Fall semester. (F,SP) Staff

27PA. Communication in Serbian/Croatian/Bosnian. (2) Two hours of lecture per week. Prerequisites: Consent of instructor. Focusing on language practice, this course develops vocabulary, reading and conversation skills at the introductory level. Course sequence begins each fall semester. The course should be taken in conjunction with Slavic 275A-275B; a course devoted to language structure. (F,SP) Staff

27PB. Communication in Serbian/Croatian/Bosnian. (2) Two hours of lecture per week. Prerequisites: 27PA; consent of instructor. Focusing on language practice, this course develops vocabulary, reading and conversation skills at the introductory level. Course sequence begins each fall semester. The course should be taken in conjunction with Slavic 275A-275B; a course devoted to language structure. (F,SP) Staff

275A. Introduction to the Structure of Serbian/Croatian/Bosnian. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Focusing on language structure, this course introduces students to the common linguistic core (grammar and structure) of the languages of the former Yugoslavia, mainly Serbian, Croatian, and Bosnian and considers the social and cultural situation of these languages. Course sequence begins each fall semester. This course is usually, but not necessarily, taken in conjunction with Slavic 272A-272B. (F,SP) Staff

275B. Introduction to the Structure of Serbian/Croatian/Bosnian. (3) Three hours of lecture per week. Prerequisites: 275A; consent of instructor. Focusing on language structure, this course introduces students to the common linguistic core (grammar and structure) of the languages of the former Yugoslavia, mainly Serbian, Croatian, and Bosnian and considers the social and cultural situation of these languages. Course sequence begins each fall semester. This course is usually, but not necessarily, taken in conjunction with Slavic 272A-272B. (F,SP) Staff

Upper Division Courses

117A-117B. Advanced Serbian/Croatian. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 27B is prerequisite to 117A; 117A is prerequisite to 117B. Sequence begins fall semester. (F,SP) Alexander

170. Survey of Yugoslav Literatures. (3) Three hours of lecture per week. Outline of major developments in Serbian (including Montenegro) and Croatian (including Dalmatian) literatures from the beginnings to the present. No knowledge of Serbian/Croatian required. (F,SP) Alexander

171. Readings in Yugoslav Literatures. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture/discussion per week. Prerequisites: 117A. Selected readings in Serbian and Croatian literature, tailored to the academic interests of students enrolled. Alexander

172. Topics in Serbian/Croatian. (3) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: 38SA-38SB; consent of instructor. Focusing on language structure, this course introduces students to the common linguistic core (grammar and structure) of the languages of the former Yugoslavia, mainly Serbian, Croatian, and Bosnian and considers the social and cultural situation of these languages. Course sequence begins each fall semester. This course is usually, but not necessarily, taken in conjunction with Slavic 275A-275B; a course devoted to language structure. (F,SP) Staff
General and Other Slavic Courses

Lower Division Courses

RSA-RSB. Writing and Reading about Russia. (4) [3] Three hours of lecture per week. Prerequisites: Subject A or equivalent for SA, 5A or equivalent for SB. Formerly 237. Composition course based on works of Russian writers, either in English or translated into English. As students develop strategies of writing and reading, they will become acquainted with a theme in Russian literature and its major voices. RSA satisfies the first half of the Reading and Composition requirement. RSB satisfies the second half. (F,SP) Staff

R37W. Languages and Peoples of Eastern Europe and the Former USSR. (5) Students will receive no credit for 37W after taking 37 or 37R. Six hours of lecture per week. Prerequisites: Completion of the 1A part of the Reading and Composition requirement. Formerly 37W. An introduction to the languages and peoples of Eastern Europe and the former USSR; languages and language families, ethnic origins, traditional culture, contemporary issues. No knowledge of any foreign language is required. Additional class meetings and regular reading and writing assignments totaling approximately 9000 words of writing. Satisfies the second half of the Reading and Composition requirement. (F,SP) Nichols

39. Seminar for Lower Division Students. (C) Course may be repeated for credit as a seminar to be a variable. Three hours of seminar per week. Variable topics including the cultural histories, languages, or literatures of Slavic and East European peoples. The seminar will include library research and one or more papers. No knowledge of a foreign language required. (F,SP) Staff

50. Introduction to Russian/East European/Eurasian Cultures. (3) Three hours of lecture per week. This seminar introduces students to the cultures of the peoples of the former Soviet bloc (Russia and other areas of the former Soviet Union, including Central and Eastern Europe) from early times to the present, with the 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. Required of majors in Russian/East European/Eurasian cultures, the course is also aimed at a broad audiance for credit. Three hours of lecture per week may be repeated for credit. Three hours of lecture per week may not be repeated for credit. (F,SP) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. These small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methodologies of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (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

100. Seminar: Russian, East European, and Eurasian Cultures. (4) Course may be repeated for credit. Three hours of seminar per week. An in-depth study of cultural history, literature, language, and society of Eastern Europe and the former Soviet Union. Variable topics. Course readings include primary texts (literature, film, popular culture, journalism) and scholarly work. Course work emphasizes students' research. Knowledge of the languages of the area is not required; students with knowledge of the languages will be given additional readings. Final research paper of 10-20 pages required. (F,SP) Staff

139. 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 Austroslavonic, Indo-European, Amerindian, American, Slavic, and Australian languages. 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 will examine the Russian and East European contribution to the practice and theory of the performing arts, especially (but not exclusively) theater. The course emphasizes the interaction of the performing arts in the social and cultural fabric. (F,SP) Staff

147. Slavic Folklore. (3) Course may be repeated once for credit with consent of instructor. Three hours of lecture per week. Oral traditional literature (tales, epics, lyrics, proverbs) of one or more Slavic countries. Customs, beliefs, and other forms of folklore may also be discussed. No knowledge of a foreign language required. (F,SP) Alexander

147R. Slavic Studies Research. (1) Individual-con- sultation. Research project to be approved by the in- structor. 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

149AC. Ideology and Ethnicity: Images of Soviet Russia in American Culture. (4) Three hours of lec- ture/discussion per week. Prerequisites: C131. The topic of this course is the role played by images of Soviet Rus- sia in the African-American, Chicano, and Jewish commu- nities since 1917. We will examine a wide range of sources—novels, memoirs, historical documents, and films—as we consider the ways the Soviet model has served as a catalyst for the reconsideration of ethnic, racial, and class identities in the United States. This course satisfies the American cultures requirement. (F,SP) Nesbet

158. Topics in East European/Eurasian Cultural History. (4) Course may be repeated for credit. Three hours of lecture/discussion per week. This course ex- amines various dimensions of different East European and Eurasian (Russia, 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 use reading in the original lan- guage. (F,SP) Staff

H19. Honors Seminar. (4) Individual conferences. Prerequisites: Overall and major grade point average of 3.3. Study and research on a topic selected by the student in consultation with the faculty adviser, to cul- minate in the writing of a thesis. See departmental de- scription of the Honors Program. (F,SP) Staff

198. Supervised Group Study for Undergraduates. (1-4) Course may be repeated for credit. Variable. (Minimum of one meeting per week and individual con- sultation.) Must be taken on a passed/not passed ba- sis. 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

Slavic

Graduate Courses

200. Graduate Colloquium. No credit. Must be taken on a satisfactory/unsatisfactory basis. Reports on cur- rent 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; 1033B or equivalent; consent of instructor. Advanced work in speaking, writing, and comprehension in order to develop and maintain superior proficiency. Discuss- ions and readings will focus on current cultural and political trends and other topics pertinent to Slavic studies. Special attention to the details of contempo- rary life in Russia and its changing colloquial speech. (F,SP) Staff

204. Russian Composition and Style. (4) Three hours of lecture per week. Prerequisites: 1033B. Essay- writing, analysis of texts, oral and written reports, and translation. (F) Staff

210. Old Church Slavic. (4) Three hours of lecture per week. Prerequisites: Reading knowledge of a mod- ern Slavic language or consent of instructor. Intro- duction to Old Church Slavic, with special attention to inflectional morphology. Assigned translations and sight reading of selected texts. (SP) Staff

214. Medieval Orthodox Slavic Texts. (4) Three hours of lecture/discussion per week. Prerequisites: 220. Assigned translations and sight reading of se- lected Medieval Orthodox Slavic texts. (F) Staff

220. Comparative Slavic Linguistics. (4) Three hours of lecture per week. Prerequisites: 210. Re- construction of common Slavic phonology and mor- phology in relation to Indo-European and modern Slavic languages. (F,SP) Staff

222. Descriptive Grammar of Slavic Languages. (4) Course may be repeated for credit. Three hours of lec- ture per week. Prerequisites: Knowledge of a foreign lan- guage. Survey of morphology and syntax of a con- temporary Slavic language (Czech, Polish, Russian, or Serbian/Croatian); see departmental announcement for topic. Recommended for prospective teachers. (SP) Staff

223. Advanced Structure of Slavic Languages: Grammatical Analysis and Theory. (4) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 222. Analysis of synchronic gram- mar and structure of discourse of a Slavic language (Czech, Polish, Russian, or Serbian/Croatian) with at- tention to theoretical models; see Department an- nouncement for topic. (F) Staff

230. Historical Grammar of Slavic Languages. (4) Course may be repeated for credit. Three hours of lec- ture per week. Prerequisites: 210. Historical morphology, morphology, and syntax of a Slavic language (Czech, Polish, Russian, or Serbian/Croatian). Some coverage of dialects. (F,SP) Staff

231. History of Slavic Literary Languages. (4) Course may be repeated for credit. Three hours of lec- ture per week. Prerequisites: Advanced knowledge of the modern language, 210:214 and at least one ad- vanced or graduate level literature course. Analysis of language and style of a Slavic literary language (Czech, Polish, Russian, or Serbian/Croatian) from the beginnings to the present, with emphasis on periods of major significance. See Department announcement for topic. Staff

233. West Slavic Linguistics. (4) Three hours of lecture per week. Prerequisites: 220. Linguistic history and dialectology of Czech, Polish, and lesser-known West Slavic languages (Slovak, Sorbian, Kashubian, Polabian). (SP) Timberlake

234. South Slavic Linguistics. (4) Three hours of lec- ture per week. Prerequisites: 220. Linguistic history and dialectology of Slovenian, Bulgarian, Macedonian, and Serbian/Croatian. (F,SP) Alexander

Staff

Nichols, Rhodes

Alexander

*Professor of the Graduate School

Recipient of Distinguished Teaching Award
238. Topics in Russian and Soviet Film Seminar. (4) Course may be repeated for credit. Three hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This course examines Russian and/or Soviet film within its cultural and theoretical contexts. The graduate students must produce a research paper by the end of the term. (F,SP) Niebert

239. Twentieth-Century Slavic Literary Theory. (4) Three hours of lecture/discussion per week. Prerequisites: 281, 282, 221, one of following: 245, 246,287, approval of instructor. Attempts to describe literary forms, poetic usage of language, and cultural infrastructure, as a code, examined as a consistent trend in 20th-Century literary theory. Consideration of this scholarly trend in historical perspective; its sources, evolution, and eventual dissipation. (SP) Staff

240. Russian Oral Tradition. (4) Three hours of lecture per week. Prerequisites: Much of the reading is in non-standard Russian, and there is a good command of the language. Major emphasis will be placed on the epics (byliny), but other forms of orally transmitted literature will also be discussed. (F,SP) Staff

241A-241B. Old Russian Literature. (4-4) Three hours of lecture per week. Prerequisites: Reading knowledge of Old Russian. Early Russian literature from the beginnings to 1700. (A) Kievan and early Muscovite literature.

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) Staff

243. The Russian Novel and Literatures of Western Europe. (4) Three hours of lecture per week. The development of the nineteenth-century Russian novel and its sources in and 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 sentimental 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 (1900s-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. (SP) Staff

246B. Contemporary Russian Literature (1920-present). (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) Staff

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 culture in the construction of everyday life. Topical and period variable. Instruction in English; texts in English and Russian. Students without reading knowledge of Russian should consult with instructor. (F,SP) Staff

255. Slavic Oral Epic. (4) Three hours of lecture per week. Prerequisites: 1038 or 117B, or consent of instructor. An introduction to the knowledge of either Serbian/Croatian or Russian. A comparison of Russian and South Slavic oral epic. Stylistic and poetic analysis of Serbian/Croatian and Russian texts with special attention to Parry-Lord oral formulaic theory. (SP) Alexander

270. South Slavic Oral Tradition. (4) Three hours of lecture per week. Oral epic songs of the South Slav. (F,SP) Alexander

280. Studies in Slavic Literature and Linguistics. (4) Course may be repeated for credit. Two hours of seminar per week. Advanced study 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. A survey of 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

287. Russian Poetry. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture per week. Prerequisites: Open to qualified under graduates. Class conducted in Russian. Russian poetry and versification (eighteenth, nineteenth and twentieth centuries); close readings of texts. Variable topics. (F,SP) Staff

289. Studies in the Languages of the Caucasus. (2-4) Course may be repeated for credit with consent of instructor. One hour of class meeting per week per unit. Prerequisites: Consent of instructor. Topics in the history, structure, and typology of the indigenous languages of the Caucasus, including the Caucasus as a lingustic area. Offerings can include the structure of Chechen, Nakh-Daghhestanian comparative grammar, the Northwest Caucasian (Azbakh-Circassian) languages, the languages of the Caucasus, and practical courses in Ingush, Chechen, and Georgien. (F,SP) Nichols

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. Normally reserved for students directly engaged upon the doctoral dissertation. (F,SP) Staff

601. Individual Study for Master’s Students. (2-6) 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. Individual study for the comprehensive or language requirements in consultation with a field adviser. (F,SP) Staff

602. Individual Study for Doctoral Students. (2-6) Course may be repeated for a maximum of 16 units. Course does not satisfy unit or residence requirements for 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

310. Internship in the Teaching of Literature/Linguistics. (1-2) Course may be repeated for credit. One 2-hour conference per semester. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Weekly meetings with the instructor of the directed 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) Three hours of lecture per week plus language laboratory. Prerequisites: 1A is prerequisite to 1B; consent of instructor. Practical instruction 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) Mihalik

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) Mihalik

Eurasian Studies

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 Georgian, 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 (Azbakh-Circassian) languages, etc. (F,SP) Nichols

Social Welfare

(School of Social Welfare)

School of Social Welfare Office: 120 Haviland Hall, (510) 642-4341 http://socialwelfare.berkeley.edu
Dean: James Midgley, Ph.D. Associate Dean: Urayne Godkanik, Ph.D. Director of Field Work: Bart Grossman, Ph.D. Coordinator of Academic Programs: Paul Terrell, D.S.W. Assistant Dean for Administration: James C. Steele Director of Admissions: Rafael Herrera, M.S.W.

Professors

Michael J. Austin, Ph.D. University of Pittsburgh. Management and planning, community organization
Eileen D. Gampelli, Ph.D. University of Michigan. Child welfare, mental health
Neil Gilbert, Ph.D. University of Pittsburgh. Social policy and planning
Mary Anthony, J.D. University of San Francisco. Ph.D., University of Michigan. Child welfare, mental health

Eurasian Studies

Graduate Courses

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Mary Anthony, J.D. University of San Francisco. Ph.D., University of Michigan. Child welfare, mental health
Lorraine R. Snowden, Jr., Ph.D., Wayne State University. Specialization in cross-cultural issues

Yiu-Wen Ying, Ph.D., University of California, Berkeley. Minor specialization in Asian American studies.

Jewelita Taylor Gibbs (Emeritus), Ph.D.

Emilie Goldhirsh (Emeritus), W.H.D.

Ralph M. Kramer, D.S.W. (Emeritus)

Tjames H. W. Leary, Ph.D. (Emeritus)

Henry Miller, D.S.W. (Emeritus)

Robert Pruger, D.S.W. (Emeritus)

Kermit T. Wiltse, D.S.W. (Emeritus)

Associate Professors

Jill Duver Barrick, Ph.D., University of California, Berkeley.

Kurt C. Organista, Ph.D., Arizona State University. Liaison for the major in social welfare, child development, and intervention.

Assistant Professors

Julian Chun-Chung Chow, Ph.D., Case Western Reserve University. Specialization in community practice, social policy, urban poverty.

Susan S. Ph.D., University of Chicago. Family and school influences on child and adolescent development.

Adjunct Professor

Bart Grossman, Ph.D., University of Michigan, Ann Arbor. Field education.

Lecturers

Rafael Herrera, M.S.W., University of California, Berkeley.

Paul Terrell, D.S.W., University of California, Berkeley. Social policy.

Field Work Consultants/Lecturers

Robert Ayasse, M.S.W., University of California, Berkeley.

Marina Bazony, M.S.W., University of California, Berkeley.

Barb Cornt, M.S.W., M.P.H., University of California, Berkeley.

Valerie Edwards, M.S.W., University of California, Berkeley.

Potter, M.S.W., University of Michigan, Ann Arbor.

Catharine R. M.S.W., University of California, Berkeley.

Barrak Robinson, M.S.S.W., Kent State University.

Lecturers

Claudia Alban, M.A., Harvard University.

Sherri King, Ph.D., University of California, Berkeley.

Mary Coombs, Ph.D., Rutgers University.

Tim N. M.P.A., University of San Francisco.

Barbara L. M.S.W., University of California, Berkeley.

Larry Lee, M.S.W., University of California, Berkeley.

John Linder, M.S.W., California State University, Sacramento.

Martin M.S.W., University of California, San Francisco.

Charles Meyers, Ph.D., University of London.

Juliet Andres, M.S.W.

Stanley Taubman, D.S.W., University of Southern California.

Vou-Yuc Vuong, M.S.W./J.D., Washington University.

Undergraduate Group Major Adviser: Dr. Bart Grossman.

Upper Division. A minimum of 29 upper division units taken for a letter grade, including Social Welfare 103, 105, and a minimum of five approved social science electives, three of which must be taken in one of five specified social science departments. For a list of approved electives and further information on the major, contact the Social Welfare Undergraduate Office, 219 Haviland Hall, (510) 642-4407.

Honors Programs. The honors program in social welfare provides opportunities for qualified undergraduates to investigate thoroughly an area of interest, to work closely with a faculty member, and to produce a paper of some magnitude. Students who meet the eligibility requirements (a 3.3 grade-point average overall and in the major, and completion of Social Welfare 102 and 105) 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 profession school committed to educating social workers and social welfare scholars for a range of leadership, research, teaching, and advanced practice roles in the social welfare profession. Our educational emphasis is on preparing students for professional responsibilities in the field of social welfare and the institutional systems that comprise it, particularly public social services and publically supported voluntary social services. While students are prepared to practice at specific intervention levels and with specialized skills, all will be thoroughly grounded in a knowledge of social and psychological issues, social welfare policies, and social service organizations. Master’s-level professional education at Berkeley is characterized by a spirit of critical inquiry and an emphasis on the use of tested knowledge and theory in developing and applying intervention methods. Classroom preparation focuses on knowledge of individual and family development, ethnocultural factors, policies and institutional systems governing services, and research strategies for program development and education.

One aspect of Berkeley’s mission is to educate students from groups that historically have been underrepresented in the social welfare profession because of age, socioeconomic background, disability, geography, or discrimination. Students and faculty are committed to addressing such changes in the state of California and the nation in order to respond to the values and goals of the social work 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 equitable opportunity and social and economic welfare for all.

The school offers the following programs:

Ph.D. in Social Welfare

The Ph.D. in Social Welfare prepares students for careers in teaching, research, policy development and analysis, and administration in the field of social welfare and the development 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.

Combined M.A./Ph.D. Program

Also offered is a combined program of master’s doctoral studies which begins in the first graduate year, leads to both Master of Social Welfare and Ph.D. in Social Welfare degrees, and prepares for the same careers. Applicants must show evidence of ability to complete doctoral study successfully in five years after undergraduate preparation as outlined below.

Master of Social Welfare

A two-year program of studies for the Master of Social Welfare degree prepares students for advanced practice in social work. Classroom and field courses are designed to teach students to use tested knowledge and skill and research methods in their practice. Applicants for admission must have a bachelor’s degree in social sciences, including course work in the social and behavioral sciences. In addition, introductory coursework in social welfare, 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 part by successful paid employment related to social welfare services. Competitive financial assistance is available to those demonstrating financial need. For further information, consult the Undergraduate Group Major Adviser or the School Office, 120 Haviland Hall, or visit our Web site at http://socialwelfare.berkeley.edu/.

Lower Division Courses

10. Social Problems and the Emergence of the Welfare State. (2) Two hours of lecture/discussion per week. Basic social problems, historical roots and implications of social structures. This introductory course addresses to lower division students will examine contemporary social problems from a historical viewpoint. How did phenomena which are currently construed as social problems come about? How did society learn to address and, at times, even cope with them? What forces shaped the contour of these problems and what dynamics operated to identify “solutions” to them? This course will consider some of the problems that contemporary American society sees as most worthy of attention: crime, poverty, homelessness, immigration and ethnic diversity, and family disorganization and child abuse. It will examine how these issues have appeared, disappeared, and reappeared over time and how people and social institutions have responded. The construction of the welfare state (and what is claimed to be its present dismemberment) will be a critical theme underlying the historical focus of the course. (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 pass/no pass 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 de-
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. Freshmen and sophomores who do not pass the course are offered in all campus departments; topics vary from department to department and from semester to semester. (F, SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F, SP)

97. Field Studies in Social Welfare. (2) Field work in community agencies and individual conferences with faculty. Must be on a passed/not passed basis. Supervised experience relevant to specific aspects of social welfare in off-campus non-profit 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

100. Social Welfare Policy. (3) Two hours of lecture and one hour of discussion per week. Analysis of social welfare policies and programs including public assistance, social insurance, social services, and health and mental health. (SP) Terrell

102. Social Work As a Profession. (3) Two hours of lecture and one hour of discussion per week. This course examines social work as a profession: the practice of the profession, the organizational context of professional practice, and the ethics of the profession. (F) Grossman

103. Practice in Social Work. (3) Two hours of lecture and two hours of laboratory/discussion per week. An introduction to the basic skills of interpersonal helping and problem solving and to related theory and research. (F) Staff

104. Field Study in Social Work. (4) Must be taken on a passed/not passed basis. Prerequisites: 103. Supervised field work in social agencies plus university-based integrative seminars. Open only to social welfare majors meeting minimum requirements. (SP) Staff

105. Current Topics in Social Welfare. (2) Course may be repeated for credit with consent of instructor. Two hours of lecture per week. Prerequisites: 100, 102. Course examines current problems and issues in the field of social welfare. (F, SP) Staff

107. Foundations, Philanthropy, and the Social Services: Grant Writing for Program Development. (3) Two hours of lecture/discussion and service learning per week. This course examines 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) Terrell

C129. 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 faced by social welfare professionals to create a new and provocative examination of children and childhood in America. Topics covered will include birth 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

C151. Asian Americans: Cultural, Psychological, and Social Work Practice. (2) Two hours of lecture/discussion per week. Course provides an overview of the Asian American experience from a psychological perspective. Examines Asian American cultural values, psychosocial pathological adaptation, ethnic identity formation, implications for social work practice, and culturally sensitive service delivery and treatment. Also listed as Psychology C137. (F, Ying)

155. Program Proposals and Grant Writing. (2,3) Students will be given 3 units if they participate in a 45-hour service learning exercise in a community agency. Otherwise, they will receive 2 units. Two hours of seminar/discussion per week. This course uses the framework of a human service grant proposal to explore the world of program planning, philanthropy, and public-private sector services contracting. In creating a submittable grant application, students will learn about the analysis of social problems; the specification of goals and objectives; the development, specification, evaluation of service programs; and the fiscal and organizational context of funding organizations (both government and foundations) and service-providing agencies. (F, SP) Staff

H195. Senior Honors Course. (1-3) Course may be repeated for credit. Individual consultation. Prerequisites: 100. Preparation of an honors thesis. (F, SP) Staff

197. Field Studies in Social Welfare. (1-3) Field work in community agencies and individual conferences with faculty. Must be on a passed/not passed basis. Supervised experience relevant to specific aspects of social welfare in off-campus organizations. 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 conference. Must be taken on a passed/not passed basis. Enrollment is restricted by regulations specified in the General Catalog. (F, SP) Staff

Graduate Courses

200. Human Behavior and the Social Environment. (2) Two hours of lecture per week. The psychological, interpersonal, and social development of the person across the life course in the context of different social environments. (F) Staff

205. Psychosocial Problems and Psychopathology. (2) Two hours of lecture per week. Developmental abnormalities and deviations which result in dysfunctional behavior. 205E: Individual. Examines problems and disorders of children and adults from psychological and social perspectives. (F) Staff

210A. Stress and Coping in Adulthood. (2) Two hours of lecture per week. Prerequisites: 200. Descriptions, measurements, and major theories concerning the etiology of stress and coping in the adult (25-60) years. (SP) Mead, and others, with attention to the origins, course, and (on occasion) fall of each tradition. Also listed as Psychology C250E. (Runyan)

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; how its dimensions and limitations vary among social groups, and how an individual’s skills in assessing and utilizing networks for clients. (Snowden

C210H. Perspectives in Personality: Personality Theory. (2) Two hours of lecture/discussion per week. Course may be repeated for credit as topic varies. Major approaches to personality theory, including psychoanalytic, 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 Psychology C250E. (Runyan)

210L. Group, Organizational, and Community Dynamics. (2) Two hours of lecture/discussion per week. Course examines theories of group, organization, and community dynamics. Topics include group leadership and decision-making, organizational goals, structure, and change, and community power and demographics. (F) Austin

220. Introduction to Social Welfare Policy. (2) Two hours of lecture per week. Analysis of issues in social welfare policy and recent trends shaping the development of the American welfare state. (F) Gilbert

222. Mental Health and Social Policy. (2) Two hours of lecture per week. Mental health policy and programs at the national, state, and local levels; major factors influencing the provision of mental health services; reciprocal relationships between mental health policy and social work practice. (SP) Segal

223. Advanced Seminar in Community Mental Health. (2) Two hours of seminar per week. Prerequisites: 222. Seminar examines critical policy and practice issues affecting the mental health field. (F) Segal

226. Social Policy and Gerontology. (2) Two hours of lecture per week. U.S. social policy and programs for the aging are analyzed with respect to the knowledge required to assess the needs for societal support and major issues and trends in the delivery of social services. (SP) Robinson

230. Social Policy: Children and Families. (2) Two hours of lecture per week. Introduction to current problems, programs, and policies in child, youth, and family welfare. (SP) Berkic

234A. Law and Social Welfare: Children and Families. (2) Two hours of lecture per week. Legal information and policy discussion for social workers and other human service providers in the child and family welfare field. Staff

234B. Law and Social Welfare: Health and Mental Health. (2) Two hours of lecture/discussion per week. Addresses major legal issues in Health and Mental Health encountered by social workers. Topics include reproductive rights, AIDS, right to treatment. (F) Staff

234C. Legal Issues in Aging. (2) Two hours of lecture/discussion per week. Legal information, policy discussion, and advocacy skills for social workers and other human service providers in the field of aging. Staff

235. Homelessness in America. (2) Two hours of lecture/discussion per week. This course addresses homelessness in the context of social responsibility for the poor. It considers the legal, social, and economic context of homelessness; examines the diversity of the homeless, their special needs, handicaps, and behaviors; and assesses newly institutionalized systems of care and treatment. The course looks at homelessness as a full-time job of survival and explores the prospects of the homeless for changing their condition. (F) Segal
236. International Social Welfare. (2) Two hours of seminar/discussion per week. This seminar explores key theoretical and methodological issues in the practice of global social work, including social welfare issues from the perspective of the globalization of social, economic, and political activities. Although its primary focus is on social welfare policies, issues of human rights and development will also be given to the role of professional social work in the international context. This course focuses on theoretical and methodological issues of social welfare, development, and social justice.

241. Direct Practice in Health Settings. (2) Two hours of lecture per week. Examines major issues and innovative models addressing the needs of clients for basic re-creation. (F,SP) Midanik

243. Direct Practice in Child and Family Settings. Two hours of lecture per week. Examines major issues and innovative models for addressing the needs of children and families in child welfare, mental health, medical, school, and community settings. (SP) Staff

244. Direct Practice in Mental Health Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Direct intervention models for addressing mental health concerns involving individuals, families, and groups. Examines issues from an interdisciplinary perspective, drawing from law, history, psychology, and other social sciences. Staff

245. Direct Practice in Health Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Direct intervention models for addressing health issues from an interdisciplinary perspective. Examines the application of crisis intervention and brief psychotherapy from an historic and psychody- namic perspective. Provides assessment criteria for assignment to these forms of treatment and techniques for intervention. (SP) Scharlach

240. Introduction to Social Welfare and the Pro- fession of Social Work. (1) Fifteen hours of lecture per semester. Must be taken on a satisfactory/unsatis- factory basis. Core course examines the history, development, and mission of the field and profession, fundamen- tal social work tasks, and the organizational contexts of practice. (F) Grossman

241. Foundations of Social Work Practice. (3) Three hours of seminar/discussion per week. This course is designed to introduce generalist skills and knowledge for social work practice with individuals, families, groups, organizations, and communities, within a framework of social work’s core values and funda- mental principles. These core values in- clude social justice and client empowerment. A gen- eralist approach to understanding fundamental practice responsibilities and roles includes cultural responsiveness, com- mitment to professional competence, and demon- stration of practice effectiveness. (F)

243. Direct Practice in Child and Family Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Direct intervention models for addressing the behavioral, emotional, and situational problems of children and families in child welfare, mental health, medical, school, and community settings. (SP) Staff

244. Direct Practice in Mental Health Settings. (2) Two hours of lecture/discussion per week. Prere- quisites: 241. Direct intervention models for addressing health issues from an interdisciplinary perspective. Examines issues from an interdisciplinary perspective, drawing from law, history, psychology, and other social sciences. (SP) Manoles

245. Direct Practice in Health Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Direct intervention models for addressing health issues from an interdisciplinary perspective. Examines the application of crisis intervention and brief psychotherapy from an historic and psychody- namic perspective. Provides assessment criteria for assignment to these forms of treatment and techniques for intervention. (SP) Scharlach

246. Direct Practice in Aging Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Comprehensive assessment of the elderly, nor- mal and abnormal; dimensions of the aging process; and the range of direct intervention models for working with the elderly. (SP) Scharlach

250A. Social Work with Groups. (2) Two hours of lecture per week. Examines group work theory and prac- tice regarding the formation, sustenance, and termi- nation of groups. Emphasis on the role of the social worker in facilitating inter-personal processes in groups. Staff

250B. Family Therapy. (2) Two hours of lecture per week. Prerequisites: 241. Theoretical frameworks and intervention skills for family work. Staff

250C. Brief Therapy and Crisis Intervention. (2) Two hours of lecture per week. Prerequisites: 241. Treatment planning and availing resources for clients. Ex- amines supportive treatment, depression and suicide management and treatment, brief and long range ex- pressive psychotherapy and other intervention models. (F) Staff

250E. Comparative Psychotherapies. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Examines common and unique elements in the major theoretical orientations to the practice of psychotherap- euty. Staff

250F. Clinical Practice with Women. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Using a variety of developmental and practice theories and informed by feminist practice, this course focuses on clinical practice with women of all ages, classes, and cultures. Particular attention is given to (1) the con- text of women’s lives, (2) the assumptions practition- ers bring to their work with women, and (3) practice with specific populations such as adolescent women, lesbians, and victims of sexual violence. Staff

250G. Psychodynamically Oriented Social Work Practice with Adults. (2) Two hours of lecture/discus- sion per week. Prerequisites: 241. Course exam- ines clinical skills for working with adult clients from a psychodynamic perspective. Key concepts and pro- cesses, such as the formation of a therapeutic alliance, resistance, transference and countertransference, and the development of interventions, are discussed and il- lustrated with case vignettes. Ying

250H. Social Work Practice with Asian Americans. (2) Two hours of lecture/discussion per week. Prerequisites: 241. This course will focus on the methods for the assessment and treatment of disturbed and delinquent adolescents. Psychosocial, psychodynamic, sociocultural and eco- logical perspectives on adolescents will be examined. A variety of early intervention and treatment modalities will be explored.

250I. Social Work Practice in School Settings. (2) Two hours of lecture/discussion per week. Prerequisites: 241. This course (1) provides students with an un- derstanding of how current educational policies and practices impact the day-to-day lives of academically and socially vulnerable students; (2) builds student skills in identifying and selecting the appropriate points of intervention relevant to social work practice in schools, including individual intervention with children, family in- tervention, building links between families and school staff, advocacy, classroom-based intervention, and col- laboration with teachers; and (3) presents assessment and intervention strategies that are systemic and resilience perspective which focus on student and family strengths and suggests multiple intervention op- tions. (SP) Ayasse

250J. Substance Abuse Treatment. (2) Two hours of lecture per week. Prerequisites: 241. Course pro- vides an interdisciplinary 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 social role of social work in the prevention/intervention of substance abuse prob- lems. Manoles

251. Community Practice. (2) Two hours of seminar per week. Prerequisites: 241, 246, and 247. This course provides the the- ories, knowledge, and skills required for community or- ganization, needs assessment, and program planning and development. Course focuses on developing com- munity-based interventions in a diverse society. (SP) Chow

252. Management Practice. (2) Two hours of lecture per week. Basic theories, areas of knowledge, and practical skills for the administration and management of social services. Topics include program development and implemen-
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 media, and working with management information systems to influence policy. In the second half of the course, students examine the internal environment of agencies for 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) Beeck

255. Community Organizing. (2) Two hours of lecture/discussion per week. Introduction to the theory and practice of community organizing. Staff

270. Access to Human Services Among Low Income and Minority Populations. (2) Two hours of seminar per week. Course examines how services can be made effective and appropriate for minorities and the 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. Focus on health care, mental health, and services for families. Snowden

272. Social Work Practice with Ethnic Minority Populations. (2) Two hours of lecture/discussion per week. Prerequisites: 241. Course examines the experiences, adaptation, and mental health of American ethnic minorities (i.e., Asians, blacks, Latinos, and Native Americans) and discusses effective implementations for these groups.

274. Immigrants and Refugees in the U.S. (2) Two hours of discussion 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 of policy on who comes to the U.S. and the circumstances newcomers and their families face once here. (SP) Vuong

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 dimensions such as race, ethnicity, gender, sexual orientation, social class, etc., (2) involves students in the process of diversity sensitization through experience self-reflection and interactive exercises, and (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) Gilbert

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: 280. Problem formulation, design, and implementation. (F,SP) Staff

285A-285B. Statistics for Social Workers. (1,1) Two hours of laboratory/discussion per week. Prerequisites: To be taken concurrently with Public Health 142A-142B. Course introduces students to the theory underlying inferential statistics. Mathematical statistics courses are focused on statistical applications in areas of social welfare. (F,SP) Staff

286. Statistical Analysis Using the Computer. (1) Two hours of lecture per week for eight weeks. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Introductory course in statistics. Introduction to computer-based statistical analysis and research methods. The course emphasizes the practical applications of statistical methods and techniques in social work research. Focus on general linear models, specifically linear regression, analysis of variance, correlation, partial correlation, and multiple regression, and the theory underlying generalized linear models. (SP) Staff

298A. Research Methods and Techniques in Social Welfare. (2) Two hours of lecture per week. The logic of social research: topics include rationale and procedure of research design, validity, reliability, and an introduction to sampling. (F) Staff

298C. Introduction to Regression. (3) Four hours of lecture/discussion per week. Prerequisites: Public Health 142A-142B or equivalent. Course addresses the strengths and weaknesses inherent in linear regression analysis. Problems, detection, and treatment are explored in a lecture/discussion/hands-on computer laboratory format. (F,SP) L. Miller

298D. Estimating Models with Qualitative and Limited Dependent Variables. (3) Four hours of lecture/discussion per week. Prerequisites: 298C or equivalent. Examines linear and nonlinear discrete models and estimation procedures. Prerequisite: One course in probability and statistics. (F,SP) Staff

299. Dissertation Seminar. (2) Two hours of seminar per week. The purpose of this seminar is (1) to develop research skills by integrating issues of research design with measurement, data analysis, and report writing, and (2) to prepare students for their dissertation research by directly addressing issues related to the development of a dissertation prospectus.

296. Individual Study for Graduate Students. (1-12) Course may be repeated for credit. One unit will be awarded for each four hours per week of supervised research assistance. Supervised field work in social agencies and university-based group meetings. (F,SP) Staff

297. Group Study for Graduate Students. (1-12) Course may be repeated for credit. One unit will be awarded for each four hours per week of student work. Seminar discussion. Prerequisites: Consent of instructor. Intensive examination of selected social welfare topics. (F,SP) Staff

298. 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

304. Advanced Field Seminar. (1) One hour of seminar per week. Taken in conjunction with 401 (field instruction). Must be taken on a satisfactory/unsatisfactory basis. University-based seminar for second-year Master of Social Welfare students. Explores the relationship between social work knowledge and theory and social work agency practice. (F,SP) Staff

305. Teaching in Research. (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 seminars, agency visits, and professional panels. Taken in the first semester of the MSW program. (F,SP) 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

402. Advanced Field Seminar. (1) One hour of seminar per week. Taken in conjunction with 401 (field instruction). Must be taken on a satisfactory/unsatisfactory basis. University-based seminar for second-year Master of Social Welfare students. Explores the relationship between social work knowledge and theory and social work agency practice. (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
http://sociology.berkeley.edu/
Chair: Michael Burawoy, Ph.D.
University Professor Emeritus
Neil J. Smelser, Ph.D. Harvard University. Theory, economics, social change

Professors
Victoria E. Bennet, Ph.D. Harvard University. Historical, labor, Russian society
Michael Burawoy, Ph.D. University of Chicago. Labor, comparative, political economy
Manuel Castells, LL.B., Ph.D. University of Paris. Urban sociology
Nancy J. Chodorow, Ph.D. Brandeis University. Feminist theory, family, psychoanalysis
Robert E. Cole, Ph.D. University of Illinois. Organizations, work, Japanese society, quality
Peter Everson, Ph.D. Harvard University. Comparative development, Latin America, state and industrialization
Claude S. Fischer, Ph.D. Harvard University. Urban networks, history, technology
Neil Finkelstein, Ph.D. University of Wisconsin. Social stratification and class, methodology and statistics, comparative organizations
Leo A. Goodman (Class of 1938 Professional Chair), Ph.D., D.Sc. (Hon.) Princeton University. Statistical mathematical methods of social sciences
Arle R. Hochschult, Ph.D. University of California, Berkeley. Family gender, social psychology
Michael Hout, Ph.D. Indiana University. Demography, methods, occupations, stratification
John Hope Franklin, Ph.D. University of California, Berkeley. African American culture, Education, stratification, intellectuals, political
Krishna Kumar, Ph.D. Yale University. Gender, population, education
Richard J. Oishi, Ph.D. Stanford University. Thought reform, social psychology

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5. Evaluation of Evidence. (4) Three hours of lecture and two hours of discussion per week. A review of methodological problems in sociological research. Topics to be covered include: posing a sociological problem; gaining access to data; measuring, establishing correlation and causation among data; and relating data to theoretical context.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One semester 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: None. 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. Berkeley Seminaries are offered in all campus departments, and topics vary from department to department and semester to semester.

25. Sophomore Seminar. (1) 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. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. (F,SP)

100. In the Sociology Workshop. (1) One hour of seminar per week. Must be taken on a passed/not passed basis. Prerequisites: Declared sociology major or consent of instructor. This prospective minor students will become familiar with faculty and their various research interests. It consists of presentations by faculty of their 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.

101C. Contemporary Sociological Theory. (3) 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. Courses under this number involve pursuing study in subfields of sociological theory. The courses presume a general background in social theory. Course instructor is 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.

The Major

A student 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.

Prerequisite Courses for the Major. A student must have successfully completed Sociology 1 and 5 as well as a course in either statistics or logic before taking the major. 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.

Upper Division Courses

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, 141, 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 well as non-core courses.

4. One 90 or 190 seminar. Sociology 5, 101A, and 101B must be completed with at least a C-grade.

Honor Program. Majors who enter their senior year with a 3.3 grade-point average overall and a 3.5 grade-point average in their major may apply to the honors program, after conferring with a major advisor. 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, and 107A-107B during their junior year in preparation for conducting research for their honors thesis. Students earn honors by maintaining the minimum grade-point average for honors and by successfully completing Sociology H190A-190B. Senior Honors Thesis and Seminar. Students who plan to go on to graduate school in sociology or other related disciplines and professions are strongly urged to take both Sociology 105 and 106.

The Graduate Program

Information about the graduate program and admission requirements are available in the departmental 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, 422 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. Introduction to the major for students who are considering majoring in sociology to the basic topics, concepts, and principles of the discipline. This course is required for the major; 1 or any version of 3 is prerequisite for other sociology classes; students not considering a sociology major are directed to any version of 3.

2. Principles of Sociology. (4) Students will not receive credit for 3 or 3A after taking 1. Deficiency in 3A or 3AC cannot be removed by completing 3. No credit for 3 after 3A or 3AC. Three hours of lecture per week. An overview of sociology for students who will not major in the field. Sociological approaches to the study of fundamental problems of group life—social organization, culture, interaction processes and socialization—and the dynamics of modern society. Satisfies prerequisite for other sociology courses, but not for major.

3. Principles of Sociology. (4) Students will not receive credit for 3 or 3A after taking 1. Deficiency in 3A or 3AC cannot be removed by completing 3. No credit for 3 after 3A or 3AC. Three hours of lecture per week. An overview of sociology for students who will not major in the field. Sociological approaches to the study of fundamental problems of group life—social organization, culture, interaction processes and socialization—and the dynamics of modern society. Satisfies prerequisite for other sociology courses, but not for major.

3AC. Principles of Sociology. (4) Students will not receive credit for 3 or 3A after taking 1. Deficiency in 3A or 3AC cannot be removed by completing 3AC. No credit for 3AC after 3 or 3AC. Three hours of lecture per week. Comparing the experience of three out of five ethnic groups (e.g. African Americans, Asian Americans, Chicanos/Latinos, European Americans, and Native Americans) we shall examine historically how each group came to be American society and created and transformed their cultures in the process. Students will be introduced to the sociological perspective (Emile Durkheim), the functionalist perspective (Charles Tocqueville and the Chicago School), and the interactionist perspective (George Herbert Mead). This course satisfies the American cultures requirement. (F,SP)
lection, processing, and analysis will be considered. At-
tention will be given to both qualitative and quantitative
studies.

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 re-
search methods introduced in 105, and will include,
according to discretion of instructor, a practicum in data
collection and/or analysis. Recommended for students
interested in graduate work in sociology or research
fields. (SP) Goodman

107A-107B. Field Research: Participant Observa-
tion. (4.5) 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-observation method.
The first semester will be classroom based to introduce
the research methods in which the latter students will
put the method into practice as they are sent to the
field to gather data for the Center for Urban Ethnog-
raphy’s Bay Area Study. During the fieldwork students
will work under the guidance of a teaching assistant and
will participate in a biweekly seminar with the pro-
essor to address issues that arise in the field. Sanchez-Jankowski

110. Organizations and Institutions. (4) Three
hours of lecture per week. Prerequisites: 1, 3 or 3AC or
consent of instructor. Systems and networks of professional and vol-
untary organizations; major social institutions in industry,
government, religion, and education.

111. Sociology of the Family. (4) Three hours of lec-
ture and one hour of discussion per week. Prerequi-
tes: 1, 3, 3A or 3AC or consent of instructor. An introduc-
tive analysis of family structure and function; the role of
religion in human society. Will work under the guidance of a
teaching assistant and will participate in a biweekly seminar with
the professor to address issues that arise in the field. Sanchez-Jankowski

112. Sociology of Religion. (4) Three hours of lec-
ture and two hours of discussion per week. Prerequi-
tes: 1, 3, 3AC or consent of instructor. The course will
place the role of religion in the physical, psychological, and social
system in the context of the social structure and functioning of the
religious community. Also listed as Religious Studies

113. Sociology of Education. (4) Three hours of lec-
ture and two hours of discussion per week. Prerequi-
tes: 1, 3, 3AC or consent of instructor. The role of
education in modern societies. Educational systems
in relation to the religious, cultural, economic, and political forces
shaping their character.

114. Sociology of Law. (4) Three hours of lecture
and one and one-half hours of discussion per week. Pru-
erequisites: 1, 3, 3A or 3AC or consent of instructor. Selected
sites: 1, 3, 3AC or consent of instructor. This course
will focus primarily, although not exclusively, on poverty
in the United States. While there will be some readings concerning rural poverty, the course will have
a decided urban focus. (FSP) Sanchez-Jankowski

124A. Sociology of Poverty. (4) Pre-requisite: 124AC.
No credit for 124A after 124AC. Three hours of lecture per
week. Prerequisites: 1, 3, 3AC or consent of instructor. This course will
focus primarily, although not exclusively, on poverty
in the United States. While there will be some readings concerning rural poverty, the course will have
a decided urban focus. (FSP) Sanchez-Jankowski

124AC. Sociology of Poverty. (4) Pre-requisite: 124AC.
No credit for 124A after 124AC. Three hours of lecture per
week. Prerequisites: 1, 3, 3AC or consent of instructor. This course will
focus primarily, although not exclusively, on poverty
in the United States. While there will be some readings concerning rural poverty, the course will have
a decided urban focus. (FSP) Sanchez-Jankowski

125. Urban Sociology. (4) Pre-requisite: 125AC
cannot be removed by completing 125A. No credit for
125A after 125AC. Three hours of lecture per week. Prerequi-
tes: 1, 3, or 3AC or consent of instructor. A broad survey of
urban sociology; introduction to the study of urban
society and the transformation of the physical and
social environments of cities in the United States. Also listed as
Demography C126.

131A. Race and Ethnic Relations: The United States
Experience. (4) Pre-requisite: 131A cannot be removed by taking
131A. No credit for 131A after 131AC. Three hours of lecture per
week. Prerequisites: 1, 3, 3AC or consent of instructor. This course will
focus on race and ethnic relations in the United States. Exam-
ination of historical experiences, contemporary cir-
cumstances and future prospects of racial and ethnic
populations with particular attention to trends in rela-
tions between the dominant society and African-Amer-
ican, Asian-American, and Latino subcultures. Political and social consequences of race and ethnic stratification are explored.

131AC. Race and Ethnic Relations: The United States
Experience. (4) Pre-requisite: 131AC may not be re-
moved by completing 131AC. No credit will be given for
131AC after taking 131A. Three hours of lecture per
week. Prerequisites: 1, 3, 3AC or consent of instructor. This course will
focus on race and ethnic relations in the United States. Exam-
ination of historical experiences, contemporary circumstances, and future prospects of racial and ethnic populations with par-
ticular attention to trends in relations between the dom-
inant society and the African-American, Native Amer-
ican, Asian-American, and Latino subcultures. Political and social consequences of race and ethnic stratification are explored. This course satisfies the American cultures requirement. (SP) Banfield

131B. Race and Ethnic Relations: International Comparisons. (4) Three hours of lecture per week.
Prerequisites: 1, 3, 3AC or consent of instructor. A broad survey of
race and ethnic relations in the United States. An analysis of
races and ethnic relations in different historical and modern
societies: the United States, the United Kingdom, As-
ger, aging, intergenerational transfers, and international
migration. Also listed as Demography C126.

132. Society and the Environment. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Living in an urban area at the
east of the 20th century, it is easy to forget how ger-
mane the biophysical world is to our lives. This course seeks to explore the relationship between the
environment and the environment as they have varied over time and across societies. The approach taken will be broadly historical and cultural and will include readings on
the social construction of nature, early industrialization and natural resource use, social movements and the
environment, and the environmental impacts of late capitalism.

135. 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) Pre-requisite: 131A cannot be removed by taking
131A. No credit for 131A after 131AC. Three hours of lecture per
week. Prerequisites: 1, 3, 3AC or consent of instructor. This course will
focus on race and ethnic relations in the United States. Exam-
ination of historical experiences, contemporary cir-
cumstances and future prospects of racial and ethnic
populations with particular attention to trends in rela-
tions between the dominant society and African-Amer-
ican, Native-American, Asian-American and Latino sub-
cultures. Political and social consequences of race and ethnic stratification are explored.

131AC. Race and Ethnic Relations: The United States
Experience. (4) Pre-requisite: 131AC may not be re-
moved by completing 131AC. No credit will be given for
131AC after taking 131A. Three hours of lecture per
week. Prerequisites: 1, 3, 3AC or consent of instructor. This course will
focus on race and ethnic relations in the United States. Exam-
ination of historical experiences, contemporary circumstances, and future prospects of racial and ethnic populations with par-
ticular attention to trends in relations between the dom-
inant society and the African-American, Native Amer-
ican, Asian-American, and Latino subcultures. Political and social consequences of race and ethnic stratification are explored. This course satisfies the American cultures requirement. (SP) Banfield

131B. Race and Ethnic Relations: International Comparisons. (4) Three hours of lecture per week.
Prerequisites: 1, 3, 3AC or consent of instructor. A broad survey of
race and ethnic relations in the United States. An analysis of
races and ethnic relations in different historical and modern
societies: the United States, the United Kingdom, As-


hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. There will be variation in focus of assignment, depending on instructor in charge. Possibilities include concentration on one ethnic group, consideration in depth of specific theoretical issues, or an examination of race relations from an international comparative approach.

12. 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 comparative theories of gender and gender relations. Examination of key institutions such as family, state, and workplace through which students can understand the social, economic, and cultural factors that create gender and shape what it means to be a man or a woman. Consideration of feminist movements, in a global context, focusing particularly on gender relations to social class, sexuality, age, race/ethnicity, and nationality.

13. Selected Topics in the Sociology of Gender. (4) 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.; Muslim women in comparative perspective.

135. Sexual Cultures. (4) Two or three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will be used to describe the region's development, which will lay the groundwork for understanding the emergence in recent decades of movements promoting social change there. 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.

136. Selected Topics in Area Studies. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. There will be variation in focus of assignment, depending on the instructor in charge. Possibilities include concentration on one society or a particular aspect of one society, consideration in depth of specific theoretical or methodological issues within area studies, or comparative regional studies.

139. Seminar on Advanced Topics. (4) Course may be repeated for credit as topic varies. Two hours of seminar per week and individual conferences. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will be used to describe the region's development, which will lay the groundwork for understanding the emergence in recent decades of movements promoting social change there. 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.

140. Political Sociology. (4) Three hours of lecture and two hours of discussion per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Study of the relationship between society and politics, through an analysis of the intersection of economic development, social relations, and the political sphere. Examines how class, race, ethnicity, and gender interact with political culture, ideology, and the state. The course also looks at diverse forms of political behavior, a key aspect of politics.

141. Social Movements and Political Action. (4) Three hours of lecture per week and two hours of discussion per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Social movement and the formation and play of public opinion, and the behavior of interest groups.

144AC. Ethnic Politics. (4) No credit for 144AC after taking 144AC, 144, or 144B. Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. The role that race and ethnicity play in American politics by examining the experiences of both white and non-white groups. We will begin by looking at the development of race and ethnicity as salient political issues in American society. Next, we examine how various ethnic groups have been socialized into the political system and we investigate the patterns of ethnic political leadership. This course satisfies the American cultures requirement.

145. Social Psychology. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Social psychology and the formation and play of public opinion, and the behavior of interest groups.

146. Personality and Social Structure. (4) Three hours of lecture per week. Prerequisites: 1, 3, 3AC or consent of instructor. This course investigates the relationship between personality, 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. Chodorow.

147. Historical Sociology. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Social and cultural factors associated with the definition, occurrence, and experience of illness. Analysis of the society defined "sick role" and the systems of which it is a part.

148. Selected Topics in Historical Sociology. (4) Study of the processes and theories of exchange. This course will be used to describe the region's development, which will lay the groundwork for understanding the emergence in recent decades of movements promoting social change there. 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.

149. Seminar on Advanced Topics. (4) Two hours of seminar per week and individual conferences. Prerequisites: 1 or 3 or 3AC or consent of instructor. This course will be used to describe the region's development, which will lay the groundwork for understanding the emergence in recent decades of movements promoting social change there. 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.

171. Historical Sociology. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. Study of the major concepts, problems and works of scholarship in the field of historical sociology, with attention to such topics as industrialization, revolution, transformation, culture, social life, political authority, institutions and culture viewed from an historical and comparative perspective.

172. Development and Modernization. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. A comparative analysis of socio-economic and political 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.

173. American Society. (4) 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.

174. Contemporary Chinese Society. (4) Three hours of lecture per week. Prerequisites: 1 or 3 or 3AC or consent of instructor. An introduction to institutions, social groups, and culture in contemporary Chinese society. Dynamics of social change in a revolutionary and post-revolutionary setting. Trends in the future development of Chinese society.
200. Proseminar. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. This course introduces students to the field of sociology by reviewing research and teaching assistantships. The seminar will familiarize students with the aims and methods of the discipline. Two hours of seminar per week. Prerequisites: Consent of instructor. 

202. Advanced Study in Sociology Theory. (3) Course may be repeated for credit. Two hours of seminar per week. Particular theorists or theoretical traditions will be selected for study, according to the interests of the instructor. Graduate students must take at least one 202 before taking the qualifying examination. 

202A. Classical Sociological Theory. (3) 

202B. Contemporary Sociological Theory. (3) 

202C. Systematic Sociological Theory. (3) 

205. Supervised Preparatory Course Work. Prerequisites: Consultation with and approval of regular faculty member responsible. Introductory study of a sociological field, from among the following courses, including participation in the appropriate undergraduate course in that field. Also includes individual meetings with the faculty sponsor, who may stipulate additional requirements. 

205A. Law and Deviance. (3) 

205B. Race and Ethnic Relations. (3) 

205C. Political Sociology. (3) 

205D. Organizations. (3) 

205E. Industrial Sociology. (3) 

205F. Family and Life Cycle. (3) 

205G. Social Stratification and Class Analysis. (3) 

205H. Development and Modernization. (3) 

205I. Religion. (3) 

205J. Urban Sociology. (3) 

205K. Social Psychology. (3) 

205L. Gender. (3) 

205M. Culture. (3) 

205N. Education. (3) 

205O. Health and Medicine. (3) 

205P. Area Studies. (3) Course may be repeated for credit as topic varies. 

205Q. Economy and Society. (3) 

205R. Social Movements. (3) 

205S. Social Psychology. (3) 

205T. Rural Sociology. (3) 

205U. Environment and Society. (3) 

205V. Sociology of the Information Society. (3) 

205W. Dissertation Seminar. (3) Course may be repeated for credit. Three hours of lecture per week. Must be taken on a passed/not passed basis. Prerequisites: Consent of instructor. The seminar is a forum for intensive attention to writing of seminar members at any stage, from initial planning of the dissertation to the job presentation talk. We will be especially concerned with reflective issues: the choices of topic and method and as a sociological, political, personal, and market issue; the place of the researcher in research; sociology as a discipline and interdisciplinary. Problems of organization, scope, theoretical, and empirical emphasis will also be addressed. 

206. Professional Writing Seminar. (3) Three hours of lecture/workshop per week. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. This seminar is a workshop on professional writing for sociologists. We will focus on editing, rewriting, re-reading, and re-writing seminar members' papers with the goal of completing a paper appropriate for the professional journals. In addition, we will cover several topics in writing, including psychological inhibition, style, journals, writing for the general public, and the world of book publishing. Class time will be divided into short lectures and workshop periods, during which we will discuss work-in-progress and do some collective editing of sample texts. 

209. Seminar. (3) Course may be repeated for credit as topic varies. Two hours of seminar per week. Prerequisites: Consent of instructor. 

230. Individual Study for Master's Students. (1-12) Course may be repeated for credit. Independent study, variable hours. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. Individual study, variable hours. Must be taken on a satisfactory/unsatisfactory basis. Prerequisites: Consent of instructor. By arrangement with faculty. 

290. 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. 

298. Directed Group Studies for Graduates. (1-9) Course may be repeated for credit. Group conferences. Prerequisites: Consent of instructor. Group study of selected topics which vary from year to year. 

299. 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. 

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. Prerequisites: Consent of instructor. Individual study for the master's requirement in consultation with the adviser. Units may not be used to meet either unit or residency requirements for the master's degree. 

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 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.
Program Requirements

Ph.D. degree requirements include approximately 43 units of course work drawn primarily from the departments of demography and sociology, plus electives from other departments (specific degree requirements are available from the advisor); 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, see the graduate adviser.

South and Southeast Asian Studies

(College of Letters and Science)

Department Office: 7233 Dwinelle Hall, (510) 644-4564
http://www.las.berkeley.edu/Dept/SSEASN/
Chair: Yvonne Dalmia, Ph.D.
Vice Chair: George Hart, Ph.D.
Professors

Vasudha Dalmia, Ph.D. Jawaharlal Nehru University. Hindi language and literature, Hinduism
Hannah E. Gurney, Ph.D. Pennsylvania State University. Sanskrit literature, Sanskrit
George L. Hart III, Ph.D. Harvard University. Tamil language and literature
Anita Eng, Ph.D. Columbia University. Cultural politics, gender and sexuality, transnationalism
Joanna Williams, Ph.D. Harvard University, Indian and Southeast Asian
P.S. Jans (Emeritus), Ph.D. University of London. Buddhism, Jainism, Hinduism
James Mattisoff (Emeritus), Ph.D. University of California, Berkeley. Southeast Asian languages, especially Thai-Burma and Thai. Chinese, Japanese, field/area linguistics
James Biau (Emeritus), Ph.D. University of Michigan. Comparative philosophy, Sanskrit, ritual
Amin Sensey (Emeritus), Ph.D. University of London. Malay/I ndonesian language and literature, oral tradition

Associate Professors

Lawrence Cohen, Ph.D. Harvard University. Medical anthropology
Raja Ray, Ph.D. University of Wisconsin, Feminist theory, social movements
Sylvia Tien, Ph.D. University of California, Modern Indonesian literature
Barind A. van Nooten (Emeritus), Ph.D. University of California, Sanskrit grammar, linguistics, paleography

Assistant Professors

Jeffrey Hadler, Ph.D. Cornell University. Southeast Asian ethnography
Ashley Thompson, Ph.D. Université de Paris III. Cambodian art, history, architecture
Peter Zinman, Ph.D. Cornell University. Southeast Asia, Vietnam

Senior Lecturer

Usha R. Jain, M.A. University of California. Hindi language

Lecturers

Sally J. Sutherland Goldberg, Ph.D. University of California, Berkeley. Sanskrit language, Indian mythology
Irma Piedad Gonzalez, M.A. University of Hawaii, Manoa. Tagalog language
Kausalya Hart, M.A. Annamalai University, Tamil language and literature
Susan F. Kepner, Ph.D. University of California, Berkeley. Thai language and literature
Niko Lunde, M.A. University of Wisconsin, Indonesian language
Upkar K. Ushi, B.A. Hons., University of London. Punjabi language, linguistics, and literature

Graduate Adviser: Ms. Williams.

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. For opportunities to explore the rich, cultural, social, and religious histories as well as the living contemporary cultures of these areas, there is a broad intellectual tradition, 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 period. 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 also encouraged to pursue courses and independent readings that will acquaint them with pertinent methods in the various disciplines such as contemporary literary theory, ethnographic theory, historiography, and cultural studies. Appropriate comparative work on Asian and non-Asian cultures is encouraged as well.

The Major

The major is a flexible, interdisciplinary program offering opportunities for both wide, comparative study of South and Southeast Asian cultures and greater concentration on a particular area of interest. With the guidance of the faculty undergraduate advisor, students may, for example, pursue intense study of a language and its literature or broader inquiries into such subjects as the religions of traditional and modern South and Southeast Asia. Students may include in their major programs suitable courses from other departments.

The major consists of 42 units (normally between 10 and 12 courses). To declare the major, students must complete the following:

A. one lower division sequence on either the civilization of South Asia (SA 5A, 5B) or the civilization of Southeast Asia (SEA 10A, 10B), and
B. two semesters of introductory language work in one of the following languages: Hindi-Urdu, Khmer, Malay/Indonesian, Panjabi, Sanskrit, Tagalog, Tamil, Thai, and Vietnamese. Students may establish first-year language proficiency through examinations administered by the department (although passing an examination will not carry credit).

C. Students must also complete a minimum of 24 units in upper division courses concerning South and Southeast Asia, at least half of which must be taken in the department. The faculty undergraduate advisor must approve all course taken outside the department that students intend to use for credit toward the major. Among their upper division courses, students normally will be expected to include one seminar (SSEAS 190 or an equivalent) that requires significant research and writing on South or Southeast Asia.

Students are strongly encouraged to continue language study beyond the first year level and to organize programs, in consultation with the undergraduate advisor, of clear thematic and geographical focus.

The Minor

The minimum requirements, set by the College of Letters and Science, for the construction of a minor program are five upper division courses, of which a minimum of three must be completed at Berkeley. All courses in the minor program must be completed on a letter-graded basis. An overall grade-point average of 2.0 is required in courses used for the minor program.

Seven-Course Breadth Courses

Arts & Literature. SA 121, 122, 124, 128, 129, 131, 135, 140, 142, 143, 145, 163; SSEAS 138; SEAASN 123, 124, 128

Historical Studies. SEAASN 10A, 10B
International Studies. SEAASN 10A, 10B; HIND-URD 101A

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

Sociology and Demography

(College of Letters and Science)

Group Office: 2232 Piedmont Avenue, (510) 642-9800
http://www.sociology.berkeley.edu/gradprograms/sociodemog.html
Chair: Michael Hout, Ph.D.
Faculty

Michael Hout, Ph.D. (Sociology)
Jennifer Johnson-Hanks, Ph.D. (Demography)
Rona Guy, Ph.D. (Demography)
Samuel Lucas, Ph.D. (Sociology)
Kosuke Imai, Ph.D. (Sociology)
Jane Mauleon, Ph.D. (Goldman School of Public Policy)
Kenneth Wachter, Ph.D. (Sociology)

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: Ms. Johnson-Hanks.

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. The GGSD helps foster active interdepartmental exchanges 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 care, disability, fertility, family planning, and 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 enroll in 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 apply to the Sociology or Demography Graduate Division. 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.

AC prefix=course satisfies American cultures
URD prefix=language course for business majors
B prefix=language course for business majors
C prefix=course satisfies American cultures
H prefix=honors course
AC prefix=course satisfies R & C requirement
R prefix=course satisfies R & C requirement

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Honors Program

To be eligible for admission to the honors program, students must attain a 3.5 grade-point average or higher in courses completed in the major, and a 3.5 grade-point average 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 their major adviser and apply for admission to the program through the department office. Students must apply before 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, Malay/Indonesian, 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 fine and performing arts. The analysis of cultural expression is also understood to include attention to social, anthropological, economic, and political contexts. Advanced proficiency in the language of emphasis is a central goal of study, as is the ability to undertake sophisticated textual study of a broad range of literary works in that language. The Ph.D. Program in South and Southeast Asian studies prepares students for academic careers in teaching and research not only in South and Southeast Asian studies, but also in comparative literature, religious studies, Asian studies, and cultural studies.

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 undergraduate or graduate courses dealing with South or Southeast Asia or the equivalent. Candidates with insufficient preparation are advised to apply to the M.A. program (see below). At the conclusion of the M.A. degree, students will 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 seminars in the language of emphasis and the methods seminar); a historical knowledge of the area of emphasis; completion of an M.A., the Ph.D. requirement of transfer (holding the M.A. who have not completed equivalent work); and competence in one or more appropriate secondary 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 Index for Graduate Education). The Sanskrit emphasis also requires composition of a written competency examination in Sanskrit and one course in linguistics.

Students in the joint M.A./Ph.D. program will acquire the M.A. degree upon completion of 20 units of coursework and the two-semester status at Berkeley (including two graduate seminars in the language of emphasis and the methods seminar); demonstration of advanced competence in the language of emphasis; demonstration of historical knowledge; advancement to M.A. candidacy; and completion of thesis. They will acquire the Ph.D. degree upon completion of the remaining requirements. The same topic should be identified during the second semester of the program or, at the latest, by the beginning of the third semester, under the University’s Plan I (see Graduate Education).

The M.A. Program

This program is offered for students seeking a terminal M.A. degree or for students with limited backgrounds who are preparing for more advanced work. Emphasis in the program includes the languages and literatures of Hindi, Malay/Indonesian, Sanskrit, Tamil, and Urdu. The prerequisites for admission to the M.A. program are one year of study in the language of emphasis or the equivalent and five undergraduate courses concerning South and Southeast Asia or the equivalent.

Requirements. The requirements for the master’s degree are a minimum of 20 units of course work in graduate status. Emphasis and the methods seminars; a historical knowledge of the area of emphasis, completion of a thesis, advanced competence in the language of emphasis, and advanced study of South Asia or other related foreign language (such as Latin, Greek, Old Iranian) is strongly recommended. Students are expected to complete the requirements within two years. For detailed information about the Ph.D. consult the department web site at http://ls.berkeley.edu/dept/sseas/GraduateProgram.html.

South and Southeast Asian

Lower Division Courses

RSA. Self, Representation, and Nation. (3) Three hours of lecture and one hour of discussion per week. Formerly 5A. In this course, students will receive selections from the large body of scholarly texts that have been written about South Asia. Expository and argumentative essays by first-year scholars such as Mridula Ghose, David Raffies, 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 and topics vary from department to department and semester to semester. Enrollment limited to 15 freshmen. (F,SP)

29. Freshman/Sophomore 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. 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 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. (3) Course may be repeated for credit. Three hours of lecture per week. Current topics in method and theory of South and Southeast Asian culture, varying with instructor. (F,SP)

C51. Introduction to Religious Studies. (3) Three hours of lecture per week. Selected introductory topics in the study of religion. Also listed as Religious Studies C590B. (SP)

49. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the area. Enrollment limits are set by the faculty, but the suggested limit is 25. (F,SP)
students will encounter a topic typical of the discipline and become acquainted with the approaches and methodologies of that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they graduate. (F,SP)

98. Directed Group Study for Lower Division Students. 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

98A. South Asian Studies. (1-4)

98B. Southeast Asian Studies. (1-4)

99. Supervised Independent Study and Research for Upper Division Students. 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

99A. South Asian Studies. (1-4)

99B. Southeast Asian Studies. (1-4)

100A-100B. Intermediate Khmer, (5) (F,SP) Staff

101. Music of India. (4) Three hours of lecture and one hour of discussion per week. This course analyzes the expansion, consolidation, functioning, and eventual disintegration of the modern British Empire (from 1783). We will examine not only the development of British attitudes and policies toward empire, but such larger issues as the creation of distinctive colonial cultures, and the role empire played in the growth of British economy. We will also assess the ways the major colonial territories were affected by British rule. Also listed as History C136C. (F,SP)

102. Topics in South and Southeast Asian Studies. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Designed to permit regular faculty and visitors to explore special topics not normally covered in the curriculum. Focus and readings will change in response to current research interests of instructors and teaching needs of the department. (F,SP)

141. Introduction to Thai Literature in Translation. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: One lower division South Asian course. Significant works of Thai literature in translation from the 13th century to the present day in their historical and cultural context. Students who can read Thai will be able to read several of the selections in original versions. Discussions in English. Term paper, midterm, and final examination. (F,SP) Keper

149. Studies in South and Southeast Asian Languages, (2-4) Course may be repeated for credit as topic varies or with consent of instructor. Two to four hours of lecture per week. Directed study of South and Southeast Asian Languages. This course will provide intensive language training in languages not regularly taught by the Department. Language may vary each semester based on instructor availability. Intermediate language ability required. (F,SP) Keper

150. Seminar in Southeast Asian Studies. (3) Course may be repeated for credit as topic varies. Two hours of seminar per week. Designed primarily to give majors and sustained and intensive training in reading, writing, and analysis in the discipline. In-

194. Introduction to South and Southeast Asian Studies. (3) Three hours of seminar per week. Preparatory discussion and discussion of research papers in the area of South or Southeast Asian studies. Topics are chosen each year in consultation with faculty and students. Papers are presented at weekly meetings during the spring semester. (SP) Staff

201A-201B. Readings in South Asian Islam. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Introduction to the principal historical and contemporary methods for study of the literatures, languages, religions, cultures, and peoples of South and Southeast Asia. Discussion of the disciplinary formations of Orientalism, philology, anthropology, comparative religions, gender studies, and history. Topics and readings change year to year. Seminar work will culminate in a one day student symposium. (F,SP) Staff

204. Department Colloquium in South and Southeast Asian Studies. (3) Two hours of seminar per week. Preparation and discussion of research papers in the area of South or Southeast Asian Studies. Topics are chosen each year in consultation with faculty and students. Papers are presented at weekly meetings during the spring semester. (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 Master's 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 for 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 as topic varies.
South Asian

Lower Division Courses

1A. Introduction to the Civilization of India. (4) Three hours of lecture and one hour of discussion per week. Readings, lectures, and discussions in the culture and civilization of India from the Indus Valley and Brahmin civilization to the advent of Islam. Special emphasis on the development of religious, philosophical, and aesthetic systems of traditional India. (F) Staff

1B. Introduction to the Civilization of India. (4) Three hours of lecture and one hour of discussion per week. Readings, lectures, and discussions in the development of culture from the advent of Islam to the present. Special emphasis on the use of the medieval religious movements of Bhakti and Indian Islam and the conflict of traditional and modern values in contemporary India. (SP) Staff

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. (F) Staff

RSB. 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 east-west and western representations of India, and other Asian cultures, in great works of modern literature. Satisfies the second half of the reading and composition requirement. (SP) Staff

Upper Division Courses

108. Psychology and Traditional India. (3) Three hours of lecture per week. Prerequisites: South Asian 1A, Psychology 1, or permission of instructor. Lectures and discussion of psychological and psychocultural approaches to some of the characteristic cultural and social aspects of ancient and traditional India. Readings in translation and important secondary works on the psychosocial interactions, and selected readings from the psychocultural literature. (SP) R.P. Goldman

121. Classical Indian Literature in Translation. (4) Three hours of lecture and one hour of discussion per week. Literary works of ancient India are read in English translation and studied critically. The course aims at giving a comprehensive picture of many important areas of the Indian literary heritage. (F,SP)

124. Modern Indian Literature. (4) Three hours of lecture and one hour of discussion per week. Lectures and discussion of 19th and 20th century Indian literature through English translations and original works in English. Emphasis on Indian society and culture through literature. (F,SP)

127. 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 dominated 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 religions of India but also of some of their commonalities in philosophy, theology, and praxis. Also listed as Religious Studies C161. (F,SP) Staff

128. Religious Identities in South Asia. (4) Three hours of lecture per week. Prerequisites: 127 or 415 and Religious Studies 161 or consent of instructor. Formerly 128. The aim of this course is to explore the making of religious identities in India after the coming of Islam to the subcontinent. Topics covered include the formation of Sufi silihs in India, Krishna bhakti and the Vaisnava sects, Kabir, Nanak, Tulisidas' Ramcharitmanas and the Ramila performance tradition, women's religion, Islamic and Hindu reform movements in colonial India, and the intersection of modern nationalisms and religious identity. Also listed as Religious Studies C163. Staff

129. Indian Mystical Traditions and Practices. (4) Three hours of lecture and one hour of discussion per week. Reading and discussion of the main traditions of mystical thought and practice, both Hindu and Moslem. (F,SP) Staff

138. Theatre in India. (4) Three hours of lecture per week. Prerequisites: Any South Asian course or consent of instructor. This course provides a survey of Indian theatre including changes and developments in the Indian dramatic tradition from its origins in classical Sanskrit drama to contemporary drama, including street theatre and politically motivated groups. Readings of plays and medieval and modern folk theatre will be supplemented with essays on aesthetic theory and on theatre as genre and spectacle. (F,SP) Staff

140. Hindu Mythology. (3) Three hours of lecture per week. Literary and religious aspects of Hindu myths. Reading of selected mythological texts in translation. (F,SP)

140. Hindu Mythology. (4) Three hours of lecture per week. Formerly 5A. Reading and composition in connection with 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. Staff

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. Also listed as Religious Studies C165. (F,SP) Goldman

141. Religion in South India. (3) Three hours of lecture per week. Formerly 5A. Reading and composition in connection with 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. Staff

142. The Shadow-Play in Southeast Asia. (4) Three hours of lecture and one hour of discussion per week. Formerly 215A. This course provides a survey of Southeast Asian shadow-plays created and developed by the Sanskrit grammarians. (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. Prerequisites: 215A is prerequisite to 215B. One year of Sanskrit and/or consent of instructor. A survey of the origins and development of the Abhidharma texts and commentaries in Pali and Sanskrit. (F,SP) Staff

124. The Shadow-Play in Southeast Asia. (4) Three hours of lecture and one hour of discussion per week. Introduction to study of Southeast Asian shadow-plays (Indonesia, Malaysia, Thailand, Cambodia) with special reference to the Malay genre. Course will deal with origins, history and development, cultural context, transmission, language and style of performance, repertoire, and ritual. Students will also learn rudiments of performing. (SP)

145. Dance and Dance-Drama of India. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: 1A-1B or consent of instructor. An introduction to the diverse styles of Indian dance and their role in Indian cultural history. Lectures of the history and development of Indian dance-drama and their importance in traditional, as well as modern, Indian society. The elements of dance, vocal and instrumental music, poetic and prose texts, mime, dialogue, costumes, make-up, and masks will be compared in major forms. Readings will be drawn from an extensive body of scholarship on the principal styles of dance. Students will have the opportunity to learn some of the musical rhythms and dance movements.

155. Philosophies of India. (4) Three hours of lecture and one hour of discussion per week. The philosophies of India, Hindu and Buddhist, beginning with the Vedic period and concentrating on the classical systems. Staff

Graduate Courses

210. Panini and the Indian Linguistic Tradition. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Some familiarity with linguistics and/or the elements of an Indian language or consent of instructor. (F,SP) Staff

212. Indian Philosophical Texts. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Some knowledge of Sanskrit. Reading of Sanskrit texts on Indian philosophy (e.g. Vedanta, Mimamsa, Yoga, Nyaya). (F,SP) Staff

215A-215B. Readings in Indian Buddhist Texts. (4;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. A survey of the origins and development of the Abhidharma texts and commentaries in Pali and Sanskrit. (F,SP) Staff
This course introduces sufficient to approach literary texts on their own. Authors. Short written assignments on themes suggested. Weekly readings and discussions of short stories, poetry, politics, religion, social issues: use of film, radio, and TV material; conversation and essay-writing; grammar review. Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly 291A. This seminar will explore how oral performance traditions organize and manage knowledge. Emphasis will be placed upon the totality of the performance, with a focus upon music as a codeterminant of the meaning and a catalyst for composing the text. Also listed as Rhetoric C291A and Music C291A.

**Hindi-Urdu**

**Lower Division Courses**

1A-B. Introductory Hindi and Urdu. (5,5) Five hours of lecture and one hour of laboratory per week. Hindi and Urdu writing systems. Survey of grammar. Graded exercises and readings drawn from Hindi and Urdu literature, leading to mastery of grammatical structures and essential vocabulary and achievement of basic reading and writing competence. (F,SP) Jain

100A-100B. Intermediate Hindi and Urdu. (3,5,3,5) Three hours of lecture and one and one-half hours of laboratory per week. Prerequisites: 1A-B. This course acquaints students with representative readings from Hindi and Urdu literature. Emphasis will be upon the ways in which perceptions and roles of women are constructed and reinforced in a developing non-Western society. Course material includes literature, oral and manuscript narratives, ritual performances. (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: diction, syntax, and choice of exercises by composers, both oral and written. Special attention to developing communication skills. Students who complete the course lab work/vials will receive 5 units; students who do not will receive 3 units. (F,SP) Jain

102A-102B. Urdu Script and Poetry. (3,3) Three hours of discussion per week. Prerequisites: 1A-B or consent of instructor. This course is designed to introduce students to Urdu script, prose, and different forms of Urdu poetry. The first semester will introduce Urdu poetry and focus on learning the script. The second semester focuses on various poetic genres, such as manqabat, qaseedahas, nasta'aliq, and mathnavi. We will read and discuss examples of each poetic form written by well-known poets in the context of their backgrounds and lives. Important historical personalities, incidents, and stories that are referred to in Urdu literature will be discussed. Students will be expected to interpret the readings and expand their vocabulary. (F,SP) Jain

**Graduate Courses**

220. Third-Year Hindi. (3) Course may be repeated for credit. Three hours of lecture per week. Prerequisites: Two years of Hindi or equivalent. Readings in literature, politics, religion, social issues: use of film, radio, and TV material; conversation and essay-writing; grammar review. Three hours of lecture per week. Prerequisites: At least two years of Hindi and a knowledge of the Urdu script. Formerly 210A & 215. Topics and works read will change from year to year depending on student and faculty interest. Readings will be drawn from the 19th and 20th centuries and will include the works of prominent modern poets and novelists. Post-partition literature of both India and Pakistan will be amply treated. Skill in reading and evaluating Urdu literary criticism is another goal. (F,SP) Staff

**Khmer**

**Lower Division Courses**

1A-B. Introductory Khmer. (5,5) Five hours of lecture and one hour of laboratory per week. Survey of grammar, graded exercises, and readings drawn from Khmer and modern literature of Indonesia and Malaysia, and di-<ref>Professor of the Graduate School</ref> al stress: Two years of Khmer or consent of instructor. Formerly 225. Explores the development of Khmer literature from the Khmer Empire to present day. Emphasis will be on the influence of oral tradition, classical literature, drama, oral literature, modern literature of Indonesia and Malaysia, and di-<ref>Staff</ref> stecture patterns. Essential vocabulary, and to achieve competency in speaking, oral comprehension, reading, and writing. Lectures and most course work in Khmer. (SP) Staff

100A-100B. Intermediate Khmer. (5,5) Five hours of lecture and one hour of laboratory per week. Survey of grammar, graded exercises, and readings drawn from Khmer and modern literature of Indonesia and Malaysia, and di-<ref>Professor of the Graduate School</ref> al stress: Two years of Khmer or consent of instructor. Formerly 221. Explores the development of Khmer literature from the Khmer Empire to present day. Emphasis will be on the influence of oral tradition, classical literature, drama, oral literature, modern literature of Indonesia and Malaysia, and di-<ref>Staff</ref> stecture patterns. Essential vocabulary, and to achieve competency in speaking, oral comprehension, reading, and writing. Lectures and most course work in Khmer. (SP) Staff

232. Readings in Modern Indonesian and Malaysian Literature. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Two years of Malay/Indonesian or consent of instructor. Formerly 312. This course will focus on the $_8$th century litera-<ref>Staff</ref> ture of Indonesia and Malaysia. Emphasis will be on the socio-cultural matrix of such modern genres as the novel, the short story, and poetry. Lectures and most course work in Indonesian. (SP) Staff

234. Reading in the Traditional Literature of the Malay World. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Two years of Malay/Indonesian or consent of instructor. Formerly 314. This course serves two functions: it provides a survey of traditional Malay literature, involving study of texts from various periods and styles. It also offers advanced language instruc-<ref>Professor of the Graduate School</ref> tion: Indonesian will be used in some lectures and in students' papers. (F) Staff

**Malay/Indonesian**

**Lower Division Courses**

1A-B. 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 lan-<ref>Staff</ref> guage patterns, essential vocabulary, and to achieve competency in speaking, oral comprehension, reading, and writing. Lectures and most course work in Indonesian. (SP) Staff

100A-100B. Intermediate 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 lan-<ref>Staff</ref> guage patterns, essential vocabulary, and to achieve competency in speaking, oral comprehension, reading, and writing. Lectures and most course work in Indonesian. (SP) Staff

210A-210B. Seminar in Malay Letters and Oral Traditions. (4,4) Course may be repeated for credit with consent of instructor. Three hours of seminar and one hour of discussion per week. Various aspects of Malay language and literature, history and development of the language, classical literature, drama, oral literature, modern literature of Indonesia and Malaysia, and di-<ref>Staff</ref> stectus. Applies various theoretical approaches to the study of the language and literature. (F,SP) Staff

225. Urdu Literature. (4) Course may be repeated for credit with consent of instructor. Three hours of lecture and one hour of discussion per week. Prerequisites: At least two years of Urdu and a knowledge of the Urdu script. Formerly 210 & 215. Topics and works read will change from year to year depending on student and faculty interest. Readings will be drawn from the 19th and 20th centuries and will include the works of prominent modern poets and novelists. Post-partition literature of both India and Pakistan will be amply treated. Skill in reading and evaluating Urdu literary criticism is another goal. (F,SP) Staff

232. Readings in Modern Indonesian and Malaysian Literature. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Two years of Malay/Indonesian or consent of instructor. Formerly 312. This course will focus on the 20th century litera-<ref>Staff</ref> ture of Indonesia and Malaysia. Emphasis will be on the socio-cultural matrix of such modern genres as the novel, the short story, and poetry. Lectures and most course work in Indonesian. (SP) Staff

234. Reading in the Traditional Literature of the Malay World. (4) Course may be repeated for credit. Three hours of lecture and one hour of discussion per week. Prerequisites: Two years of Malay/Indonesian or consent of instructor. Formerly 314. This course serves two functions: it provides a survey of traditional Malay literature, involving study of texts from various periods and styles. It also offers advanced language instruc-<ref>Professor of the Graduate School</ref> tion: Indonesian will be used in some lectures and in students’ papers. (F) Staff

**Punjabi**

**Lower Division Courses**

1A-B. Introductory Punjabi. (5,5) Five hours of lecture and one hour of laboratory per week. Survey of grammar, graded exercises, and readings drawn from Punjabi short fiction, poetry, films, and cur-<ref>Staff</ref> rent magazines and newspapers. Audioscapes of
Sanskrit

100A-100B. Elementary Sanskrit. (5,5) Five hours of lecture and one hour of laboratory per week. Elementary Sanskrit grammar and practice in reading Sanskrit texts. (F,SP) S. Goldman

101A-101B. Intermediate Sanskrit. (5,5) Three hours of lecture per week. Prerequisites: 101B or equivalent. Formerly 200, 201 and 202. Advanced readings in Sanskrit literature, including Sanskrit oral poetry and drama with emphasis on the canons of poetic analysis of the Indian aesthetic tradition. (F,SP) R.P. Goldman

Tagalog

Lower Division Courses

1A-1B. Introductory Tagalog. (5,5) Five hours of lecture and one hour of discussion per week. Prerequisites: 1A-1B, or consent of instructor. Formerly Tagalog 100A. An introduction to modern spoken and written Tagalog as a primary language of the Philippines. Its objective is to move students towards a greater level of fluency in each of these key areas. The course also seeks to familiarize students with Philippine society, culture, and history as well as aspects of cross-cultural communication more generally. Students who successfully complete the course should be able to converse at a high level on a wide range of subjects; read newspapers, academic writing, and short fiction; write a business letter and conduct interviews for scholarly or journalistic research all in Tagalog. In addition to weekly readings from Kenneth Quinn’s Advanced Vietnamese (Ithaca: Cornell University SEAP, 1991) assignments will be drawn from contemporary literature, newspapers and magazine articles, technical manuals and academic texts. Some attention will be given to poetry and verse narrative in addition to primary emphasis on modern prose. Narrative and documentary films, television news broadcasts, and song lyrics will be used to enhance listening comprehension. To improve students’ grasp of grammar, syntax and other key areas. The course also seeks to familiarize students with Philippine society, culture, and history as well as aspects of cross-cultural communication more generally. Students who successfully complete the course should be able to converse at a high level on a wide range of subjects; read newspapers, academic writing, and short fiction; write a business letter and conduct interviews for scholarly or journalistic research all in Tagalog. In addition to weekly readings from Kenneth Quinn’s Advanced Vietnamese (Ithaca: Cornell University SEAP, 1991) assignments will be drawn from contemporary literature, newspapers and magazine articles, technical manuals and academic texts. Some attention will be given to poetry and verse narrative in addition to primary emphasis on modern prose. Narrative and documentary films, television news broadcasts, and song lyrics will be used to enhance listening comprehension. To improve students’ grasp of grammar, syntax and other key areas.

Upper Division Courses

100A-100B. Intermediate Tagalog. (5,5) Five hours of lecture and one hour of discussion per week. Prerequisites: 1A-1B, or consent of instructor. Formerly Tagalog 100A. A second-year course in Tagalog for students who have completed Tagalog 100A or equivalent. The objective is to move students towards a greater level of fluency in each of these key areas. The course also seeks to familiarize students with Philippine society, culture, and history as well as aspects of cross-cultural communication more generally. Students who successfully complete the course should be able to converse at a high level on a wide range of subjects; read newspapers, academic writing, and short fiction; write a business letter and conduct interviews for scholarly or journalistic research all in Tagalog. In addition to weekly readings from Kenneth Quinn’s Advanced Vietnamese (Ithaca: Cornell University SEAP, 1991) assignments will be drawn from contemporary literature, newspapers and magazine articles, technical manuals and academic texts. Some attention will be given to poetry and verse narrative in addition to primary emphasis on modern prose. Narrative and documentary films, television news broadcasts, and song lyrics will be used to enhance listening comprehension. To improve students’ grasp of grammar, syntax and other key areas.
Department Overview

The sequence of undergraduate and graduate programs in 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 attributes 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 language and literature and between Iberian and Latin American facets of a unified field.

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 102B or 102C; two courses in Spanish literature, one in Medieval or Golden Age, and one in Modern; two courses in Spanish-American literature: one course in Spanish linguistics or theoretical approaches to literature and one upper-division elective course in Catalan, Portuguese, or Spanish (but excluding Catalan 101, Portuguese 101A-101B, Portuguese 102, and Spanish 142, 147, and 197). 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 major in Portuguese 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; or a full course in Portuguese linguistics or theoretical approaches to literature; and four upper division electives from the offerings of the department, at least one of which may be in a related field of Spanish or Portuguese 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 102B or 102C; Portuguese 101 or 101B; 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 102B or 102C; Portuguese 101; one course from the literature of Spanish America; one course from the literature of Brazil; five other courses in Latin-American languages or literature, or in Brazilian or Spanish-American 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:

1. Core languages courses: Two courses from the 102 series (5 units).
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).
3. Core literature/culture courses: One course in Latin-American literature (3 units); one course in Latin-American language/culture or Peninsular literature (3 units); one course in Spanish 165, Conflict and Identity: American, English, and Spanish in the Southwest (3 units).

Courses taken outside the department must be approved by the departmental major adviser before enrollment. 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 bilingualism 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 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 grade-point average of at least 3.3 and a grade-point average 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 independent 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 must 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 197 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 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 must file with the undergraduate assistant of the department the Petition for Confirmation of Minor Program Completed, validated by the departmental adviser for the minor program. Students in either the program should, therefore, work closely with the advisor.
departmental adviser for the minor program to assure proper fulfillment of the requirements.

Recommended for all programs: Further study in Latin, and, if possible, in European, Semitic, and Latin American history, languages, and literatures.

Latin American Studies. For the group major in Latin American studies, see Latin American Studies in the index.

Graduate Program
Preparation for Graduate Study
The M.A. degree program in Hispanic Languages and Literatures requires a reading knowledge of another foreign language pertinent to Hispanic scholarship; the Ph.D. degree program in Romance Languages and Literatures requires a reading knowledge of Latin, French, and Italian, besides Spanish; and the Ph.D. degree program in Hispanic Languages and Literatures requires a reading knowledge of two foreign languages pertinent to the student’s specialization.

The M.A. Program
The Department of Spanish and Portuguese has two tracks within the M.A. program in Hispanic Languages and Literatures: (1) Spanish and Portuguese-American Literature, and (2) Luso-Brazilian Studies.

1. The requirements for an M.A. degree in Hispanic Languages and Literatures, emphasis Spanish and Spanish-American literature, are an A.B. degree with studies in Spanish equivalent to the undergraduate major in Spanish (Option A) at Berkeley; a reading knowledge of another foreign language; eight courses of postbaccalaureate work in the Department of Spanish and Portuguese at Berkeley, of which at least six must be in strictly graduate courses, including one course in historical or descriptive linguistics, and the passing of a comprehensive written exam in the third semester.

2. Plan II requires a detailed knowledge of Spanish and Spanish-American literature and familiarity with Romance philology, with emphasis on Spanish, as well as further knowledge of a second Romance language as a collateral, and of prescribed masterpieces in the third semester.

3. 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 Languages and Literatures
Prerequisites for admission are the following: (a) an A.B. degree in Spanish equivalent to the undergraduate major at Berkeley (Option A) or, for a corresponding major in Portuguese, completion of eight courses of postbaccalaureate work in Hispanic Languages and Literatures, linguistics, or philology, of which at least six must be in strictly graduate courses; (b) work in an advanced level in an appropriate collateral subject (literature or linguistics) for admission to the qualifying examination.

The qualifying examination will test the student’s knowledge of a comprehensive knowledge of Spanish and Spanish-American literature or of Luso-Brazilian literature or a basic knowledge of Hispanic and general linguistics. The chair, in consultation with the student’s 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/examinations, if any, will be required.

The examination will cover the student’s knowledge of a specific, emphasized field to be selected in consultation with the graduate adviser from among the following: Romance philology, Latin American Studies, and either the history or linguistic theory, and a reading knowledge of Romance languages, linguistics, and/aesthetic theory 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.

25. Reading and Analysis of Literary Texts

Spanish
Lower Division Courses
1. Elementary Spanish. (5) Five hours of recitation and one and one-half hours of laboratory per week.

2. Beginning Spanish for Graduate Students. Course may be repeated for credit. Three hours of lecture per week. Prerequisites: 4 or equivalent. Course designed to increase communication skills (speaking ability and listening comprehension) as well as to improve vocabulary control and awareness of grammatical structure at a level beyond that of Spanish B. Some reading/laboratory work required. Not for native or near-native speakers. Enrollment limited: 16 students per section. (F,SP) Staff

2G. Beginning Spanish for Graduate Students. (3) Three hours of lecture per week. Prerequisites: 4 or equivalent. Course designed to increase communication skills (speaking ability and listening comprehension) as well as to improve vocabulary control and awareness of grammatical structure at a level beyond that of Spanish B. Some reading/laboratory work required. Not for native or near-native speakers. Enrollment limited: 16 students per section. (F,SP) Staff

39. Freshman/Sophomore Seminar. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly 71. An intermediate course for students whose native language is Spanish. (F,SP) Staff

22. Spanish for Bilingual Students, Second Course. (3) Three hours of lecture and one hour of laboratory per week. Prerequisites: Consent of instructor. Formerly 71. An intermediate course for students whose native language is Spanish. (F,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 pass/fail basis. Sections 3-4 to be graded on a pass/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.

26. Advanced Spoken Spanish. (3) Three hours of lecture/discussion per week. Prerequisites: 4 or equivalent. Course designed to increase communicative skills (speaking ability and listening comprehension) as well as to improve vocabulary control and awareness of grammatical structure at a level beyond that of Spanish B. Some reading/laboratory work required. Not for native or near-native speakers. Enrollment limited: 16 students per section. (F,SP) Staff

39. Freshman/Sophomore Seminar. (3) Course may be repeated for credit as topic varies. Three hours of seminar per week. Seminars designed to introduce undergraduates to areas of Spanish and Latin American literature and culture.
84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a pass/fail/not pass/fail basis; Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors are department faculty mentors for the students from the time they declare the major until the time they graduate. (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 in a pass/fail/not pass/fail basis. Prerequisites: Consent of instructor. Group study of a topic not included in the regular department curriculum. Topics may be initiated by students under the sponsorship and direction of a 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.

102A. Advanced Grammar and Composition. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. (F,SP)

102B. Advanced Grammar and Composition. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. Three hours of lecture per week. Prerequisites: 25 or equivalent. Three hours of lecture per week. Prerequisites: 25 or equivalent.

102C. Creative Writing in Spanish. (3) Three hours of seminar per week. Prerequisites: 102A with a grade of A or better. This course will be structured as a fiction writing workshop, with emphasis on short stories. It will have the following main components: a) writing of short stories; b) short and varied creative writing exercises, done both in and out of class; 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)

108. Spanish Ballads. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. Introduction to Spanish Balladry, with emphasis on origins and development through the 16th century.

109. Spanish Drama of the 16th and 17th Centuries. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. An overview of the culture of Spain, through emphasis on 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 works by Cervantes, including his dramatic output. (F,SP)

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 course is designed 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 see 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.

115. Lyric Poetry of the Golden Age. (3) Three hours of lecture/discussion per week. A study of 16th- and 17th-century lyric poetry. Includes Cancionero of Juan de Encina, through the first wave of Italian influence (Boscan, Garciaelo), the mystic poets (San Juan, Fray Luis), the second Italianate poets (Hernera), and the great lyric poets of the Baroque (Gongora, Quevedo, Lope de Vega).

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, Bhahva, 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. Rarasabas

123A-123B. Modern Spanish Prose Fiction. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent.

126. Medieval Spanish Literature. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent.

127. Eighteenth-Century Spanish Literature. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent.

128. Contemporary Spanish Literature. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. Development of the 20th-century literature since 1939.

130. Twentieth-Century Spanish American Poetry. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent.

131. The Spanish American Short Story. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 25 or equivalent. Brief panorama of the Spanish-American short story, beginning with Modernism, emphasis on two or three different types, e.g. humorous, etc.

134. Twentieth-Century Latin American Fiction. (3) Three hours of lecture per week. Formally 134. This course presents major works by some of the best-known Brazilian writers alongside others by equally important Spanish American authors. The course provides a useful introduction to 20th-century Latin American writing as a whole. Works in Spanish and in Portuguese are available as well as English, and lectures are in English. Also listed as Portuguese C134.

135. Studies in Hispanic Literature. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 25.

135AC. Exoticized Ethnicities. (3) Three hours of lecture per week. This course will focus on the cultural representation of gender and sexuality during a period of heightened immigration in the United States (both from other countries and from urban relocation). Primary texts will be from fiction, history, autobiography, and oral histories, as well as films. The course will focus on the creation of the images of the "New Woman" of the 1920s, the entry of women into the public work sphere, and the discrepancies between the media images of womanhood and the realities of women's lives, in order to three groups: 1) California and the American Southwest, 2) the African American female experience in the first decades of the century (particularly the "New Negro" movement), and 3) the racial/sexual dynamics of the American South and the Caribbean, with special focus on the legacy of slavery. Course will be taught in English. This course satisfies the American cultures requirement.

137AC. American Oral Traditions: From Corridos to Dirty Dozens. (3) Three hours of lecture per week. Prerequisites: Reading knowledge of Spanish recommended but not required. The Chicano, Portuguese-American and African-American oral (and oral-based) traditions that are the basis for this course are a great out growth of comparable ballad and verbal dueling traditions. The range of forms which this tradition assumes forces consideration of the different social circumstances in which they have evolved. The course thus addresses the issues of ethnicity, culture, race, and pluralism in the American context through oral tradition. Also listed as Portuguese C137AC. This course satisfies the American cultures requirement.

138. Spanish Phonetics and Phonology. (3) Three hours of lecture/discussion per week. Prerequisites: 25 or equivalent. A study of the sound system of Spanish, with training in phonetic transcription and laboratory exercises. Introduction to structural and generative phonological analysis.

162. The Structure of Spanish. (3) Three hours of lecture per week. Prerequisites: 25 or its equivalent. Spanish 100 is recommended. An overview of Spanish morphology and syntax. Word formation (inflection, derivation, compounding, etc.) and sentence structure (coordination, subordination, paragraph structure, etc.).

163. Issues of Multilingualism. (3) Three hours of lecture per week. Prerequisites: 25 or equivalent. Spanish 100 is recommended. An overview of issues involved in the presence of different languages in the same community, such as bilingualism, multilingualism, language conflict, language attitude, language choice, language and gender, and multiculturalism, illustrated by case studies from relevant regions, including the United States. Particularly recommended for Option D majors (Hispanic Languages and Bilingual Issues).

164. Spanish Dialectology. (3) Three hours of lecture/discussion per week. Prerequisites: 25 or equivalent. Introduction to geographical and social variation in the Spanish-speaking world.

165AC. Coexistence and Conflict: Amerindian, English, and Spanish in the Southwest. (3) Three hours of lecture per week. Prerequisites: 25 or consent of instructor. After a brief historical introduction, the overall features of the Amerindian languages, Spanish, and English in the Southwest will be presented. The main emphasis will be on their mutual influence, especially with regard to loanwords. Source material includes popular literature and folkloric work in modern linguistic studies. This course satisfies the American cultures requirement.

166. Language and Style. (3) Three hours of lecture per week. Prerequisites: 25. Analysis of the linguistic components of literary and nonliterary texts (such as fiction prose, journalism, scientific writing, or advertising) from a linguistic viewpoint. Analysis of texts in Spanish and English compares linguistic structures and highlights structural similarities and differences between these languages. Course applies to the comparative linguistics requirement of Option D.

179. Advanced Course in Hispanic Linguistics. (3) Course may be repeated for credit as topic varies. Three hours of lecture per week. Prerequisites: 100 or consent of instructor.

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 Spanish American literature.

195. Spanish Honors Course. (3) Individual conference. Prerequisites: 25 or equivalent. Senior honors standing. Limited to senior honors candidates. Open to any Spanish major. May register for the completion of an honors thesis (see Honors Program, Option A, above).

199. Spanish Honors Course. (1-5) Individual conference. Prerequisites: Spanish and Portuguese major, 3.6 GPA in the major, 3.3 GPA overall. This is
460 / Spanish and Portuguese

a two semester course. H195A will be graded at the end of the first semester, which will indicate that students are making progress on developing their thesis. 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, at least 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. One to four hours of field work per week, per unit. Must be taken on a passed/not passed basis. Prerequisites: Consent of the 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.

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: Senior honor status plus preparation and particularly in a limited area. Existent restrictions apply; see the Introduction to Courses and Curricula section of this catalog.

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 a broad view of the department's faculty, the courses they teach, and their fields of research. In addition, it will familiarize the students with 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 photo-copied articles or chapters of books provided by the department's faculty. (F,SP)

201. Literary Linguistics. (3) Course may be repeated for credit. Two or three hours of lecture per week. Applications of linguistic theory to literary texts and the analysis of fiction prose, discourse analysis, and the literary representation of speech. (F,SP) Acevedo

202. History of the Spanish Language. (3) Two or three hours of lecture per week. Formerly 202A. 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 assignments outside readings on specific topics. Language samples, chiefly literary, from different periods and regions will be analyzed. There will be a midterm and final examination, plus a brief term paper (10 pages) on selected aspects of some variety of Spanish.

202. Linguistic History of the Romance Language. (3) Three hours of lecture per week. Prerequisites: Knowledge of at least two 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 C201 and French C202.

203. Introduction to the Historical Grammar of Spanish. (3) Two or three hours of lecture per week. Formerly 202B. This course is intended as a prepa-ration for advanced work in historical grammar. Primary consideration will be given to historical phonology and inflectional morphology, but selected topics in historical word formation and syntax will also be covered. There will be an oral midterm and final examination, plus a term paper on a specific problem in the development of Spanish.

209. Seminar in Hispanic Linguistics. (3) Course may be repeated for credit. Two hours of seminar per week.

220. Introduction to Medieval Hispanic Literature. (3) Two or three hours of lecture per week.

221. Major Prose Authors of the Golden Age. (3) Two or three hours of lecture per week.

223. Major Poets of the Golden Age. (3) Two or three hours of lecture per week.

224. Major Dramatists of the Golden Age. (3) Two or three hours of lecture per week.

225. The Spanish Enlightenment. (3) Two or three hours of lecture per week.

226. Spanish Romanticism. (3) Two or three hours of lecture per week.

227A. The Spanish Novel to 1850. (3) Two or three hours of lecture per week.

227B. The Spanish Novel Since 1850. (3) Two or three hours of lecture per week.

228. Modern Spanish Drama. (3) Two or three hours of lecture per week.

229. Modern Spanish Poetry (After Romanticism). (3) Two or three hours of lecture per week.

232. Colonial Spanish American Literature. (3) Two or three hours of lecture per week.

233A. Modern Spanish American Poetry. (3) Two or three hours of lecture per week. A comprehensive survey of poetry in Latin America from 1880-1920, on the poetics of modernismo. Special attention given to the work of Rubén Darío and the heritage of Symbolism in Latin America.

234B. Modern Spanish American Poetry. (3) Two or three hours of lecture per week.

236A. Modern Spanish American Prose. (3) Two or three hours of lecture per week.

236B. Modern Spanish American Prose. (3) Two or three hours of lecture per week.

238. Special Topics. (1.5) Course may be repeated for credit as topic varies. Two or three hours of lecture/seminar per week.

240. Techniques of Literary Scholarship. (3) Two or three hours of lecture per week. A comprehensive survey of poetry in Latin America from 1880-1920, on the poetics of modernismo. Special attention given to the work of Rubén Darío and the heritage of Symbolism in Latin America.

242. Literary Theory and Criticism. Course may be repeated for credit as topic varies. Two or three hours of lecture/seminar per week.

243. Spanish Versification. (1) One hour of lecture per week. Must be taken on a satisfactory/unsatisfactory basis. Training in the analysis of Spanish verse, including syllabification, meter, assonant and consonant rhyme, stanza, and metrical schemes. (F,SP)

246. Hispanic Paleography. (3) Two or 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 assistant for current topics.

260. Cervantes. (3) 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.

270. The Colonial Period in Spanish America. (3) Course may be repeated for credit. Two or three hours of course/seminar per week.

276B. The Spanish American Novel. (3) Two or three hours of lecture/seminar per week.

278. The Literature of a Single Spanish American Country. (3) Course may be repeated for credit as topic varies. Two or three hours of lecture/seminar per week.

280. Seminar in Spanish American Literature. (3) Course may be repeated for credit as topic varies. Two or three hours of lecture/seminar per week.

285. Seminar in Spanish Literature. (3) 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)

301. Individual Study for Master's 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 comprehensive examination for the M.A. degree. May be taken only in the semester in which the examination is attempted or in the immediately preceding one. (F,SP)

302. Practicum in College Teaching of Spanish and Portuguese. (3-6) 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) Five hours of lecture and two hours of laboratory per week. Prerequisites: 11, or equivalent. Continuation of Portuguese 11. Not open to students who have taken Portuguese 101 or equivalent. Most courses are offered in a small-seminar setting. Freshman Seminars are offered
in all campus departments, and topics vary from department to department and semester to semester.

26. Advanced Spoken Portuguese. (3) Three hours of lecture/discussion per week. Prerequisites: 101A-101B or equivalent of another Romance language, or consent of instructor. Course designed to increase communication skills (speaking ability and listening comprehension) as well as to improve vocabulary, grammar, and awareness of grammatical structure at a level beyond that of Portuguese 8. Some reading/laboratory work required. Not for native or near-native speakers. Enrollment limit: 16 students per section.

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 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) One hour of seminar per week. Sections 1-2 to be graded on a pass/fail basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. These are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

Upper Division Courses

Unless otherwise indicated, 20 units or equivalent of Portuguese or another Romance language are prerequisite to all upper division courses.

100. Introduction to Literary and Linguistic Analysis of Literary Texts. (3) Three hours of lecture per week. Prerequisites: 101A-101B and either prior or concurrent enrollment in 102 or 103, or consent of instructor. We will study the fundamental features of the literary text and begin by discussing the following questions: What is literature? What is style? We will then study literary texts representative of the classical literary genres: narrative prose, plays, and poetry. Among the topics covered are, for narrative, point-of-view, character development, space and time, the "story," and discourse; for poetry, metrical analysis, the major forms, and the principal poetic and rhetorical figures; for drama, the concept of acts and scenes, the importance of textual and extra-textual elements, and the structure of a play. We will study poetry as diverse as that of the medieval troubadours, the famous heteronymy of "multiple personalities" of Fernando Pessoa and such narrative prose as that of the Nobel Prize-winning Jose Saramago.

101A. Portuguese for Advanced Students. (3) Three hours of lecture per week. Prerequisites: Credit of 16-20 units or equivalent of another Romance language, or consent of instructor. An intensive course for students with no previous study of the language. This offering may be taken independently for reading knowledge. In conjunction with 101B, it constitutes an intensive introduction to Portuguese, and prepares the student for further upper division coursework. (F,SP)

101B. Portuguese for Advanced Students: Workshop. (2) Two hours of workshop per week. Prerequisites: Credit of 16-20 units or equivalent of another Romance language, or consent of instructor. Must be taken concurrently with 101A. No independent registration. Emphasis on understanding, speaking, and writing Portuguese. Taken in conjunction with Portuguese 101A, the course provides an intensive introduction to the language. (F,SP)

102. Readings in Portuguese. (3) Three hours of lecture/discussion per week. Prerequisites: 101A-101B, 12, or equivalent. The continuation of Portuguese 101A. This course has a variety of texts with special emphasis on 20th-century Brazil. Discussion and development of language skills. (F,SP)

103. Advanced Grammar and Composition. (3) Three hours of lecture per week. Prerequisites: 102 or 104 and consent of instructor. Advanced work in Portuguese grammatical structures. Practice in writing. (F,SP)

104. Introduction to Brazilian Literature. (3) Three hours of lecture per week. Prerequisites: 4 or equivalent. A survey of Brazilian literature from the beginnings through the 17th century. (F,SP)

112. Portuguese Civilization. (3) Three hours of lecture per week. Prerequisites: 12 or equivalent. This course offers a historical-cultural perspective on Portugal since its formation to the present. It looks at key themes in the development of a specifically Portuguese identity, and examines the concept of "Portuguese-ness" in the terms of the foundation of not only European, but also African, Asian, and American Portuguese-speaking societies. Course materials include works of poetry, fiction, and non-fiction. (F,SP)

113. Brazilian Civilization. (3) Three hours of lecture/discussion per week. The course presents an overview of major 20th-century Brazilian cultural expression with an emphasis on the 19th and 20th centuries. (F,SP)

114. Contemporary Brazilian Novel. (3) Three hours of lecture per week. Prerequisites: Twenty units or equivalent of Portuguese or another Romance language. (F,SP)

128. Twentieth-Century Brazilian Literature. (3) Three hours of lecture per week. Prerequisites: 104 is recommended, but not required. An examination of the most important 20th-century writers from the 1920s through the present. Emphasis on the shifting definition of "brasileiridade" and the new directions in contemporary poetry and fiction. (SP)

134. Twentieth-Century Latin American Fiction. (3) Three hours of lecture per week. Formerly 134. This course presents major works by some of the best-known Brazilian writers alongside others by equally important Spanish American authors. The course provides a useful introduction to twentieth-century Latin American writing as a whole. Works in Spanish and in Portuguese are available as well in English, and lectures are in English. Also listed as Spanish C134.

135. Studies in Luso-Brazilian Literature. (2-3) Course may be repeated for credit as topic varies. Two or three hours of lecture per week. Prerequisites: Twenty units or equivalent of Portuguese or another Romance language. (F,SP)

137AC. American Oral Traditions: From Corridos to Dirty Dozens. (3) Three hours of lecture per week. The Chicano, Portuguese-American and African-American oral (and oral-based) traditions that provide the focus for this course all grow out of comparable ballad and verbal traditions. The range of forms which this tradition assumes forces consideration of the different social circumstances in which they have evolved. The course thus addresses the issues of ethnicity, culture, race, and pluralism in the American context through oral and semi-oral material in quite different ways. Brazilian examples, including contemporary oral or semi-oral material in quite different ways. Reading knowledge of Spanish or Portuguese is normally required. (F,SP)

137AG. American Oral Traditions: From Corridos to Dirty Dozens. (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.

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. Must be taken concurrently with 101A. No independent registration. 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 letter-graded basis. Prerequisites: Senior honor status and 20 units or equivalent of Portuguese or another Romance language. (F,SP)

102. Readings in Catalan. (3) Course may be repeated for credit. Enrolled is restricted; see the Introduction to Courses and Curricula section of this catalog. Must be taken on a letter-graded basis. Prerequisites: Senior honor status and 20 units or equivalent of Portuguese or another Romance language. (F,SP)

135. Studies in Luso-Brazilian Literature. (2-3) Course may be repeated for credit as topic varies. Two or three hours of lecture per week. Prerequisites: Twenty units or equivalent of Catalan or consent of instructor. Special tutorial or seminar on selected topics. (F,SP)

Graduate Courses

285. Old Catalan Language and Literature. (3) Three hours of seminar per week. Reading and analysis of selected texts from the first documents of the Catalan language to the works of the major authors of the 15th century as well as an introduction of Old Catalan. Faulthaber

Catalan Language and Literature. (3) Three hours of seminar per week. Reading and analysis of selected texts from the first documents of the Catalan language to the works of the major authors of the 15th century as well as an introduction of Old Catalan. Faulthaber

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. Must be taken concurrently with 101A. No independent registration. 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 letter-graded basis. Prerequisites: Senior honor status and 20 units or equivalent of Portuguese or another Romance language. (F,SP)

102. Readings in Catalan. (3) Course may be repeated for credit when readings change. Three hours of lecture per week. Prerequisites: 1 and 2 or 101B or equivalent, or consent of instructor. Selected readings in Catalan prose and poetry.

180. Special Study for Undergraduates. (2-3) Course may be repeated for credit. Individual conferences. Prerequisites: Twenty units or equivalent of Portuguese or another Romance language. Directed study centering on the preparation/completion of an honors thesis (see Honors Program, Option B, above). (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. Must be taken on a letter-graded basis. Prerequisites: Senior honor status and 20 units or equivalent of Portuguese or another Romance language. (F,SP)

Graduate Courses

244. Literature and Oral Tradition. (3) Two hours of seminar per week. Prerequisites: Graduate standing or consent of instructor. This course looks at various theories of literacy and orality proposed by literary scholars, folklorists, and anthropologists. It applies a number of these to selected Latin American, and above all, Brazilian examples, including contemporary oral or semi-oral material in quite different ways. Reading knowledge of Spanish or Portuguese is normally required. (F,SP)

275. Critical and Stylistic Studies of a Single Author or Period. (3) Course may be repeated for credit as topic varies. Two hours of seminar per week. Prerequisites: Consent of instructor. (F,SP)

299. Special Study for Graduate Students. (3-6) Course may be repeated for credit. 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. (3-6) Course may be repeated for credit. Individual conferences. Sections 1-20 to be graded on a letter-graded basis. Sections 21-40 to be graded on a satisfactory/unsatisfactory basis. Prerequisites: Restricted to students writing doctoral dissertations. (F,SP)
the XVth century as well as an introduction to Old Catalan.

298. Special Study for Graduate Students. (3-4) Courses may be credited for credit as topic courses. Prerequi-
tes: Graduate standing. Individual conferences on special programs of study or research in a restricted field not covered by available courses or seminars.

Statistics

(College of Letters and Science)

Department Office: 367 Evans Hall, (510) 642-2791
http://www.stat.berkeley.edu
Chair: John Rice, Ph.D.

Professors
David J. Aldous, Ph.D. Cambridge University. Theoretical and applied probability.
Peter J. Bickel, Ph.D. University of California, Berkeley. Nonparametric inference, asymptotic methods.
Lei Biao, Ph.D.
Ching-Shui Cheng, Ph.D. Cornell University. Experimental design.

Lecturers
Dubins, Ph.D. University of Chicago. Probability, gambling theory, geometry.

Steven N. Evans, Ph.D. Cambridge University. Probability and stochastic processes.


Yuval Peres, Ph.D. Hebrew University, Jerusalem. Probability theory, teaching of statistics, technology in education.


Albert H. Bowker, Ph.D., LL.D. (hon.), Dr. of Humane Letters (Emeritus). Mathematics and stochastic processes.


Bin Yu, Ph.D. University of California, Berkeley. Statistical inverse problems in physical science.

Charles J. Stone, Ph.D. Stanford University. Asymptotic analysis, machine learning.

Yuval Peres, Ph.D. Hebrew University, Jerusalem. Probability, stochastic processes.

Phil Spector, Ph.D. Texas A & M University. Statistical applications in engineering and science.

Yuval Peres, Ph.D. Hebrew University, Jerusalem. Probability, stochastic processes.

Erich L. Lehmann, Ph.D., D.Sc. (hon.) University of California, Berkeley. Asymptotic theory, nonparametric inferential methods, stochastic processes.


John Stokey, Ph.D. Harvard University. Statistical genetics and molecular biology, applied statistics.

Mark van der Laan, Ph.D. University of Utrecht, (the Netherlands) Semi-parametric methods and survival analysis.

Kenneth W. Wachter, Ph.D. Cambridge University. Multivariate analysis, probability.

Bin Yu, Ph.D. University of California, Berkeley. Statistical inference, machine learning, applied statistics, information theory.

David Blackwell, Ph.D., D.Sc. (hon.) (Emeritus).

Alpert H. Boeker, Ph.D., LL.D. (hon.) Dr. of Humane Letters (Emeritus). (Hon.)

Kjell Doksum, Ph.D. (Emeritus). (Hon.)

Jacob Feldman, Ph.D. (Emeritus).

Paul W. Holland, Ph.D. (Emeritus). (Hon.)

Erich L. Lehmann, Ph.D., D.Sc. (Hon.) (Emeritus). (Hon.)

Aram J. Thomasian, Ph.D. (Emeritus). (Hon.)

Associate Adjunct Professor
Phil Spector, 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, Ph.D. (Emerita).

Statistical Computing Facility
Deborah Nolan, Director, Ph.D. Yale University. Asymptotic theory, teaching of statistics, technology in education.

Department Overview

Service Courses. The department offers a variety of introductory statistics courses, both in mathematical level and in topics emphasized. Statistics 2 requires only high school mathematics; 20, 21, and 25 require some calculus; 25 is for students generally; 21 is intended for business stu-
dents and 25 for engineers. Statistics 131A is an upper division course, emphasizing inference in the mathematical level and in topics emphasized. Some courses may have online components.

The Major

Lower Division Courses. Required: Mathematics 1A-1B and 53-54. Mathematics 53-54 must be completed with minimum grades of C in each. Transfer students lacking only the material on line-
eral algebra in Mathematics 53-54 can obtain this material by taking Mathematics 49; they should contact the undergraduate assistant in 367 Evans Hall for further information about requirements for admission to the major. Recommended: Statistics 2, 20, 21, or 25 and some familiarity with computers.

Upper Division Courses. Mathematics 110: Statistics 101 or 134; Statistics 102 or 135, and three courses from Statistics 150, 151A, 151B, 152, 153, 155, 156, and 157, including at least one course with a laboratory. In addition, either (i) two courses from Statistics 105, 113, 126, 128A, and 185, or (ii) a program of three upper di-
vision courses from a field in which statistics is applied. The courses selected for the major must have the approval of the major adviser, who may authorize reasonable exceptions and substitutions.

Double Major. Students are encouraged to com-
bine the statistics major with a major in mathe-
matics, applied mathematics, computer science, or a field of statistical application such as economics.

Honors Program. Students with an overall 3.3 grade-point average or higher and a 3.3 grade-
point average or higher in courses in the major may apply for admission to the honors program with the approval of the major adviser. The pro-
gram consists of course H195, which includes reading in a special topic and writing a thesis.

Preparation for Graduate Study. Those inter-
ested in the graduate courses major should in-
clude in the undergraduate courses a strong foun-
dation in mathematics as well as probability and statistics. For Ph.D. degrees of the theoretical type, Mathematics 104, 105, 110, 113, and 185 are needed. For Ph.D. degrees of the applied type and the M.A. degree, at least a year of upper division probability and statistics (or course 200A-200B) and Mathematics 104 and 110 are needed. It is recommended that all students acquire familiarity with computer programming. Ph.D. students are encouraged to acquire fluency in French, German, or Russian.

The Minor

Lower Division Courses. Required: Mathematics 1A-1B and 53-54. Mathematics 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, 156, and 157, including at least one course with a lab-
oratory. The courses for the minor must have the approval of the minor adviser.

The Graduate Program

The department offers the M.A., Cand. Phil., and Ph.D. degrees. Information concerning the re-
quirements for these degrees is available in the brochure "Requirements for Degrees in Statistics," available upon request from the de-
partment graduate secretary. For specific details the, appropriate department graduate adviser should be consulted.

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. The Berkeley Seminar Program has been de-
gined to provide new students with the opportunity to

In addition, the department, in conjunction with the School of Public Health, offers degrees in bio-
statistics through the Interdepartmental Group in Bio-statistics. There are two biostatistics graduate programs: M.A. and Ph.D. These programs are ap-
propriate for students who have either a strong mathematical and statistical background with an in-
terest in biomedical sciences, or degrees in the bi-
ological sciences with a major interest in mathe-
ematics and statistics. For further information see Biostatistics. For course listings in Biostatistics, see Public Health.

The Statistical Laboratory

When founded in 1938, the Statistical Laboratory was a unit of the Department of Mathematics and continued research with an extensive construction in mathematical statistics. This instruction program led to A.B., M.A., and Ph.D. degrees in statistics. In 1955, the instruction activities in statistics were taken over by the newly established Department of Statistics.

In recent times the laboratory has been the ad-
ministration center for sponsored projects of the de-
partment. In addition, the laboratory offers a con-
sulting service in statistics for graduate students and faculty in other disciplines. The consultants are graduate students in statistics and working under the supervision of a faculty member. The laboratory is currently developing a variety of in-
terdisciplinary research projects involving collabor-
ative work between faculty and students in statis-
tics and other departments.

The Statistical Computing Facility

The Statistical Computing Facility provides com-
puting support for the department. It currently houses more than 40 networked SUN worksta-
tions, a multiprocessor SUN 2000 server, a SUN 3000 multiprocessor computer server, and many x-
window terminals, printers, and other peripherals. There are all heavily used in both the graduate and undergraduate instructional programs. In addition, the facility offers high-level consulting assistance in statistical computing and is active in developing ad-
vanced statistical software.

Lower Division Courses

ONLY ONE LOWER DIVISION STATISTICS COURSE MAY BE TAKEN FOR CREDIT.

2. Introduction to Statistics. (4) Students who have taken 2X, 5, 20, 21, 21X, or 25 will receive no credit for 2. Three hours of lecture and two hours of laboratory per week. Population and variables. Standard mea-
sures of location, spread and association. Normal ap-
proximation. Regression, Probability and sampling. Bi-
nomial distribution. Interval estimation. Some standard significance tests. (F,SP)

20. Introduction to Probability and Statistics. (4) Students who have taken 2X, 5, 20, 21X, or 25 will receive no credit for 2. Three hours of lecture and two hours of laboratory per week. Probabilities, random vari-
ables, expectation. Testing hypotheses. Estimation. Il-
lustrations from various fields. (F,SP)

21. Introductory Probability and Statistics for Business. (4) Students who have taken 2X, 5, 20, 21X or 25 will receive no credit for 2. Three hours of lec-
ture and two hours of laboratory per week. Prerequi-
tes: One semester of calculus. Descriptive statistics, probability models and related concepts, sample sur-
veys, estimates, confidence intervals, tests of significance, controlled experiments vs. observational studies, correlation and regression. (F,SP)
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 15 freshmen. (F,SP) Aldous, Peres

25. Introduction to Probability and Statistics for Engineers. (3) Students who have taken 2, 2X, 5, 20, or 25 may be taken for credit under one hour of lecture and one hour of laboratory per week. Prerequisites: A year of calculus. Emphasis on concepts and applications. Conditional probability, independence, expectation. Standard discrete and continuous distributions. Regression and correlation. Point and interval estimation. Illustrations from engineering. (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) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP) Purves

Upper Division Courses

101. Introduction to the Theory of Probability. (4) Students will not receive credit for 101 after taking 134. Three hours of lecture and one hour of laboratory per week. Prerequisites: Math 53 and 54, Random variables and their distributions, expectation, univariate models, central limit theorem, statistical applications, dependence, multivariate normal distribution, conditioning, simulation, and other computer applications. (F,SP)

102. Introduction to the Theory of Statistics. (4) Students will not receive credit for 102 after taking 135. Three hours of lecture and one hour of laboratory per week. Prerequisites: 101. Least squares estimates, i tests, F tests, and the application of these procedures to the linear regression of experiments. Maximum likelihood estimates, Wald test and likelihood ratio tests in the context of logistic regression and Poisson regression. Computer-based applications. (SP)

131A. Statistical Inferences for Social and Life Scientists. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: One semester of calculus or consent of instructor. Ideas for estimation and testing basic to applications. Linear estimation and normal regression theory. (F,SP)

133. Concepts of Probability. (3) Students will not receive credit for 133 after taking 134. Three hours of lecture per week. Prerequisites: One year of calculus. An introduction to probability, emphasizing concepts and applications. Conditional expectation, independence, laws of large numbers. Discrete and continuous random variables, central limit theorem. Selected topics such as the Poisson process, Markov chains, characteristic functions. (F,SP)

135. Concepts of Statistics. (4) Students will not receive credit for 135 after taking 134. Three hours of lecture and two hours of laboratory per week. Prerequisites: 101 or 134. A comprehensive survey course in statistical theory and methodology. Topics include descriptive statistics, analysis of variance, goodness-of-fit tests, analysis of variance, and least squares estimation. The laboratory includes computer-based data-analytic applications to science and engineering. (F,SP)

C141. Statistics for Bioinformatics. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Computer Science 9C or 9E or Engineering 77 or equivalent. Bioinformatics: problems such as DNA pattern finding, gene expression data analysis, molecular evolution models, and biomolecular sequence database searching. Introduction of the necessary probability and statistics: events, (conditional) probability, random variables, estimation, testing, and regression. Also listed as Bioengineering C141. (F,SP) Budinger, Speed, Yu

150. Stochastic Processes. (3) Three hours of lecture per week. Prerequisites: 101 or 103A 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. A coordinated treatment of a broad class of generalized linear models and their application. Linear regression, analysis of variance and covariance, random effects, design and analysis of experiments, quality improvement, log-linear models, discrete multivariate data, model selection, robustness, graphical techniques, productive use of computers, in-depth case studies. (F,SP)

152. Sampling Surveys. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: 101, 131A or 134. Theory and practice of sampling from finite populations. Simple random, stratified, cluster, and double sampling. Sampling with unequal probability. Properties of various estimators including bias, 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, 134 or consent of instructor. An introduction to time series analysis in the time domain and spectral domain. Topics will include: estimation of trends and seasonal effects, auto-regressive moving average models, forecasting, indicators, harmonic analysis.

155. Game Theory. (3) Three hours of lecture per week. Prerequisites: 101 or equivalent. General theory of zero-sum, two-person games, including games in extensive form and continuous games, and illustrated by detailed study and solution of various games. (SP)

157. Seminar on Topics in Probability and Statistics. (3) Three hours of seminar per week. Prerequisites: Math 53-54 and consent of instructor. Substantial student participation required. The topics covered 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)

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. (4,4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Two years of calculus and one semester of linear algebra. Probability models, variables, distributions in probability and statistics, central limit theo-
rem, Poisson processes, transformations involving random variables, estimation, confidence intervals, hypothesis testing, linear models, large sample theory, categorical models, decision theory. (F,SP)

205A-205B. Probability Theory. (4,4) Three hours of lecture per week. Prerequisites: Some knowledge of real analysis and metric spaces, including compactness, Borel-Carathéodory measure. Probability in the leégale 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 for independent random variables. Characteristic function methods. Conditional expectations; martingales and theory convergence. Markov chains. Stationary processes. (F,SP)

206A-206B. Stochastic Processes. (3,3) Course may be repeated for credit with different instructor. 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)

210A-210B. Theoretical Statistics. (4,4) Three hours of lecture per week. Prerequisites: A year of upper division probability and statistics. A survey of mathematical statistics: in particular both small and large sample theorems of hypothesis testing, point estimation, confidence intervals with applications to topics such as exponential families, univariate and multivariate linear models and correlation analysis. (F,SP)

212A-212B. Topics in Theoretical Statistics. (3,3) 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, semi-parametric 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. (F,SP)

215A-215B. Statistical Models: Theory and Application. (4,4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Math 101 or 102 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, semi-parametric 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. (F,SP)

230A. Linear Models. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Math 131A or 134. A year of calculus, one semester 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 order layout, residual analysis. Effects of departures from the underlying assumptions. Robust alternatives to least squares. (F)

232. Experimental Design. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: Math 205A or equivalent. Randomization, factorial design, confounding, fractional replication, response surface methodology, optimal design. Applications. (SP)


238. Bayesian Statistics. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites:
464 / Statistics

Calculus, linear algebra, basic probability and statistics. Bayesian methods: conditional probability, one-parameter parameter models, hierarchical models, predictive checking and sensitivity analysis, linear and generalized linear models, mixtures, time series, spatial, and spatio-temporal models. Knowledge of a higher level programming language. Algorithms in statistical computing: random number generation, simulating other distributions, random sampling and permutations. Matrix computations in linear models. Non-linear optimization with applications to statistical procedures. Other topics of current interest, such as issues of efficiency, and use of graphing software. (SP)

246. Statistical Genetics. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites: A year of upper division probability and statistics. Standard nonparametric tests and confidence intervals for continuous and categorical data; nonparametric estimation of quantiles; robust estimation of location and scale parameters. Efficiency comparison with the classical procedures. (F)

241A. Statistical Learning Theory. (3) Three hours of lecture per week. Prerequisites: Linear algebra, calculus, basic probability and statistics, algorithms. Classification, regression, clustering, dimensionality reduction, and density estimation. Mixture models, hierarchical models, factor models, hidden Markov, and state space models. Markov properties and recursive algorithms for general probabilistic inference. Non-parametric methods including decision trees, kernel methods, neural networks, and wavelets. Ensemble methods. (F,SP) Staff

241A. Statistical Learning Theory. (3) Three hours of lecture per week. Prerequisites: Linear algebra, calculus, basic probability and statistics, algorithms. Recent developments in Computer Science 282: Classification regression, clustering, dimensionality reduction, and density estimation. Mixture models, hierarchical models, factor models, hidden Markov, and state space models. Markov properties and recursive algorithms for general probabilistic inference nonparametric methods including decision trees, kernel methods, neural networks, and wavelets. Ensemble methods. Also listed as Computer Science C281A. (F) Jordan, Russell

241B. Advanced Topics in Learning and Decision-Making. (3) Three hours of lecture per week. Prerequisites: Computer Science C281A. Recent topics include: Graphical models and approximate inference algorithms. Markov chain Monte Carlo, mean field, and probability propagation methods. Model selection and stochastic realization. Bayesian, information-theoretic and structural risk minimization approaches. Markov decision processes and partially observable Markov decision processes. Reinforcement learning. (SP) Staff


243. Introduction to Statistical Computing. (4) Course may be repeated for credit. Three hours of lecture and two hours of laboratory per week. Prerequisites: Qualifying course. The structure and use of statistical languages and packages. Use of graphical display in data analysis. Statistical data base management.

244. Statistical Computing. (4) Three hours of lecture and two hours of laboratory per week. Prerequisites:
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 playwriting. 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 advisor. 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 office. Sample programs are available in the departmental office.

Lower Division. 10, 25AC or 52AC, 26, and 60.

Upper Division. At least 30 units of upper division courses in the Department of Theater, Dance, and Performance Studies, including courses in the following areas of concentration, with at least one course in three of the areas. Courses satisfying this requirement are drawn from this list of approved courses:

A. Performance Theory: 119 or 120
B. Performance and History: 125, C131, 151A, 151B, or 153A
C. Performance Literature: 126, 127, 128, C131A, C131B, C132
D. Performance and Culture: 121, 130, or 153B

In addition, students must take courses from these areas:

Production or design: One course from 172, 173A, 173B, 174A, 174B, 175A, 175B,

Theater laboratory (4 units): 2 of the 4 units must be taken in 170. The remaining 2 units may be taken in 170 or two participations in 171 or 181;

Electives: upper division courses approved by an adviser.

Dance and Performance Studies

Lower Division. 41, 52AC or 25AC, 60.

Technique: After declaring the major, students are required to take a technique course each semester: 40A, 40B, 414A, 141B, 142A, 142B, 143A, or 143B.

Upper Division. Thirty units of upper division courses in the Department of Theater, Dance, and Performance Studies including 144A, 144B, 145A, 145B, 146A. Four courses in critical studies, see areas A, B, C, D under Theater, Dance, and Performance Studies. Students must take one course in three of the areas.

Theater laboratory (4 participations): 170, 171, 180, 181.

Electives: upper division courses approved by an adviser.

Dance and Performance Studies Minor

Students should choose, in consultation with the faculty or staff adviser, an area of concentration from the upper division courses in theater arts or from other departments. Sample programs are available in the departmental office. Students may declare the minor after enrolling in at least one course in the department.

Lower Division. One course chosen from 10, 25AC, 26, 52AC, 60, 137AC, or African American Studies 29AC.

Upper Division. Five upper division theater arts courses (three of which must be taken at Berkeley) by advisor 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, 40A, 40B, 52AC, 137AC, African American Studies 29AC, 26, or 60.

Upper Division. Five upper division theater arts courses (three of which must be taken at Berkeley) by advisor approval 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 course in Theater, Dance, and Performance Studies offered in satisfaction of undergraduate major requirements may be taken on a passed/not passed basis except 40A, 125A, 142A-142B, 143A-143B, 170, 171, 198, and 199.

Honor's Program

Majors in the Department of Theater, Dance, and Performance Studies with an overall grade-point average 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 not later than March of their junior year. Students accepted in the Honors Program will include in their programs course H195A, intensive critical study of problems of dramatic literature, performance studies, acting, playwriting, directing, and H195B, development of skills begun in H195A, either as a stage production or a written thesis.

Graduate Program

Faculty: Janet Adelman (English), Joel Allman (English), Chris Berry (Film Studies and Theater, Dance, and Performance Studies), Judith Butler (Rhetoric and Comparative Literature), Brandi Wilkins Cataneau (Theater, Dance, and Performance Studies and African American Studies),
Section 2 to be graded on a passed/not passed basis. Formerly Dramatic Art 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. These seminars are offered in all campus departments; topics vary from department to department and from semester to semester. (F,SP) Staff

26. Issues in World Theater. (4) Three hours of lecture per week. Formerly Dramatic Art 26. In each semester an issue of broad relevance to world theater will be addressed through the study of four to six diverse theatrical traditions/practices, including western, non-Western, and indigenous traditions. Readings and discussion will be designed to enhance concentration, imagination, vocal and physical freedom, the development of personal voice, and understanding of the dramatic and social context of theatrical events. (F,SP) Staff

27. Production Class. (4) Six hours of studio per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 40A. This course is a practical introduction to the theory and practice of directing and managing a production. Special emphasis will be placed on stage management and on the practical aspects of directing a production. (F,SP) Staff

28. Introduction to Our Theater. (4) Three hours of lecture/studio per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 115. This course is an 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 painting, and stage properties. The course involves a laboratory component. Students will work on departmental productions. (F,SP) Staff

29. 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 credit. 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, 1940 to the Present; Theaters, Tricksters, and Cultural Exchange; Art as SocialAction; and The Invisible World (Process Seminar). (F,SP) Staff

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. Sophomore seminars are designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until the time they graduate. (F,SP)

98. Directed Group Study. (3-5) 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 independent 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 department curriculum. Topics may be initiated by students. (F,SP)

99. Independent 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: Open to sophomore students with an overall grade point average of 3.3. Formerly Dramatic Art 99. Study of a topic not included in the regular department curriculum. (F,SP)

110. 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) Staff

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) Staff

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 advanced actors, directors, and spoken-word performers in collaborative development of new performance topics include cross-disciplinary solo performance, language, and movement. (F,SP) Staff

115. Advanced Acting: Company Class. (3) Six hours of sessions per week plus preparation and rehearsal. 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

116. Advanced Performance Workshop. (3) Course may be repeated for credit. Six hours of sessions per week plus rehearsals. Prerequisites: Two courses from 110A, 162, 163 or 141A and 146A or consent of instructor. Formerly Dramatic Art 116. Intensive group study involving interdisciplinary creation and collaboration of new performance topics. (F,SP) Staff
works. Students are expected to have some background in theater or dance. (F,SP) Staff

119. Performance Theory. (4) Course may be repeated for credit as topic varies. Three 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 theoretical, dramatic, nondramatic, and nontheatrical modes of performance; may involve visiting artists. Topics vary from semester to semester. (F,SP) Staff

120. Twentieth-Century Theory and Performance. (3) Three hours of lecture per week. Prerequisites: 1A-1B, 25AC, 26 or consent of instructor. Formerly Dramatic Art 120. This course is an overview of representative schools, documents, theorists, and performance texts from modern and contemporary dramatic and performance theory. These will include theoretical readings from Artaud, Brecht, Brook, Cocteau, Schechner, Stanislavski, and Suzuki, among many others, along with performance texts and taped live performances of work by Chekhov, Churchill, Kroetz, The Living Theatre, R. Wilson, Gomez-Pena, Valdés, and others. The emphasis will be placed on the creative discourse between theory and performance and the creative application of recent and contemporary schools of theory on dramatic form and performance practices. (F,SP) Staff

121. Performance and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. Formerly Dramatic Art 121. An examination of performance as an aspect of cultural production, including the everyday life enactment to more formal or aesthetic activities associated with "artistic" production; may involve visiting artists. 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

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 dramatic and performance literature, 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

127. Topics in Drama and Theater: 1918 to Present. (3) Course may be repeated for credit. Three hours of lecture per week. Formerly Dramatic Art 127. Contemporary drama.

128. Shakespeare in Performance. (3) Three hours of lecture per week. Formerly Dramatic Art 128. This course will examine Shakespearean drama in terms of performance, drawing on productions at California Shakespeare Festival and Shakespeare Santa Cruz, video and film, essays and reviews, and the instructor's directorial experience. (F) Staff

129. Senior Proseminar. (3) Course may be repeated for credit subject to acceptance of petition. Three hours of lecture per week. Prerequisites: 120, senior standing, or consent of instructor. Formerly Dramatic Art 129. Studies of the works of a major playwright, choreographer, or designer, or a major period of artistic activity in the theater. (F,SP) Staff

130. Dance and Dance-Drama of India. (3) Three hours of lecture per week. Prerequisites: Any Reading and Composition course (1A-1B) or consent of instructor. Formerly Dramatic Art 130. An introduction to the diverse styles of Indian dance and their role in Indian cultural history. Lectures of the history and development of Indian dance and dance-drama and their importance in traditional, as well as modern, Indian so- ciety. The elements of dance, vocal, and instrumental music, poetic, and prose texts, mime, dialogue, costumes, make-up, and decor are compared in major forms. Readings will be drawn from an extensive body of scholarship on the principal styles of dance. Students will have the opportunity to perform some of the musical rhythms and dance movements. (F,SP) Staff

C112A. Contemporary African American Drama. (4) Four hours of lecture per week. Formerly Dramatic Art C112A. 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 C151B. (SP)

C112B. African American Drama Literature: Forms and Styles. (3) Three hours of lecture/laboratory per week. Formerly Dramatic Art C113B. Introduction to play analysis with emphasis on the primary theatrical form of styles chosen by African American playwrights and the thematic context of their choices. Plays will be analyzed both as literature and as theatrical production; e.g., laboratory will include attendance at plays and performance practices. Also listed as African American Studies C151C.

C113. History of the African American Music Theatre. (3) Course may be repeated for credit subject to acceptance of petition. Three hours of lecture per week. Formerly Dramatic Art C113. This course will cover the origins and development of musical theatre productions, and performed by African Americans, with a view to elucidating the dynamic role that African American musical theatre has played in the development of the mainstream American musical theatre drama. Also listed as African American Studies C134.

137AC. Across Disciplines: 20th-Century Art Forms. (4) Three hours of lecture per week. Formerly Dramatic Art 137AC. This course is an introduction to and comparative exploration of parallel developments in the works of 20th-century artists using examples from various art forms including dance, painting, sculpture, painting, writing, theatre, and performance art. The course will focus on the work of individual artists and examine how different perspectives, exchanges of materials, and borrowings of forms develop and transform what comes to be considered art. Also listed as Interdisciplinary Studies 137AC. This course satisfies the American cultures requirement.

139. Playwriting. (3) Three hours of lecture/discussion per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 139A-139B. Practice in the fundamentals of dramatic composition. Group readings and discussion of written work. (F)

141A-141B. Intermediate Modern Dance Technique. (1,1) Course may be repeated for credit. Seven and one-half hours of studio per week. Prerequisites: 40A-40B, audition, or consent of instructor. Formerly Dramatic Art 141A. Development of physical control through off-center movement and its utilization in spatial exploration. (F,SP)

142A-142B. Advanced Modern Dance Technique. (1,1) 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. Advanced study in the use of technique and qualitative analysis of movement with regard to rhythm, dynamics, and style. (F,SP)

143A-143B. Company Class. (1,1) Course may be repeated for credit. Seven and one-half hours of studio and performance 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, consent of instructor. Formerly Dramatic Art 144A. Understanding natural movement in rhythm, energy, and space with emphasis on style and qualitative analysis. (SP)

145. Music Resources for Dancers. (2) Three hours of lecture/studio per week. Prerequisites: 144 or consent of instructor. Formerly Dramatic Art 145A. An historical overview of the different periods of music in specific relation to dance. Methods of research, analysis of chorographic values of music, and experimentation in their usage. (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 and 114 or 144. Formerly Dramatic Art 146A. Analysis of theories of form and structure and their practical application in relation to content. (F) Staff

147. Dance Analysis. (5-3) Course may be repeated for credit. Four and one-half hours of lecture/studio per week. Prerequisites: 142A-142B and 144, or consent of instructor. Formerly Dramatic Art 147. Instruction in the methods and principles of class construction with emphasis placed on movement development. (F) Muruta

148. Introduction to Movement Improvisation. (1) Three hours of studio per week. Must be taken on a pass/failed basis. Prerequisites: Consent of instructor. Formerly Dramatic Art 148. Study and analysis of stage movement through non-verbal approaches. (F)

149. Repertory and Production. (5-3) Course may be repeated for credit. Variable studio (one-half unit per dance). Prerequisites: Consent of instructor. Formerly Dramatic Art 149. Advanced students of dance are to be organized as a company for the development of a dance repertory for public performance, the creation of new dance works, and the study of those already created. Some performance/critical activity will be held away from the Berkeley campus. (F,SP)

151A. Theater History. (3) Three hours of lecture per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 151A. A chronological survey of world theater to 1800, this course begins with an investigation of "performance behavior"—the human impulse to organize complex games, rituals, and other display activities. It explores the mythological and historical origins of theater in various cultures as well as the derivation of the first dramatic scripts. A heavy emphasis is placed on the analysis of the visual sources of early European and Asian theaters for a practical understanding of their scenic and acting styles. (F,SP)

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, play-making, 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 dance in Greek comedy and tragedy, Baroque courts; the development of ballet d'action; the romantic and Baroque ballet masters; Commedia dell'Arte, the 19th-century ballet master, and the Russian ballet. Also listed as Africana Studies C153A. (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 20th-century ballet, modern, and postmodern choreographers. We emphasize how dance reflects and affects political, social, and religious beliefs, and cultural constructions of gender by examining a variety of dance themes, movement vocabularies, and styles. (SP) Johnson

160. Stagecraft. (3) Two hours of lecture per week and laboratory per semester. Prerequisites: Consent of instructor. Formerly Dramatic Art 160. This course is an advanced discussion and practice of the theories, approaches, and applications of techniques for the production environment, and includes attention to such aspects of production as scenery, lights, sound, costumes, and stage management. There will be special emphasis on production organization and problem solving in connection with the laboratory dimension of the course. Students will work in a supervisory capacity on departmental productions. (F,SP)

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. Beginning study of principles of stage composition, blocking, and analysis of dramatic texts for the director.

163. Stage Directing. (3) Four hours of lecture/discussion plus two hours of laboratory per week. Prerequisites: 162 or consent of instructor. Advanced workshop and study of directorial practice. Students develop individual projects for production. (F,SP)

164. Advanced Directing Workshop. (3) Four hours of lecture/discussion per week. Prerequisites: 162 and 163 or consent of instructor. Advanced workshop and study of directorial practice. Students develop individual projects for production. (F,SP)

166. 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. Prerequisites: Consent of instructor. Formerly Dramatic Art 166. Special Topics vary from semester to semester and have included The Power of Music and Poetry in the Theater; Modern Drama and Theatre, 1940 to the Present; Figurines, Tricksters, and Cultural Exchange; Art as Social Action; And The Invisible World (Process Seminar). (F,SP)

170. Theater Laboratory. (1-3) Course may be repeated for credit. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. Formerly Dramatic Art 170. Non-performing participation in the University Theatre to include: design and production elements; crew assistance in lighting, sound, properties, costumes, make-up, backstage, technical assistance in scene or costume shop. (F,SP)

171. Theater Performance. (1) Course may be repeated for credit. Hours to be arranged. Must be taken on a pass/no pass 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. (3) Course may be repeated for credit. Three hours of lecture per week and laboratory to be arranged. Prerequisites: Consent of instructor. Formerly Dramatic Art 172. Study of production techniques and procedures related to production management, stage management, and theater administration. (F,SP)

173A-173B. Scenography: Scenic Design for the Theater. (3,3) Three hours of lecture and three hours of laboratory per week. Prerequisites: 173A is the prerequisite to 173B. (F,SP)

174A-174B. Scenography: Costume Design for the Theater. (3,3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 175A. An introduction to theatrical lighting, including practical application through Dramatic Art productions. (F,SP)

176. Applied Theatrical Design. (1-3) Course may be repeated for credit. Two hours of lecture/discussion and five hours of laboratory per week. Prerequisites: Consent of instructor. One semester of theatrical design (173, 174, 175) or equivalent and at least 75 production hours of experience. 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 developmental productions. Collaboration 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. (F)

178. History of Costume. (3) Three hours of lecture and three hours of laboratory per week. Prerequisites: Consent of instructor. Formerly Dramatic Art 178. History of costume in relation to social change. Laboratory instruction in conservation and restoration of costumes. (F)

179. Supervised Theatrical Design. (1-3) Course may be repeated for credit. Five hours of laboratory per week. Prerequisites: 173A or 173B, 174A or 174B, 175A or 175B, or consent of instructor. Formerly Dramatic Art 179. Students are trained in the working methods of set or costume design; supervised preparation and implementation of a project in the department’s production season, from initial discussions through opening night. (F,SP)

180. Theatrical Realization of Dance. (1-3) Course may be repeated for credit. 138 hours of laboratory per semester. Prerequisites: Consent of instructor. Formerly Dramatic Art 180. This course relates choreography to theatrical presentation. Laboratory hours are spent in attendance at rehearsal, coaching sessions, and the performance of the dance concert. The course is taught by faculty choreographing the major dance production in the department season(s). (F,SP)

181. Theatrical Realization of Dance. (1-3) Course may be repeated for credit. Six hours of lecture and twelve hours of laboratory per week. Prerequisites: Audition or consent of instructor. Formerly Dramatic Art 181. This course relates dramatic texts or choreography to theatrical 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 production(s). (F,SP)

182A. Performance: An African American Perspective. (3) Three hours of lecture per week. Formerly Dramatic Art C182A. Introduction to the research-to-performance Method, African American aesthetics, and performance research. Course will survey wide range of writings on performance and investigate applications through exercises and improvisations. Students will also assist in information gathering for works in progress. Also listed as African American Studies C143A.

182B. Research-to-Performance Laboratory. (3) Three hours of lecture per week. Formerly Dramatic Art C182B. Development of scholarly material for the 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.

183C. Black Theater 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 writer. The play 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.

184. Theatrical Realization of Individual Dances. (1) Seventy hours of laboratory per semester. Prerequisites: Admission or consent of instructor. Formerly Dramatic Art 184. This course relates choreography to presentation. Laboratory hours are spent in attendance at rehearsal, coaching sessions, and the performance of an individual work as part of the program of the dance concert. The course is taught by faculty members choreographing individual works for the dance concert, the major dance production of the department season. (F,SP)

191. Framing the Arts at UC Berkeley, (5.1) One and one-half to two and one-half hours of lecture for six weeks in H195A, either at a five hours of lecture for three weeks. Formerly Dramatic Art 191. The focus of this course varies based on the exhibits, screenings, and performances being presented at the Berkeley Art Museum, Pacific Film Archive, and Cal Performances. The work of well-established artists is used to illustrate historical trends; emerging artists illustrate cutting-edge developments. This course encourages students to integrate the arts into their intellectual pursuits and develop life-long habits of involvement in and appreciation of the fine arts. (F,SP)

H195A. Honors Course. (4) Hours to be arranged. Prerequisites: Honors status in the Department of Theatre, Dance, and Performance Studies. Courses in other departments of UC and 148B. Formerly Dramatic Art H195A. Independent 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. Formerly Dramatic Art H195B. Development of a major research paper on a specific area of study, or a laboratory project in acting, directing, playwriting, design, or dance. (F,SP)

196. University Theater Workshop. (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 196. Staff

197. Field Studies in Technical Theater. (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 theatrical production in field of scenic construction; costume construction and conservation; theatrical lighting; stage management; publicity; theatre management; production 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. Hours to be arranged. Must be taken on a pass/no pass basis. Prerequisites: Consent of instructor. 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 conferences with an instructor in an area not correspond-
Graduate Courses

200. Graduate Colloquium on Interdisciplinary Research in Performance. (12) Course may be repeated for credit. Graduate students in dramatic art are required to register for 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 course is designed to introduce graduate students to the research resources of the University, to the research interests and methodologies of the faculty affiliated with the Ph.D. program, to theater as a profession, and to trends and developments in theater studies. Students will work collaboratively on research projects. (F,S,P) Staff

201. Performance Theory. (4) Three hours of seminar per week. Formerly Dramatic Art 202. Study of different approaches and contemporary methodologies for analyzing the theatrical performances of various kinds within their cultural and historical context. (F,S,P) 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 the theatrical performances of various kinds within their cultural and historical context. (F,S,P) Staff

203. Theatrical Texts, Spaces, and Bodies. (4-2) 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 lab. 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,S,P) Staff

266. Special Topics: Theater Arts. (1-4) Course may be repeated for credit. Number of units will vary depending upon the specific topic and requirements. One hour of lecture or three hours of laboratory per week. 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; Theatres, Tricksters, and Cultural Exchange; Art as Social Action, and The Invisible World (Process Seminar). (F,S,P) Staff

277. Special Studies in Directing. (1-4) Course may be repeated for credit. Hours to be arranged. Prerequisites: Graduate standing, approval of instructor, and consent of instructor. Formerly Dramatic Art 277. Advancement in practice in play direction. (F,S,P)

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,S,P)

298. Directed Group Study. (1-4) Course may be repeated for credit. One unit of credit for each three hours of lecture. Prerequisites: Completion of one year of graduate study recommended. Formerly Dramatic Art 298. Special study or research of topics not covered by regular courses or seminars. May not be substituted for available seminars. (F,S,P) Staff

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,S,P) 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 advisor, intended to provide an opportunity for qualified students to prepare themselves for the various examinations required of candidates for the Ph.D. (F,S,P)

Professional Courses

300. Professional Preparation: Supervised Teaching in Dramatic Art. (1-4) Course may be repeated for credit. Hours to be arranged. Must be taken on a satisfactory/unsatisfactory 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,S,P)

Undergraduate and Interdisciplinary Studies

(Previous title: College of Letters and Science)

Office: 301 Campbell Hall, (510) 642-0108 Assistant Director: Renata L. F. S. da Cunha, Divisional Dean: Kwong-Ioi Shun, Ph.D.

Mission

Undergraduate and Interdisciplinary Studies (UGIS) 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 minor programs attract undergraduates who wish to explore the most intellectually engaging and promising interdisciplinary fields under the direction of scholars who are unifying these new areas and methods of inquiry. UGIS has been, and continues to be, an incubator for new ideas, including experimental programs and courses, as well as curricula designed to promote the ideals 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. American studies courses will attempt to take into account how the cultures of America have been continuously reshaped by movements of population, 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 interdisciplinary study of the structure and processes of human cognition. Students learn to model human behavior in laboratory simulations or modeling. This interdisciplinary program has been 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 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 science 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, and mathematics, and in social science directly related to environmental problems. The major is concerned with interactions between human activities and the natural environment, with implications 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.

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 at the minor office. For more information, call the UGIS office, (510) 642-0108 or visit the web site at http://learning.berkeley.edu/creative.

Lesbian, Gay, Bisexual, and Transgender (LGBT) Studies Minor. Established in fall 1995, the LGBT studies minor offers students an interdisciplinary investigation of sexuality as a complicated historical and cultural phenomenon. LGBT studies courses address the particularities of the modern forms of sexuality we call lesbian, gay, bisexual, and transgender, and further address the phenomenon of sexuality itself in all its historical and cross-cultural diversity. The minor consists of four core courses: (1) UGIS 20AC, (2) UGIS C145, (3) UGIS C146 or C146A, and (4) UGIS C147B or C148C. In addition, students must take two upper division elective approved for the minor program. Complete details of the minor program are available at the UGIS office in 301 Campbell Hall, (510) 643-7691.
Other Programs

In addition to the majors listed above, the Office of Undergraduate and Interdisciplinary Studies has developed innovative introductory courses such as Topics in Western Civilization. The Development of World Civilization and upper division colloquia and research courses.

The College Writing Programs (216 Dwennille Annex, (510) 642-5570), designed to help undergraduates improve their fluency and control over their reading and writing skills, is also in the Office of Undergraduate and Interdisciplinary Studies.

The Freshman Seminar Program offers lower division students the opportunity to study a broad range of intellectual topics in the company of a faculty member and a small number of peers. A brochure listing the seminars to be offered each semester is mailed to all freshmen in time for Tele-BEARS registration. For more information, visit 333 Campbell Hall, call (510) 642-8378, or go to http://ssp.berkeley.edu.

Letters and Science College Courses.

Letters and Science College Courses foster and support the research life of the University. To this end, OUR coordinates and develops programs and resources that bring undergraduate students into the field, laboratories, and archives. For information on research workshops and the great variety of under-graduate research opportunities, see Berkeley, visit the Research @ http://www.berkeley.edu. For search workshops and the great variety of under-graduate research opportunities, see Berkeley, visit the Research @ http://www.berkeley.edu. For search workshops and the great variety of under-graduate research opportunities, see Berkeley, visit the Research @ http://www.berkeley.edu.

Letters and Science College Courses web site at http://CollegeCourses.berkeley.edu.

For more information, including the breadth requirements these courses fulfill, see the Letters and Science College Courses web site at http://CollegeCourses.berkeley.edu.

The Freshman Seminar Program offers seminars that are designed for students considering a major in the sponsoring department in the College of Letters and Science. They are small, interactive courses in which students will encounter a topic typically offered in very large section and become acquainted with the approaches and methods of scholars in that field. Sophomore seminars offer an opportunity for close, regular contact between faculty and stu-dents in the crucial second year. A brochure de-scribing the seminars for the upcoming semester is mailed to every sophomore in Letters and Science in time for Tele-BEARS registration. For more in-formation, visit 333 Campbell Hall, call (510) 642-8378, or go to http://ssp.berkeley.edu.

Letters and Science College Courses. Letters and Science College Courses foster and support the ideals of a liberal arts education at the highest level of excellence. The deans in Letters and Science carefully select courses that will appeal to non-expert undergraduates. Science College Courses are often interdisciplinary, and they never have prerequisites. They are designed for students who are eager to take an intellectual risk and to explore a new area of interest at a deeper level than is re-quired or offered by the usual introductory course. For more information, including the breadth re-quirements these courses fulfill, see the Letters and Science College Courses web site at http://CollegeCourses.berkeley.edu.

Scholarship Connection is Berkeley’s clearing-house for information on scholarships that are funded by sources outside the University. Enrolled Berkeley students may search for awards on Scholarship Connection’s online database at http://scholarships.berkeley.edu. In addition to pro-viding information on many externally funded awards, Scholarship Connection also administers the campus recruitment and selection for several highly competitive awards such as the Rhodes, Marshall, and Truman Scholarships. Scholarship Connection offers workshops and individual advising to help applicants prepare competitive ap-plications for these prestigious awards. For more information, visit scholarships.berkeley.edu or contact Scholarship Connection, 345 Campbell Hall, scholarships@learning.berkeley.edu, (510) 643-6929.

The UC Berkeley-Washington Program allows undergraduates to spend a semester in Washing-ton, D.C. Students in the program combine course work with field research in an internship that reflects the student’s particular area of interest. For more information, please call (510) 642-9102, M24 Wheeler Hall, or go to http://learning.berke-ley.edu.

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 re-sources that bring undergraduate students into the field, laboratories, and archives. For information on re-search workshops and the great variety of under-graduate research opportunities, see Berkeley, visit the Research @ http://www.berkeley.edu. For search workshops and the great variety of under-graduate research opportunities, see Berkeley, visit the Research @ http://www.berkeley.edu. For search workshops and the great variety of under-graduate research opportunities, see Berkeley, visit the Research @ http://www.berkeley.edu.

The Undergraduate Research Apprentice Pro-gram (URAP) offers students the opportunity to be-gin to put their classroom learning to use. As re-search apprentices, students gain skills and perspectives as they assist faculty with research. Over 400 students participate in this program each year, working with faculty from more than 50 de-partments and colleges. Visit the URAP web site for a current list of faculty projects: http://re-search.berkeley.edu/urap, or come to 347 Camp-bell Hall, or call (510) 643-5376.

When students are ready to embark on research of their own design, the Human and Social Programs and the Berkeley Beckman Scholars Program offer fel-lowships that allow students to pursue sophisti-cated research. For information about these and other programs, visit the web site at http://re-search.berkeley.edu/.

C10. The Eye and Vision in a Changing Environ-ment. (2) Two hours of lecture per week. Course cov-ers the basis of common sight reducing visual disorders and their health implications for society—e.g., myopia, cataracts, diabetic hyper-tensive eye disorders, developmental disorders (e.g., lazy eye), and environmental induced diseases and disorders (solar eye burns, cataracts). Major ap-proaches to the prevention, diagnosis, and treatment of common disorders will be reviewed in terms of the biological and optical sciences underlying the treatment or prevention. Impact of eye care on society and health and care delivery will be reviewed. Also listed as Op-tometry C10. (SP) Adams

C12. Introduction to Environmental Studies. (4) Will count toward core requirement 10 (environmental is-sues) for the conservation and resource studies major. Students will not receive credit for C12 after taking En-vironmental Science, Policy, and Management 10, En-vironmental Science, Policy, and Management 12, or English C77. Three hours of lecture and one one-half hours of discussion per week. This innovative course taught by a scientist and a humanities profes-sor surveys current global environmental issues; in-troduces students to the basic intellectual tools of en-vironmental science; investigates ways the human relationship to nature has been imagined in literary and philosophical traditions; and examines how tools of sci-entific and literary analysis, scientific method, and imaginative thinking can clarify what is at stake in en-vironmental issues and environmental citizenship. Also listed as Environ Sci, Policy, and Management C12 and English C77.

20AC. Alternative Sexual Identities and Commu-nities in Contemporary American Society. (4) Three hours of lecture and one hour of discussion per week. An introduction to varied dimensions of alternative sex-ual identities across the United States, with a focus ranging from individuals to communities. This course will use historical, sociological, ethnographic, political-scientific, psychological, psychoanalytical, le-gal, medical, and sociological materials to chart trends and movements from the turn of the century to the present. This course satisfies the American cul-tures requirement. (F,SP) Staff

20B. Learned Societies in Western Civilization. (5) Three hours of lecture and one hour of discussion per week. This course explores the development of learned societies in Western civilization from the medieval period to the modern era. It examines the role of learned societies in the formation of modern science and scholarship, and the ways in which they have responded to new intellectual challenges. (SP) Saragoza

55AC. Crossroads: California and the World. (4) Three hours of lecture and two hours of discussion per week. This course explores the role of California in the development of the internationalization of the global economy, the globalization of the nation, and the transnationalism of human migrations. Through a comparative historical approach, the course explores the migration of specific groups as a means of un-derstanding the economic and cultural relationships be-tween California and the world and their effects here and abroad. This course satisfies the American cul-tures requirement. (F,SP) Staff

77. The Performing Arts on Campus. (1) Course may be repeated for credit. One hour of lecture per
week. Must be taken on a passed/not passed basis. Attendance at a series of campus performances in music, theater, dance, as well as followed by historical and critical analysis of the artistic vision and practice characterizing the event. (F,SP) Christ

79. Undergraduate Colloquium. (1) Course may be repeated for credit if topic changes. One and one-half hours per week. Must be taken on a passed/not passed basis. Formerly: Fresman Sophomore Studies 79 and Interdisciplinary Studies 79. Top- ics vary each semester. Check the schedule of classes for current topic. (F,SP) C32. Imagining Arab Civilization. (4) Three hours of lecture and one hour of discussion per week. Formerly: 22. This course examines major aspects of Arab culture through literature, art, film, and other media. Questions of religious, political, and philosophical nature exist in Arab culture with literary conventions and aesthetic norms. The course explores the dynamic interaction among these abiding concerns of Arab culture from pre-Islamic times to the present. Also listed as Near Eastern Studies C32.

96. 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. Credit is for the group study topic covered by regularly scheduled courses. Topics may vary from semester to semester. (F,SP)

Upper Division Courses

110. Introduction to Disability Studies. (3) Three hours of lecture per week. This course focuses on the social, cultural, and historical 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 field. Also listed as Disability Studies C178. (F,SP) Staff

112. Women and Disability. (3) Three hours of lecture per week. This course will explore the intersection of women’s experience 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 a 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 medicine, independent living, care-giving, insurance, public benefits, law, and community activism as they affect and are affected by disability. Also listed as Computer Science C182, Linguistics C109, and Cognitive Science C110. Feldman, G. Lakoff.

C132. Children Through History: Social Practices and Social Welfare. (3) Three hours of lecture and one hour of discussion per week. This course brings together the methods of historical analysis and the problems faced by social welfare professionals to create a new and provocative examination of childhood in America. Topics covered will include child-birth and infancy, children’s rights, learning, and the state of the superparent. 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. (4) Three hours of lecture and two hours 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 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 issues light of the historical and more broadly, literary and artistic perspectives of the humanities. Also listed as History C119 and Health and Medical Sciences C133. (SP) Laquer, Micciche.

C134. China in the 1990s: Reporting the Contradictions. (4) Students will receive no credit for undergraduate and Interdisciplinary Studies C134 after taking Asian Studies 148, 149, and Sociology 183. Three hours of lecture and one hour of discussion per week. Prerequisites: Sociology 1, 3, 3AC or consent of instructor. This interdisciplinary course applies sociological methods to understand 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; decolonization of the rural economy; changing urbanization and the urbanization of the rural economy; and rural urban 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 and Journalism C183. Gold, Wakeman

C135. 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 formats. Self-expression that defies 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 visual literacy. Also listed as Visual Studies C165A, American Studies C174, and English C145V. This course satisfies the American cultures requirement.

C136. The American Forest: Its Ecology, History, and Representation. (3) Three hours of lecture and one hour of discussion per week. Formerly: 146. This course examines American forests in its scientific and economic parameters, as well as the social, historic, and ideological dimensions which have contributed to the evolution of our current attitudes toward it. Also listed as History of Art C189, Envirion Sci, Policy, and Management C191, and American Studies C112F. (F,SP) Love, McBride

C137. Office of the Future. (3) Three hours of lecture per week. Prerequisites: Upper division standing. Conventional office design will undoubtedly change, primarily in response to concerns about productivity and health. How can research, especially psychological research, help us improve the design of offices? What should offices look like 10-50 years from now? How will they be used? These are questions the course will try to answer. Also listed as Architecture C119 and Psychology C191. (F) Cranz

C145. Interpreting the Queer Past: Methods and Problems in the History of Sexuality. Three hours of lecture/discussion per week. Formerly: 145. This course examines interpretive issues in studying the history of sexuality and the formation of sexual identities and communities. Considering primary documents, secondary literature, and theoretical essays, we will investigate specific historiographical concerns and pose questions about historic practice. Also listed as Women’s Studies C145. (F,SP) Kaplan, Marcus

C146A. Cultural Representations of Sexualities: Queer Literary Culture. (4) Three hours of lecture per week. This course examines modern literary cultures that construct ways of seeing diverse sexualities. Considering 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 time. Also listed as Women’s Studies C146A. (F,SP) Staff

C147B. Sexuality, Culture, and Colonialism. (4) Three hours of lecture per week. Prerequisites: Sociology 3 or Sociology 3A. An introduction to social theory and ethnography, and the cultural history of 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

C148. Ethnicity, Gender, and Sexuality. (3) Three hours of lecture and one hour of discussion per week. Formerly: 146. Course focuses on the production of sexualities, sexual identification, and gender differentiation across multiple discourses. Also listed as Ethnic Studies C126. (F,SP) Alarcon

149. Special Topics: Studies in Sexuality and Culture. (4) Course may be repeated for credit as topic varies. Three hours of lecture per week. In-depth investigation of a topic related to the study of sexualities in culture. Original research and extensive writing will be required. (F,SP)

C152. Jewish Civilization I: The Biblical Period. (3) 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 myth and religion, the history of Israelite religion, the literary features of biblical nar- rative, and the Dead Sea Scrolls. Also listed as Near Eastern Studies C135 and Religious Studies C132. Staff

C153. 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 lit- erature. Also listed as Religious Studies C133 and Near Eastern Studies C133. Staff

C154. Jewish Civilization: Middle Ages. (4) Three hours of lecture and one hour of discussion per week. This is the third course in a four-course sequence in the history of Jewish culture and civilization. It covers the middle ages and the early modern period, including kabbalah, medieval poetry, halakhic, ethical liter- ature, Jewish philosophy, and the Italian Jewish re- naissance. Also listed as History C175A and Religious Studies C134. Staff

C155. 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 history from 1750 to the present, with special attention paid to the transfor- mation of Jewish communal and individual identity in the modern period. Topics to be covered include the breakdown of traditional society, enlightenment and 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 fa- miliar Ashkenazi perspective. Also listed as History C175B and Religious Studies C135. Staff

170. Selected Topics: Ethics in Contemporary So- ciety. (Q) Course may be repeated for credit as topic varies. Three hours of lecture and one hour of discus- sion per week. Ethical issues confronting selected contemporary institutions or disciplines or both. This course is designed to allow students to reflect critically on the ethical responsibilities of individuals in the mod- ern world. Topics include ethical issues raised by the mass media, medicine, law, new technologies, etc. (F,SP)

192. Supervised Research. Course may be repeated for credit. One-on-one faculty/student research. Re- quires prior permission of the instructor and work per week per unit. This course may be taken on a passed/not passed basis. Directi- vidual research on topics connected to faculty schol- arship. (F,SP)

192A. Humanities. (1-4)

192B. Social Sciences. (1-4)

192C. Biological Sciences. (1-4)

192D. Physical Sciences. (1-4)

192E. Interdisciplinary Studies. (1-4)

C193. Introduction to Social Science Computing. (4) One hour of lecture and one demonstration laboratory setting with two hours of supervised laboratory and an average of four hours of self-paced laboratory per week. Introduction to computer-assisted techniques, and grant proposal writing in the social sciences. Structure and content of reports. Overview of demographic, ecological, economic, and social fac- tors. Use of Internet and information technologies: In- ternet access, machine-readable archival and other data sources, statistical summaries and graphics, Web pages. Students must choose a Mac/PC lab or a UNIX laboratory. Also listed as Anthropology C193.

C196W. Special Field Research. (10.5) Course may be repeated for a maximum of 12 units. 240-300 hours work per semester plus regular meetings with the faculty. Course options: Consent of instructor. Formerly 196W. Students to work in selected intern- ship programs approved in advance by the faculty co- ordinator and to present written summaries with grades established by 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. They must introduce a final pa- per for the course consisting of no fewer than 35 pages. Other restrictions apply; see faculty adviser. Also listed as History of Art C196W, Women’s Studies C196W, Mass Communications C196W, Political Sci- ence C196W, History C196W, Political Economy of Indus- trial Soc C196W, and Sociology C196W.

198. Directed Group Study for Upper Division Stu- dents. (1-4) Course may be repeated for credit as topic varies. Must be taken on a passed/not passed basis. Seminars for group study of topics not covered by regularly scheduled courses. Topics may vary from semester to semester. Students must have completed 60 units to be eligible to enroll. (F,SP)

Urban Design (College of Environmental Design)

Office: 302 Wurster Hall, (510) 642-2965 http://www.mud.berkeley.edu

Professors

Nezar AlSayyad, Ph.D. (Architecture)
Peter C. Bosselman, M.Arch. (Architecture, City and Regional Planning, Landscape Architecture and Environmental Planning)
Harrison Fraker Jr., Dean, M.F.A., F.A.I.A. (Architecture)
Randolph T. Hadley, M.Arch. (Architecture and Environmental Planning)
Allan B. Jacobs, M.C.P. (City and Regional Planning, Landscape Architecture and Environmental Planning)
Linda L. Jewell, M.Arch. (Landscape Architecture and Environmental Planning)
Dorothy Lyndon, M.F.A. (Architecture)
Daniel Solomon, M.Arch. (Architecture)
Michael Southworth, Ph.D., M.C.P. (City and Regional Planning, Landscape Architecture and Environmental Planning)
Richard Bender, Ph.D. (Architecture) (Emeritus)

Associate Professors

Elizabeth Deakins, M.C.P. (City and Regional Planning, Landscape Architecture and Environmental Planning)
Molly Horton, M.Arch., M.C.P., M.A. (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 par- take in an intense, focused learning experience. They will share working methods, acquire addi- tional skills, and explore new avenues of develop- ment under the supervision of an interdisciplinary group of faculty members in the College of Envi- ronmental Design drawn from the Departments of Architecture, Landscape Architecture and Environ- mental Planning, and City and Regional Plan- ning.

The program addresses the need for professionals who are concerned specifically with the design of varied urban areas open to public use. The activ- ities of urban design are diverse in both type and scale. Urban designers may be concerned with set- tlement 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 the 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 sys- tems such as streets, lighting, signage, 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 exten- sive 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 is a relatively new discipline that is 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. A need ex- ists for designers who are able to work effectively in teams across a large range of scales and with a well-developed understanding of urban design, the interdependencies of the fabric of buildings, landscapes and public ways, and the social inter- actions that shape them.

Information on the program and degree requirements is available from the Graduate Office at 202 Wurster Hall, (510) 642-2965, or at http://www- mud.berkeley.edu.

For information on courses specifically designed for the Master of Urban Design Program, please see the descriptions for ED 201, ED 251, and ED 252 in the Environmental Design section of this catalog.

Urban design also may be pursued as a concen- tration in the master’s degree programs in the De- partments of Architecture, Landscape Architecture and Environmental Planning, and City and Re- gional Planning. A concurrent degree in urban de- sign offered both the M.L.A. and M.C.P. also is of- fered in Landscape Architecture and City and Regional Planning. Please refer to these depart- ments for further information.

Women’s Studies (College of Letters and Science)

Department Office: 3326 Dwinelle Hall #1070, (510) 642-2787 http://english.berkeley.edu/4047

Chair: To be announced

Affiliated Faculty

Neema Alcanat, Ph.D. University of Indiana, Latin American, Chicano, and Puerto Rican literature; creative writing; women’s studies. (Graduate)
Paolo Bacchetta, Ph.D. Sorbonne. Transnational feminist theories and practices; gender and postcolonial studies; poststructuralist feminism; social movements (feminist, lesbian, queer, right-wing); ethnopolitical/conflict/space, qualitative methods. India, France.
Daniel Boyarin, Ph.D. Judaism and Christianity in late antiquity, gender and sexuality (Religious Studies).
Wendy Brown, Ph.D. Princeton University, Feminist theory, history of political theory, contemporary critical theories of law and jurisprudence, 19 and 20th-century continental theories, poststructuralism.
Judith Butler, Ph.D. Feminist theory, sexuality studies, 19th- and 20th-century continental philosophy, philosophy and literature, and political thought (Rhetoric).
Margaret Caster, Ph.D. Feminist theory and political philosophy, feminist theory, feminism, Latin America; Anti-Americanism; African and Paleolithic Women’s studies (Anthropology)
Evelyn Nakano Glenn, Ph.D. Harvard University, Women of color in the U.S., work, work, and technology, comparative studies of race and gender.
Caren Kaplan, Ph.D. University of California, Santa Cruz. Feminist theory, cultural and post-colonial discourses, cultural studies of travel, diaspora, and immigration, gender and globalization; translation; transculturation. (Anthropology)
Christina Masica, Ph.D. Social, health psychology.
Mary Ryan, Ph.D. History of women, social and cultural history of 19th-century United States. (History)
Nancy Scherer-Hughes, Ph.D. Medical and psychological anthropology, Brazil (Anthropology)
Carolyn Porter, Ph.D. American literature, American intellectual history (English)
Sandra Washburn, Ph.D. Intellectual history, Europe, Brazil (Anthropology)
Althea Ogilvie, Ph.D. Political economics, gender, immigration and diaspora; East Asia (Anthropology, Sociology, and American Studies)
Carol Stack, Ph.D. Sociology, families, and childhood.
Carol Stack, Ph.D. Social anthropology, rural and urban poverty, immigration and community, urban youth, social policy (Education)
Barrie Thorne, Ph.D. Brandeis University. Feminist theory, sexuality, gender, families, and childhood.
Women's Studies / 473

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 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 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 (WS 200) offered each spring. Students must fulfill the following requirements before completion of the degree: The introductory seminar (WS 200), an elective seminar (WS 210), and a dissertation research seminar (WS 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 Schedule of Classes and the department’s course descriptions issued before the start of each semester. The departmental publication, “Course List in Women and Gender,” provides up-to-date information about courses offered by the Women’s Studies Department.

For further information about the department, events, and links to other sites of interest, go to http://womensstudies.berkeley.edu.

Lower Division Courses

R1A, Freshman Composition. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Subject A. Formerly 1A. Training in expository, argumentative, and other styles of writing. The assignments will focus on themes and issues in Women's Studies. This course satisfies the first half of the Reading and Composition requirement. (SP) Staff

R1B, Reading and Composition. (4) Three hours of lecture and one hour of discussion per week. Formerly 1B. Training and instruction in expository writing in conjunction with reading literature. The readings and assignments will focus on topics and issues in women's studies. This course satisfies the second half of the Reading and Composition requirement. (SP) Staff

10. Introduction to Women’s Studies. (4) Three hours of lecture/discussion per week. Introduction to Women’s Studies as an academic discipline and to the feminist critique of the existing disciplines through an examination of several selected areas, such as sex role socialization, the women’s movements, and female art. (F,SP) Staff

14. Contemporary Global Issues for Women. (4) Three hours of lecture per week. A lower division course designed to introduce undergraduate women to the impact of economic and political forces, and to the advocacy groups that have lobbied to enlarge women’s human rights. The course will focus on helping students understand the historical context in which a women’s movement emerged in the United States and elsewhere, and the role of governments, laws, social forces and political actors in helping a movement emerge. (SP) Staff

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) 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 geographies and spatialities 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. An introduction to feminist theories from the 18th and 19th centuries to contemporary times. The development of feminist theories is treated in relation to pertinent social, political, and cultural theories. (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 W20W. This course is open only to students who have not completed the second half of the reading and composition requirement. This course is identical to WS 20 above with two additional one-hour section meetings per week devoted to writing instruction, with additional writing assignments. Satisfies the second half of the Reading and Composition requirement. (F) Staff

24. Freshman Seminars. (1) Course may be repeated for credit as topic varies. One hour of seminar per week. Sections 1-2 are to be graded on a letter-grade basis. Sections 3-4 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 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. Lower Division Seminar in Women’s Studies.

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 pass basis. An introduction to feminist studies through the examination of a single problem area. Past courses have focused on urban life, work, food and literature—all viewed through the lens of gender. (F,SP) Staff

40. Special Topics. (3) Course may be repeated for credit. Three hours of lecture per week. The findings of feminist scholarship as they apply to a particular problem, field, or existing discipline. Designed primarily for lower division students and non-majors. Topics vary from semester to semester. Students should consult the Women’s Studies announcement of courses for specific semester topics. (F,SP) Staff

50. Gender and Popular Culture. (3) Course may be repeated for credit. Three hours of lecture per week. A multi-disciplinary course designed to provide students with an opportunity to work with faculty investigating the topic gender and popular culture. (F,SP) Staff

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. To be admitted to the minor in women’s studies, students must complete at least two majors or minors in the student’s studies must complete five upper division courses as follows: any three of the core courses (WS 101, 102, 103, 104) plus two electives in Women’s Studies. A minimum GPA of 2.0 is required for the minor program.

Prerequisites for Nonmajors and Minors

Students who are not majoring or minoring in women’s studies but wish to take women’s studies core courses 101, 102, 103, and 104 must take WS 10, WS 20 or their equivalent beforehand.

Upper Division Requirements: The requirements for a women’s studies major consist of a minimum of 8 upper division courses on women’s issues (30-32 units) distributed as follows:

Core courses (20 units): 101, Representations of Gender; 102, Comparative Structures of Gender; 103, Identities—Across Difference; 104, Advanced Feminist Theory; 195, Senior Seminar.

Electives (10-12 units): Three electives, at least one in Women’s Studies; the other two may be fulfilled by classes offered by other departments that are listed in “Courses in Women’s Studies” published each semester by the Department of Women’s Studies.

Honors Program.

Students must have a 3.3 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 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. To be admitted to the minor in women’s studies, students must complete at least two majors or minors in the student’s studies must complete five upper division courses as follows: any three of the core courses (WS 101, 102, 103, 104) plus two electives in Women’s Studies. A minimum GPA of 2.0 is required for the minor program.

Prerequisites for Nonmajors and Minors

Students who are not majoring or minoring in women’s studies but wish to take women’s studies core courses 101, 102, 103, and 104 must take WS 10, WS 20 or their equivalent beforehand.

society. It asks, for example, how the gender dis-
50AC. Gender in American Culture. (3) Course may be repeated for credit. Three hours of lecture per week. A multi-disciplinary course designed to provide students with an opportunity to work with faculty investigating the topic gender in American Culture. This course satisfies the American cultures requirement. (F,SP)

84. Sophomore Seminar. (1) One hour of seminar per week. Sections 1-2 to be graded on a passed/not passed basis. Sections 3-4 to be graded on a letter-grade basis. The seminar is designed for students considering a major in the sponsoring department. They are small, interactive courses in which students will encounter a topic typical of the discipline and become acquainted with the approaches and methods of scholars in that field. Sophomore seminar instructors will become faculty mentors for the students from the time they declare the major until they graduate. (F,SP)

98. Directed Group Study for Undergraduates. (1-4) Course may be repeated for credit. Must be taken on a passed/not passed basis. Seminars for the group study of selected topics not covered by regularly scheduled courses. Topics will vary from year to year. (F,SP)

99. Supervised Independent Study and Research. (1-4) Course may be repeated for credit. Three to twelve hours of tutorial or fieldwork per week. Must be taken on a passed/not passed basis. Prerequisites: Freshmen or sophomores only. 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. This course is designed to provide students with an opportunity to work with faculty investigating the topic Women in American Culture. This course satisfies the American cultures requirement. (F,SP) Staff

101. Representations of Gender, (4) Three hours of lecture/discussion per week. The goal of this course is to introduce fundamental critical terms and models for understanding both gender, race, and sexuality are constructed and reconstructed through representation, and how these can simultaneously serve to construct varied forms of representation. Forms of representations might include science, history, politics, philosophy, literature, cinema, and other visual arts. (F) Staff

102. Comparative Structures of Gender, (4) Three hours of lecture/discussion per week. The goal of this course is to analyze, through comparative and historical case studies, the systematic but variable ways gender, race, and sexuality structure social life. Attention will be given to social, political, economic, and legal institutions. (SP) Staff

103. Identities Across Difference, (4) Three hours of lecture per week. Prerequisites: 10. The course studies identities as a product of articulation and investigation of self and other, rather than an inherited marking. Emphasis will be placed on patterns of identity, and how race, gender, and sexuality intersect. Attention will be given to the complex and diverse nature of the experience of gender identities and communities. (F) Staff

104. Advanced Feminist Theory. (4) Four hours of lecture/discussion per week. A course in 20th century feminist theory, focusing on interdisciplinary theories of women, gender and sexuality in relation to race, class, and culture. (SP) Staff

111. Special Topics. (1-4) Course may be repeated for credit as topics vary. One to three hours of lecture/discussion per week. This course is designed to provide students with an opportunity to work closely with Women’s Studies faculty, investigating a topic of mutual interest in great depth. Emphasis is on student discussion and collaboration. Topics 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/discussion per week. 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 consider how work, the family, sexuality, and politics and be attentive to variations in the structure and experience of gender based on race, ethnicity, and class. Ryan

122. Women in the University: Gender and Higher Education. (3) Three hours of lecture/discussion per week. The situations and experiences of women in higher education in the United States, employing both historical perspectives and comparing the contemporary era. A prior knowledge of the history of American education is not presumed. Also listed as Education C122. Staff

125. Women in Film. (4) Three hours of lecture and two hours of screening per week. Prerequisites: 10 or the equivalent. Formerly 100. This course explores feminist approaches to the way women are represented in film. We will learn how filmic representations of women work to reflect and define what it means to be gendered female in our culture. (F,SP) Staff

131. Gender and Science. (3) Three hours of lecture/discussion per week. What role has science as a social institution played in the sexual division of intellectual and emotional labor underlying our cultural history? What consequences has the division of labor had for scientific practice? In what ways has the historical exclusion of traditionally female interests affected the development of the natural sciences? What differences, if any would the full and equal participation of women make? 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 to the U.S. in specific socio-historical and cultural contexts. Special attention to race, ethnic and identity issues from woman-centered analysis and methodology. Also listed as Ethnic Studies C136. (SP)

139. Women and Work. (4) Three hours of lecture per week. 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 inequalities and occupational segregation; sexual harassment; individual resistance strategies and collective organizing; class and race differences in women’s work; state and social policy affecting work and family life. (F,SP) Staff

140. Feminist Cultural Studies. (4) Three hours of lecture per week. This course introduces students to the interdisciplinary field of feminist cultural studies. Drawing upon contemporary theories of representation, political science, 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. (F,SP) Kaplan

141. Women and World Development. (4) Three hours of lecture and one hour of discussion per week. Prerequisites: Consent of instructor. This course will examine women’s lives in developing countries and the impact of development programs and modernization, women’s work and unpaid labor in the household and workplace, and the role of gender in the social and economic development of societies. (F) Staff

142. Women’s Lives Worldwide. (4) Course may be repeated for credit as topics vary. Three hours of lecture per week. Formerly C142 and International and Area Studies C145. This course explores the ways in which global influences on women’s lives have multiplied in the past few decades. New laws and new economic activities have altered traditional or customary gender relationships, not always to the benefit of women. A different region of the world is examined each time the course is offered. Topics are to be offered: (a) South Asia; (b) East Asia; (c) West Asia/North Africa; (d) (f) Latin America and the Caribbean; (g) Western Europe; (h) Eastern Europe; (i) other areas as defined. (F,SP) Staff

145. Interpreting the Queer Past: Methods and Problems in the History of Sexuality. (4) Three hours of lecture/discussion per week. Formerly 145. This course examines interpretive issues in studying the history of sexuality and the formation of sexual identities and communities. Considering primary documents, secondary literature, and a variety of ways, we investigate specific historiographical concerns and raise questions about historical methodology and practices. Also listed as Undergraduate Interdisciplinary Studies C145. (F,SP) Kaplan, Marcus

146. Cultural Representations of Sexualities: Queer Visual Culture. (4) Three hours of lecture/discussion per week. Formerly 146. 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 Undergraduate Interdisciplinary Studies C146. (F,SP) Staff

146A. Cultural Representations of Sexualities: Queer Literary Culture. (4) Three hours of lecture per week. This course examines modern literary cultures that construct ways of seeing diverse sexualities. Considering 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 time. Also listed as Undergraduate Interdisciplinary Studies C146A. (F,SP) Staff

153A. 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. 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. Course explores the literature of 19th-century African American women, an expounding field in American cultural discourse. Also listed as African American Studies C153A. (F)

153B. Contemporary Images of African American Women in Literature. (3) Three hours of lecture and one hour of discussion per week. Prerequisites: women’s studies majors. This seminar is required for all seniors majoring in women’s studies and is open only to juniors and seniors. The course is for students to produce a research paper of 25-30 pages that reflects feminist methods, interpretations, or analysis. (F) Staff

155. Women’s Studies Senior Honors Thesis. (4) Individual conferences. Prerequisites: 15 upper division units in Women’s Studies; 3.3 GPA in all University work and 3.3 GPA in courses in the major. Entails writing a bachelor’s honors thesis pertaining to the student’s major in Women’s Studies. Each student will work under the guidance of a faculty adviser who will read and grade the thesis. (F,SP) Staff

196W. 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 to work in selected interdisciplinary studies programs approved in advance by the faculty advisor and for which written contracts have been established between the sponsoring organization and the student. Students will be expected to regularly submit progress reports for their faculty advisor during the course of the internship, as well as provide a final paper for the course consisting of 15-20 pages. Other restrictions apply; see faculty adviser. Also listed as History of Art C196W, Undergraduate Interdisciplinary Studies C196W, Mass Communications C196W, Political Science C196W, History C196W.
Political Economy of Industrial Soc C196W, and Sociology 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 passed/not passed basis. Prerequisites: Consent of instructor. Internship Program: Field work in an organization concerned with women's issues plus individual conferences with faculty. Students must present a written report of work to the supervising faculty before earning credit. Credit earned depends on the amount of written work completed by students that interprets the experience 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 passed/not passed basis. Prerequisites: Women's Studies major. Seminars for the 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 passed/not passed basis. Prerequisites: Women's Studies major. 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 the student to write an essay based upon the student's study. (F,SP) Staff

Graduate Courses

200. Theory and Critical Research. (4) Two to three hours of seminar per week. Prerequisites: Consent of instructor, 104, or the equivalent. This course will provide an opportunity for the examination of diverse feminist theories produced in different disciplines and across disciplines. The course will ground contemporary philosophical and theoretical developments in the study of gender to specific histories of class, race, ethnicity, nation, and sexuality. Participants in the class will be urged to draw upon their own disciplinary and interdisciplinary backgrounds and interests to produce multifaceted analyses of how feminist theory has and continues 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. 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, globalisation of gender, and the history of sexuality. (F,SP) Staff

220. Research Seminar. (4) Three hours of lecture and one hour of seminar per week. Prerequisites: Open to graduate students advanced to Ph.D. candidacy. Members of the seminar will present their ongoing dissertation research and mutually explore the interdisciplinary dimensions and implications of their work. (F,SP) Staff

239. Women and Work. (4) Three hours of lecture and one hour of seminar per week. 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; inequity and occupational segregation; sexual harassment; individual resistance strategies and collective organizing; class 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 covering the course. They will also participate in organizing and leading class discussions on a rotating basis. (F,SP) Glenn

Wood Science and Technology

(College of Natural Resources, Interdisciplinary Graduate Group)

Office: Building 478, Richmond Field Station, (510) 213-4290
Chair: C. Beall, Ph.D.
Professors
- Frank C. Beall, Ph.D. (Environmental Science, Policy, and Management; Forest Products Laboratory)
- David A. Domine, Ph.D. (Mechanical Engineering)
- Don J. Dunsmuir, Ph.D. (Environmental Horticulture; University of California, Davis)
- Bruce Hartough, Ph.D. (Biological and Agricultural Engineering; University of California, Davis)
- You-Le Hsieh, Ph.D. (Textiles and Clothing; University of California, Davis)
- Bryan M. Jenkins, Ph.D. (Biological and Agricultural Engineering; University of California, Davis)
- George C. Johnson, Ph.D. (Mechanical Engineering)
- Fai Ma, Ph.D. (Mechanical Engineering)
- Jeffrey M. Romm, Ph.D. (Environmental Science, Policy, and Management)
- David L. Birey (Emeritus), Ph.D. (Environmental Science, Policy, and Management; Forest Products Laboratory)
- William McKillop (Emeritus), Ph.D. (Environmental Science, Policy, and Management; Forest Products Laboratory)
- Arno Schiwetz (Emeritus), Ph.D. (Environmental Science, Policy, and Management; Forest Products Laboratory)
- Wayne Wieland (Emeritus), Ph.D. (Environmental Science, Policy, and Management; Forest Products Laboratory)
- Charles R. Wilke (Emeritus), Ph.D. (Chemistry, Chemical Engineering)
- Robert B. Williamson (Emeritus), Ph.D. (Civil and Environmental Engineering, Forest Products Laboratory)
- Suzanne Zavarn (Emeritus), Ph.D. (Environmental Science, Policy, and Management; Forest Products Laboratory)

Associate Professors
- Richard S. Dodd, Ph.D. (Environmental Science, Policy, and Management; Forest Products Laboratory)
- James W. Rector III, Ph.D. (Materials Science and Engineering)

Graduate Adviser: Mr. Beall.

Program Overview

This program is administered by an intercampus, interdisciplinary group drawn from faculties in chemistry, engineering, forestry, and other related departments at UC Berkeley and UC Davis. It offers programs leading to the M.S. and Ph.D. degrees. These programs are directed particularly to students desiring a thorough knowledge of all areas of wood science as a background to their chosen research fields or areas of specialization. Graduate study develops an understanding of the ultrastructure, physics, and chemistry of wood. Specialization through additional study and thesis research under the program is possible in broad areas related to wood-based materials in structures, including nondestructive evaluation, seismic performance, biodgradation of materials, and fire performance, and in biobased materials, including use of woody biomass, conversion of urban waste materials, improvements in secondary processing, and biochemical processing. Graduate courses are listed under the Department of Environmental Science, Policy, and Management, beginning with ESPM 286.

The excellent facilities of the Forest Products Laboratory are available for both thesis and special research projects. To be considered for admission, students must have a degree in a natural science, forestry, engineering, wood science/technology, or related fields, and meet the criteria for admissions by the Graduate Division. For further information, go to www.ucfpl.ucop.edu.