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# Version History

The Version History records each version and the changes made for that version. Click on the blue department name to go directly to the department.

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## Policies and Requirements Addendum—Version History

### Version P1.0; release date: 9/25/2006

This version contains the following entries:

- Biological Sciences
- Chemistry
- Community and Regional Development
- Human Development
- International Relations
- Nature and Culture
- Religious Studies
- UC Davis Quarter Abroad Program
- UC Davis Summer Abroad
- Undergraduate Admission
- Undergraduate Education
- Watershed Science

### 2007 General Catalog Update; release date 6/21/2007

This version contains the following entries:

- Academic Calendar
- Communication
- Education, School of
- Engineering: Civil and Environmental
- English
- History
- International Baccalaureate Examinations
- Linguistics
- Neurobiology, Physiology, and Behavior
- Physics
- University of California, Davis Washington Program

### Version P1.1; release date: 9/24/2007

This version contains the following entries:

- Undergraduate Admission



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The 2006-2008 General Catalog Course Supplement and Policies & Requirements Addendum contains updated information regarding courses and requirements for the 2006–2008 academic years. Use this document in conjunction with the 2006–2008 *UC Davis General Catalog*. If a department is not listed in this document, there are no changes to that department's programs.

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## Introduction

The 2006-2008 General Catalog Course Supplement and Policies & Requirements Addendum addresses important changes to the *UC Davis 2006-2008 General Catalog*. Changes are contained in two sections; the [Course Supplement](#) and [Policies and Requirements Addendum](#).

Additionally, the *2007 General Catalog Update* combines all the changes from the Course Supplement and Policies & Requirements Addendum up to Summer 2007; release date 06.21.2007.

### Course Supplement

Changes, cancellations, or the addition of new courses, are contained in the [Course Supplement](#), below.

The changes listed in the [Course Supplement](#) section are released using the following schedule:

- Version C1.0; release date 07/09/06
- Version C1.1; release date 9/25/06 (Fall 06)
- Version C1.2; release date 10/23/06 (Winter 07 CSRG)
- Version C1.3; release date 01/29/07 (Spring 07 CSRG)
- Version C1.4; release date 05/07/07 (Fall 07 CSRG)
- 2007 General Catalog Update; release date 6/21/2007
- Version C1.5; release date 9/24/2007 (Fall 07)
- Version C1.6; release date 10/22/07 (Winter 08 CSRG)
- Version C1.7; release date 1/28/08 (Spring 08 CSRG)
- Version C1.8; release date 4/15/08 (Final Version)

### Policies and Requirements Addendum

Revised or the addition of new undergraduate/graduate/professional degree programs and requirements, and revised or the addition of new *General Catalog* policies or procedures are contained in the [Policies and Requirements Addendum, on page 74](#).

The changes listed in the [Policies and Requirements Addendum](#) section are released using the following schedule:

- Version P1.0; release date 09/25/06 (06-07 Academic year)
- 2007 General Catalog Update; release date 6/21/2007
- Version P1.1; release date 09/24/07 (07-08 Academic year)

## Course Supplement

### African American and African Studies

#### New and changed courses in African American and African (AAS)

##### Lower Division Course

##### 181. Hip Hop in Urban America (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: junior- or senior-level standing or consent of instructor. History, aesthetics, urban context, and economics of hip-hop in the US, and its globalization. Hip-hop's four artistic elements—rap, deejaying, breakdance, and aerosol art—allow the examination of issues of race, ethnicity, and gender in youth culture and American society. GE Credit: ArtHum, Div.—III. (III.) Osumare

*(change in existing course—eff. fall 09)*

##### Graduate Courses

##### 201. Critical Foundations in African American Studies (4)

Seminar—3 hours. Prerequisite: graduate standing. Introduction to history of African American Studies. Topics include: research agendas, policy implications, debates, crises, and institutional frameworks. Offered in alternate years.—(I.) Acham, Harrison  
*(new course—eff. fall 07)*

##### 202. Critical Foundations in African Studies (4)

Seminar—3 hours; term paper. Prerequisite: graduate standing. Introduces students to the history and current organization of African Studies as area of intellectual investigation. Offers students an opportunity to review research agenda and policy implications, debates, crises, and institutional frameworks surrounding the production of knowledge about Africa. Offered in alternate years.—III. Adejunmobi, Olupona

*(new course—eff. spring 06)*

##### 203. Critical Foundations in African Diaspora Studies (4)

Seminar—3 hours; term paper. Integrative conceptual framework includes History, Geography, Political Economy, Culture, Aesthetics as tools to investigate the African Diaspora. Students engage African Diaspora theories within their research projects understanding issues developing from the movement of Africans to the rest of the world.—III. (II.) Ng'weno, Osumare

*(new course—eff. fall 07)*

##### 298A. Directed Group Study in African American and African Diaspora Studies (1-5)

Prerequisite: graduate standing. May be repeated for credit up to three times. (S/U grading only.)  
*(new course—eff. winter 07)*

##### 298B. Directed Group Study in African Studies (1-5)

May be repeated for credit up to three times. (S/U grading only.)  
*(new course—eff. winter 07)*

##### 299. Directed group study in African studies (1-12)

(S/U grading only.)  
*(new course—eff. fall 07)*

### Agricultural Management and Rangeland Resources

#### New and changed courses in Agricultural Management and Rangeland Resources (AMR)

##### Lower Division Courses

##### 1. Agriculture, Nature and Society (3)

*(cancelled course—eff. winter 07)*

##### 2. Botany and Physiology of Cultivated Plants (4)

*(cancelled course—eff. winter 07)*

##### 21. Applications of Microcomputers in Agriculture (3)

*(cancelled course—eff. winter 07)*



**49. Organic Crop Production Practices (3)***(cancelled course—eff. winter 07)***92. Internship (1-12)***(cancelled course—eff. winter 07)***98. Directed Group Study (1-5)***(cancelled course—eff. winter 07)***99. Special Study for Undergraduates (1-5)***(cancelled course—eff. winter 07)***Upper Division Courses****101. Agriculture and the Environment (3)***(cancelled course—eff. winter 07)***105. Concepts in Pest Management (3)***(cancelled course—eff. winter 07)***107. Small Fruit Production (2)***(cancelled course—eff. winter 07)***110A. Principles of Agronomic Crop Production in Temperate and Tropical Systems (3)***(cancelled course—eff. winter 07)***110B. Management of Agronomic Crops in Temperate and Tropical Systems (3)***(cancelled course—eff. winter 07)***110C. Crop Management Systems for Vegetable Production (4)***(cancelled course—eff. winter 07)***110L. Principles of Agronomy Laboratory (1)***(cancelled course—eff. winter 07)***112. Forage Crop Ecology (3)***(cancelled course—eff. winter 07)***118. Seed Production and Quality (4)***(cancelled course—eff. winter 07)***120. Applied Statistics in Agricultural Science (4)***(cancelled course—eff. winter 07)***121. Systems Analysis in Agriculture and Resource Management (4)***(cancelled course—eff. winter 07)***122. Management of Information for the Agricultural and Environmental Sciences (4)***(cancelled course—eff. winter 07)***130. Rangelands: Ecology, Conservation and Restoration (3)***(cancelled course—eff. winter 07)***131. Identification and Ecology of Grasses (2)***(cancelled course—eff. winter 07)***134. Comparative Ecology of Major Rangeland Systems (3)***(cancelled course—eff. winter 07)***135. Ecology and Community Structure of Grassland and Savannah Herbivores (3)***(cancelled course—eff. winter 07)***137. Field Course in Rangeland Monitoring and Management (2)***(cancelled course—eff. winter 07)***150. Cropping Systems of the World (4)***(cancelled course—eff. winter 07)***160. Agroforestry: Global and Local Perspectives (3)***(cancelled course—eff. winter 07)***170A. Fruit and Nut Cropping Systems (2)***(cancelled course—eff. winter 07)***170B. Fruit and Nut Cropping Systems (2)***(cancelled course—eff. winter 07)***180. Introduction to Geographic Information Systems (4)***(cancelled course—eff. winter 07)***190. Seminar on Alternatives in Agriculture (2)***(cancelled course—eff. winter 07)***192. Internship (1-12)***(cancelled course—eff. winter 07)***194H. Senior Honors Thesis (2-6)***(cancelled course—eff. winter 07)***198. Directed Group Study (1-5)***(cancelled course—eff. winter 07)***199. Special Study for Advanced Undergraduates (1-5)***(cancelled course—eff. winter 07)*

## Agricultural and Resource Economics

**New and changed courses in Agricultural and Resource Economics (ARE)****Lower Division Courses****49A. Field Practice (1)***(cancelled course—eff. fall 07)***49B. Field Practice (1)***(cancelled course—eff. fall 07)***49C. Field Practice (1)***(cancelled course—eff. fall 07)***Upper Division Course****190. Topics in Agricultural and Resource Economics (3)**

Lecture—3 hours. Prerequisite: passing grades in course 100A and Statistics 103; consent of instructor. Selected topics in agricultural and resource economics, focusing on current research. May be repeated four times for credit when topic differs. Not offered every year.—I, II, III. (I, II, III.) Howitt  
*(new course—eff. spring 06)*

**Graduate Courses****240E. Topics in Time Series Econometrics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 240A, 240B and 240C. Modern econometric techniques for time series data. Expand on topics covered in Economics 240A, 240B and 240C. Contents may vary from year to year. (Same course as Economics 240E.)—III. (III.) Smith  
*(change in existing course—eff. fall 07)*

**240F. Topics in Cross Section Econometrics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 240A, 240B and 240D. Modern econometrics techniques for cross-section data. Expand on topics covered in Economics 240A, 240B and 240D. Contents may vary from year to year. (Same course as Economics 240F.)—III. (III.) Cameron  
*(new course—eff. fall 07)*

**293M. Analysis of California Agriculture and Resources (2)***(cancelled course—eff. fall 07)*

## Agronomy

**New and changed courses in Agronomy (AGR)****Lower Division Course****92. Internship (1-12)***(cancelled course—eff. winter 07)***Upper Division Courses****192. Internship (1-12)***(cancelled course—eff. winter 07)***197T. Tutoring in Agronomy (1-5)***(cancelled course—eff. winter 07)***198. Directed Group Study (1-5)***(cancelled course—eff. winter 07)***199. Special Study for Advanced Undergraduates (1-5)***(cancelled course—eff. winter 07)***Graduate Courses****205. Experimental Design and Analysis (4)***(cancelled course—eff. winter 07)***206. Multivariate Systems and Modeling (4)***(cancelled course—eff. winter 07)***211. Principles and Practices of HPLC (2)***(cancelled course—eff. winter 07)***221. Advanced Plant Breeding (4)***(cancelled course—eff. winter 07)***290. Seminar in Agronomy and Range Science (1-2)***(cancelled course—eff. winter 07)***297T. Tutoring in Agronomy (1-5)***(cancelled course—eff. winter 07)***298. Group Study (1-5)***(cancelled course—eff. winter 07)***299. Research (1-12)***(cancelled course—eff. winter 07)***Professional Course****396. Teaching Assistant Training Practicum (1-4)***(cancelled course—eff. winter 07)*

## American Studies

**New and changed courses in American Studies (AMS)****Lower Division Course****55. Food in American Culture (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: complete Subject A requirement. Food as a cultural system in the United States; food in the performance of individual and group identity, including gender and ethnicity; food in literature, art, popular culture (film, television, advertising), and folk culture; the food industry and business. GE Credit: ArtHum, Div, SocSci, Wrt.—II. (II.) de la Pena, Mechling  
*(new course—eff. winter 07)*

**59. Music and American Culture (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: completed Subject A requirement. An examination of music and American culture. Studies will explore music in its cultural contexts, which may include examinations of recording and broadcasting, of race, class, and gender, the role of technology, and relationships between musical production, consumption and listening. GE Credit: ArtHum, Div, SocSci, Wri.—I. (I.) Kelman, Wang  
*(new course—eff. fall 09)*

**Graduate Courses****207. Critical Study of Whiteness (4)***(cancelled course—eff. spring 07)***298. Group Study in Animal Biology (1-5)**

Prerequisite: graduate standing.  
*(new course—eff. fall 06)*

## Animal Behavior

### New and changed courses in Animal Behavior (ANB)

#### Graduate Courses

##### 218A. Fundamentals of Animal Behavior (5)

Lecture/discussion—4 hours; discussion—1 hour. Prerequisite: consent of instructor; upper-division undergraduate introduction to the biology of behavior, such as Psychology 101, 122, 123, Neurobiology, Physiology, and Behavior 102, 150, 152, Wildlife, Fish, and Conservation Biology 141, Entomology 104, or Animal Science 105. Survey of the phenomena and theory of animal behavior from the perspectives of multiple biological disciplines, including evolution, ecology, psychology, genetics, neurobiology, endocrinology, and animal science. (Same course as Psychology 218A.)—I. (I.) Owings, Sih (new course—eff. fall 07)

##### 218B. Fundamentals of Animal Behavior (5)

Lecture/discussion—4 hours; discussion—1 hour. Prerequisite: consent of instructor; course 218A or Psychology 218A. Survey of the phenomena and theory of animal behavior from the perspectives of multiple biological disciplines, including evolution, ecology, psychology, genetics, neurobiology, endocrinology, and animal science. (Same course as Psychology 218B.)—II. (II.) Owings, Sih (new course—eff. fall 07)

## Animal Biology (A Graduate Group)

### New and changed courses in Animal Biology (ABG)

#### Graduate Courses

##### 202. Grant Procurement and Administration (2)

Lecture—1 hour; discussion/laboratory—1 hour. Prerequisite: course 200A. Topics include structure of grants, attention to specifications, concise persuasive writing, and grant budgeting. Students will learn how to identify grant opportunities, write a persuasive research grant proposal, and administer grants. Limited enrollment; Pass 1 restricted to Animal Biology Graduate Group students.—I. (I.) Mitloehner (new course—eff. fall 07)

##### 255. Physiology of the Stress Response (2)

Lecture/discussion—2 hours. Prerequisite: graduate student status. Definition of Stress; Physiological mechanisms of adaptation to stress; Hormonal control of the systemic stress response; Mechanisms of the cellular stress response; Discussion of current trends in stress physiology and current methods for studying the stress response. (Same course as Molecular, Cellular, and Integrative Physiology 255.)—III. (III.) Kueltz (new course—eff. summer session 2 06)

##### 298. Group Study in Animal Biology (1-5)

Prerequisite: graduate standing. (new course—eff. fall 06)

## Anthropology

### New and changed courses in Anthropology (ANT)

#### Lower Division Courses

##### 34. Cultures of Consumerism (4)

Lecture/discussion—4 hours; term paper. Aspects of modern consumer cultures in capitalist and socialist countries. Transformations of material cultures over the past century. Case studies on the intersections of gender, class, and culture in everyday consumption practices. Offered in alternate years. GE Credit: Div, SocSci, Wrt.—(II.) Zhang (new course—eff. fall 07)

##### 54. Introduction to Primatology (4)

Lecture/discussion—3 hours; term paper. Basic survey of the primates as a separate order of mammals; natural history and evolution of primates; consideration of hypotheses for their origin.—I. (I.) Isbell (new course—eff. fall 07)

#### Upper Division Courses

##### 109. Visualization in Science: A Critical Introduction (4)

Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 2 or Science & Technology Studies 1 or Science & Technology Studies 20. Anthropological approaches to scientific visualization techniques, informatics, simulations. Examination of different visualization techniques toward understanding the work involved in producing them, critical assessment of their power and limits, especially when visualizations are used socially to make claims. Offered in alternate years. (Same course as Science & Technology Studies 109.) GE credit: SocSci, Wrt.—II. Dumit (new course—eff. spring 07)

##### 132. Ethnohistory (4)

(cancelled course—eff. fall 07)

##### 137. Meditation and Culture (4)

Lecture/discussion—3 hours; discussion—1 hour. Prerequisite: one lower division course in Anthropology, Sociology, History, Philosophy, Psychology, or Religious Studies. Study and practice of the relation between meditation and cultural conditioning; comparison of Buddhist practice with other cultural constructions of mind, body, brain, thought, emotion, and self. Limited enrollment. Not offered every year.—I, II, III, IV. Klima (new course—eff. summer sessions 2)

##### 148A. Culture and Political Economy in Contemporary China (4)

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor. Examining contemporary Chinese culture and political economy through reading ethnographic studies on recent transformations in rural and urban Chinese society. Special attention is given to state power, popular culture, spatial mobility, city space, and gender. GE Credit: Div, SocSci, Wrt.—II. (II.) Zhang (change in existing course—eff. fall 07)

##### 154B. Behavior and Ecology of Primates (2)

(cancelled course—eff. fall 08)

##### 154BL. Laboratory in Primate Behavior (4)

(cancelled course—eff. fall 08)

##### 154BN. Primate Evolutionary Ecology (5)

Lecture—3 hours; lecture/discussion—1 hour; term paper. Prerequisite: course 1 or introductory course in evolutionary biology or ecology. Examination of the ecology of primates within an evolutionary framework. Theoretical concepts in individual, population, and community ecology, illustrated with primate (and other vertebrate) examples. Includes topics in primate and rainforest conservation. GE credit: Wrt.—II. (II.) Marshall (new course—eff. winter 09)

##### 154C. Behavior and Ecology of Primates (2)

Lecture/discussion—2 hours. Prerequisite: course 54, 154A, or 154BN; Statistics 13 or its equivalent. Scientific methods of studying, describing and analyzing the behavior and ecology of primates. Offered in alternate years. (P/NP grading only.)—III. Isbell (new course—eff. fall 08)

##### 154CL. Laboratory in Primate Behavior (4)

Laboratory—6 hours; term paper. Prerequisite: course 54, 154A, or 154BN; Statistics 13 or its equivalent. Design and conduct of scientific "field studies" of the behavior of group-living primates at the California National Primate Research Center Offered in alternate years.—III. Isbell (new course—eff. fall 08)

##### 156. Human Osteology (4)

(cancelled course—eff. winter 09)

##### 179. Ethnoarchaeology (4)

(cancelled course—eff. fall 07)

#### Graduate Courses

##### 200. History of Anthropology (4)

Lecture/discussion—2 hours; term paper. Historical development of socio-cultural theory within anthropology, from mid-19th to mid-20th Centuries. Focus on original theory texts in context of historical developments in the field as a whole.—I. (I.) Bettinger, McEreath (new course—eff. fall 07)

##### 217. Quantitative Modeling in Archaeology (4)

Lecture/discussion—3 hours; term paper. Examination of the nature of archaeological data with a focus on the quantitative and statistical techniques available to model, analyze, display, and make sense of such data. Offered in alternate years.—(III.) Eerkens (new course—eff. fall 07)

##### 218. Topics in New World Prehistory (4)

Seminar—3 hours; term paper. Advanced study on current problems in New World Prehistory and archaeology. May be repeated for credit only if material is unique for that student and with consent of instructor. May be repeated for credit. Not offered every year. (change in existing course—eff. fall 08)

##### 219. Topics in Old World Prehistory (4)

Seminar—3 hours; term paper. Advanced study on current problems in Old World prehistory and archaeology. May be repeated for credit only if material is unique for that student and with consent of instructor. May be repeated for credit. Not offered every year. (new course—eff. fall 08)

**265. Language, Performance, and Power (4)**

Seminar—3 hours; term paper. Graduate standing or consent of instructor. Exploration of the intersection between linguistic and social theories in the language-state relation and the performance of identity. Ideological sources of language differentiation; nation-building and linguistic difference. Political economic, sociolinguistic, and ethnographic approaches to understanding linguistic inequality. (Same course as Linguistics 265.)—I. Shibamoto Smith

(change in existing course—eff. fall 03)

## Applied Biological Systems Technology

### New and changed courses Applied Biological Systems Technology (ABT)

#### Lower Division Course

**15. Wood Properties and Coopering (2)**

Lecture/discussion—1 hour; laboratory—2 hours. Identify wood types, properties and milling processes: sawing, planing, drilling, clamping, marking and measurement. Examine wood strength, visual, odor and taste properties. Participate in individual barrel-raising process. Visit coopering facilities to observe barrel production and winery and distillery products. (P/NP grading only.)—III. (III.) Grismer  
(change in existing course—eff. spring 08)

#### Upper Division Courses

**181N. Concepts and Methods in Geographic Information Systems (4)**

Lecture/laboratory—8 hours. Prerequisite: course 180 or Agricultural Management and Rangeland Resources 180 or Landscape Architecture 50 or consent of instructor. Data representation and analysis in geographic information systems (GIS). Creation of spatial data sets from analog and digital sources such as aerial photography and maps; data structures, data management, database design, georeferencing, georectification, surface models, analysis, and spatial data visualization. Offered in alternate years.—II. Plant

(new course—eff. winter 08)

**185. Concepts and Methods in Geographic Information Systems (4)**

(cancelled course—eff. winter 08)

## Art History

### New and changed courses in Art History (AHI)

#### Lower Division Courses

**1E. Islamic Art and Architecture (4)**

Lecture—3 hours; discussion—1 hour. Introduction to the art and architecture of the Islamic world including the Middle East, Africa, Europe, and South Asia, from the 7th century CE to the 20th. GE Credit: ArtHum, Div.—I. (I.) Watenpaugh

(new course—eff. fall 06)

**25G. Writing: Introduction to Architectural History (1)**

(cancelled course—eff. fall 07)

### Upper Division Course

**155. The Islamic City (4)**

Lecture—3 hour; term paper. Prerequisite: course 1E recommended. Introduction to the urban history of the Islamic world. Includes critical study of the historiography of the Islamic city, development of urban form, institutions and rituals, and analysis of selected themes. GE Credit: ArtHum, Div, Wrt.—I, II, III. (I, II, III.) Watenpaugh

(new course—eff. winter 07)

### Graduate Course

**292. Internship (1-4)**

Internship—3-12 hours. Prerequisite: graduate student; consent of instructor. Supervised internship at professional art or cultural institution including museums, galleries, archives, government offices, visual resources libraries, etc. May be repeated up to eight units for credit. Graduate students in Art History only. Not offered every year. Limited enrollment. (S/U grading only.)

(new course—eff. fall 07)

## Art Studio

### New and changed courses in Art Studio (ART)

#### Lower Division Courses

**2. Beginning Drawing (4)**

Studio—6 hours. Introduction to drawing using various black and white media. Drawing techniques covered are contour line, ink bleeds, rendering, "blind" drawing, and self portraiture.—I, II, III, IV. (I, II, III, IV.)—Henderson, Hollowell, Iliatova, Pardee, Puls, Werfel

(change in existing course—eff. fall 07)

**3. Drawing II (4)**

(cancelled course—eff. fall 07)

**4. Beginning Figure Drawing (4)**

Studio—6 hours. Prerequisite: course 2. Form in composition using the human figure as subject.—Hollowell, Iliatova, Pardee, Werfel

(change in existing course—eff. fall 07)

**5. Beginning Sculpture (4)**

Studio—6 hours. Basic sculpture techniques using a variety of media. Form in space using cardboard, plaster, and/or cement, wood and/or metal and other media.—I, II, III. (I, II, III.) Bills, Hill, Puls

(change in existing course—eff. fall 07)

**7. Beginning Painting (4)**

Studio—6 hours. Introduction to techniques and concepts in the practice of painting.—Henderson, Hollowell, Iliatova, Pardee, Werfel

(change in existing course—eff. fall 07)

**8. Beginning Ceramic Sculpture (4)**

Studio—6 hours. Introduction to ceramic sculpture construction and processes.—Rosen

(new course—eff. fall 07)

**9. Beginning Photography (4)**

Studio—6 hours. Introduction to the fundamental technical, aesthetic, and formal aspects of photography. Camera skills, film developing and printing in the black and white darkroom.—Geiger, Suh

(new course—eff. fall 07)

**11. Beginning Printmaking (4)**

Studio—6 hours. Introduction to printmaking techniques such as monography, relief, and intaglio. Investigation of personal imagery through use of these techniques.—Iliatova

(new course—eff. fall 07)

**12. Beginning Video (4)**

Studio—6 hours. Production techniques of video shooting, editing, lighting, sound and effects. A conceptual framework for video-art techniques.—Martin  
(new course—eff. fall 07)

**16. Descriptive Drawing (4)**

(cancelled course—eff. fall 07)

**24. Introduction to Experimental Video and Film (4)**

Lecture—3 hours; discussion—1 hour; term paper. Evolution of moving image technologies. Shifts within avant-garde artistic practices. Conceptual and historical differences between film and video. Offered in alternate years. GE Credit: ArtHum.—(I.) Martin

(new course—eff. fall 07)

**26. Photospectacle (4)**

Lecture—3 hours; discussion—1 hour; term paper. Photography as performance-based art. History of performance art and performances designed specifically for the camera. Offered in alternate years. GE Credit: ArtHum, Wrt.—(I.) Geiger

(new course—eff. fall 07)

### Upper Division Courses

**101. Intermediate Painting (4)**

Studio—6 hours. Prerequisite: courses 2, 7. Individualized projects exploring color and space in a variety of subject matter and approaches. Builds on basic skills and concepts from beginning drawing and painting courses. Study of historical and contemporary art in relation to studio practice.—Henderson, Hollowell, Iliatova, Pardee, Werfel

(change in existing course—eff. fall 07)

**102. Painting (4)**

(cancelled course—eff. fall 07)

**102A. Advanced Painting: Studio Projects (4)**

Studio—6 hours. Prerequisite: course 101. Sustained development of painting for advanced students. Approaches will vary according to the instructor. Pass 1 restricted to Art Studio majors. May be repeated for credit one time.—Henderson, Hollowell, Iliatova, Pardee, Werfel

(change in existing course—eff. fall 07)

**102B. Advanced Painting: Figure (4)**

Studio—6 hours. Prerequisite: course 101. Advanced painting using the human figure as subject. Pass 1 restricted Art Studio majors. May be repeated for credit one time.—Henderson, Hollowell, Iliatova, Pardee, Werfel

(new course—eff. fall 07)

**102C. Advanced Painting: Special Topics (4)**

Studio—6 hours. Prerequisite: courses 2, 7, 101; course 102A or 102B. Special topics in painting for upper division students. Emphasis on development of a personal practice of painting informed by awareness of contemporary issues in painting and their historical background. Topics will vary with instructor. Pass 1 restricted Art Studio majors. May be repeated for credit one time.—Henderson, Hollowell, Iliatova, Pardee, Werfel

(new course—eff. fall 07)

**103. Advanced Drawing (4)**

(cancelled course—eff. fall 07)

**103A. Intermediate Drawing: Black and White (4)**

Studio—6 hours. Prerequisite: courses 2. Advanced study of drawing composition using black and white media. Pass 1 restricted Art Studio majors.—Henderson, Hollowell, Pardee, Werfel

(new course—eff. fall 07)



**103B. Intermediate Drawing: Color (4)**

Studio—6 hours. Prerequisite: courses 2. Study of drawing composition in color media. Pass1 restricted Art Studio majors.—Henderson, Hollowell, Pardee, Werfel

(new course—eff. fall 07)

**104. Figure Drawing and Painting (4)**

(cancelled course—eff. fall 07)

**105A. Advanced Drawing: Studio Projects (4)**

Studio—6 hours. Prerequisite: courses 2; course 103A or 103B. Exploration of composition and process in drawing. Emphasis on the role of drawing in contemporary art and on drawing as an interdisciplinary practice. Pass1 restricted Art Studio majors. May be repeated for credit one time.—Henderson, Hollowell, Pardee, Werfel

(new course—eff. fall 07)

**105B. Advanced Drawing: Figure (4)**

Studio—6 hours. Prerequisite: courses 4; course 103A or 103B. Study of the figure through drawing of the model. Exploration of different methods and process of figure-drawing. Pass1 restricted Art Studio majors. May be repeated for credit one time.—Henderson, Hollowell, Pardee, Werfel

(new course—eff. fall 07)

**110. Photography I (4)**

(cancelled course—eff. fall 07)

**110A. Intermediate Photography: Black and White Analog (4)**

Studio—6 hours. Prerequisite: course 9. Introduction to 35mm and medium format camera. Development of personal aesthetic and portfolio of black and white prints. Pass1 restricted Art Studio majors.—Geiger, Suh

(new course—eff. fall 07)

**110B. Intermediate Photography: Digital Imaging (4)**

Studio—6 hours. Prerequisite: course 9. Comprehensive introduction to all elements of digital photography, including scanning, imaging software and printing. Pass1 restricted Art Studio majors.—Geiger, Suh

(new course—eff. fall 07)

**111. Photography II (4)**

(cancelled course—eff. fall 07)

**111A. Advanced Photography: Color Analog (4)**

Studio—6 hours. Prerequisite: courses 9 and 110A. Color photography using the analog darkroom. Expands on the technical and conceptual understanding of color analog photography. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Geiger, Suh

(new course—eff. fall 07)

**111B. Advanced Photography: Digital Imaging (4)**

Studio—6 hours. Prerequisite: courses 9, 110B. In depth exploration of digital photography, including refined digital imaging techniques. Theoretical issues involved in digital media. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Geiger, Suh

(new course—eff. fall 07)

**112. Sound for Vision (4)**

Studio—6 hours. Prerequisite: course 12 or Techno-cultural Studies 100. Sound composition and development of an audio databank. Study of repetition and phase shifts. Creation of descriptive acoustic space recordings in combination with other artistic media. Audio as stand alone or accompaniment. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Martin

(new course—eff. fall 07)

**113. Interdisciplinarity Art (4)**

Studio—6 hours. Prerequisite: Upper division standing in Art Studio, Theater and Dance, Design, Techno-cultural Studies, or Music. Experimental interdisciplinary strategies. Use of various media in creation of collaborative or independent works. Production of participatory audio-visual works, installations, or two dimensional explorations. May be repeated for credit one time.—Geiger, Hill, Martin, Puls, Suh

(change in existing course—eff. fall 07)

**114. Identity and Technology (4)**

(cancelled course—eff. fall 07)

**114A. Intermediate Video: Animation (4)**

Studio—6 hours. Prerequisite: course 12 or Techno-cultural Studies 100 and one drawing course. Exploration of animation. Relationship between drawing, digital stills, and multiple images. Animation using traditional drawing techniques, collage, and digital processes. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Martin

(new course—eff. fall 07)

**114B. Intermediate Video: Experimental Documentary (4)**

Studio—6 hours. Prerequisite: course 12 or Techno-cultural Studies 100. Experimental documentary practice. Use of interviews, voice-overs, and still and moving images. Production of alternative conceptual and visual projects. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Martin

(new course—eff. fall 07)

**114C. Intermediate Video: Performance Strategies (4)**

Studio—6 hours. Prerequisite: course 12 or Techno-cultural Studies 100. Use of video to expand performance art production. Exploration of improvisation, direction, projection, and image processing in real time. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Martin

(new course—eff. fall 07)

**116. Video Practice and Theory (4)**

(cancelled course—eff. fall 07)

**117. Advanced Video and Electronic Arts (4)**

Studio—6 hours. Prerequisite: course 12 or Techno-cultural Studies 100; one of course 112, 114A, 114B, or 114C; upper division standing Art Studio Majors. Independently driven video, digital, and/or performance projects. Further development in the electronic arts ranging from video installation to performance. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Martin

(change in existing course—eff. fall 07)

**121. Reinterpreting Landscape (4)**

Studio—6 hours. Prerequisite: courses 2, 7. Interpretation of landscape through painting, drawing, and related media. Emphasis on the integration of historical, cultural, natural, and artistic contexts. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Pardee, Werfel

(change in existing course—eff. fall 07)

**125. Printmaking: Relief (4)**

(cancelled course—eff. fall 07)

**125A. Intermediate Printmaking: Relief (4)**

Studio—6 hours. Prerequisite: course 11. Woodcut linocut, metal-plate, relief, and experimental uses of other materials for printmaking. Additive and reductive relief techniques. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Iliatova

(new course—eff. fall 07)

**125B. Intermediate Printmaking: Intaglio (4)**

Studio—6 hours. Prerequisite: course 11. Metal plate etching, aquatint, hard and soft ground, burin engraving and related printmaking techniques. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Berry, Iliatova

(new course—eff. fall 07)

**125C. Intermediate Printmaking: Lithography (4)**

Studio—6 hours. Prerequisite: course 11. Stone and metal-plate lithography and other planographic printmaking methods. Exploration of the basic chemistry and printing procedure inherent in stone lithography. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Berry

(new course—eff. fall 07)

**125D. Intermediate Printmaking: Serigraphy (4)**

Studio—6 hours. Prerequisite: course 11. Printmaking techniques in silk screen and related stencil methods. Development of visual imagery using the language of printmaking. May be repeated for credit one time. Pass1 restricted Art Studio majors.—Iliatova

(new course—eff. fall 07)

**126. Printmaking: Intaglio (4)**

(cancelled course—eff. fall 07)

**127. Printmaking: Lithography (4)**

(cancelled course—eff. fall 07)

**128. Printmaking: Serigraphy (4)**

(cancelled course—eff. fall 07)

**129. Advanced Printmaking (4)**

Studio—6 hours. Prerequisite: completion of two of: 125A, 125B, 125C, or 125D. Development of inter-media printmaking. Advanced modes in print technologies: relief, serigraphy, intaglio, surface, as well as addition of digitized imagery. May be repeated for credit two times. Pass1 restricted Art Studio majors.—Iliatova

(change in existing course—eff. fall 07)

**132A. The Tradition of Modernism (4)**

(cancelled course—eff. fall 07)

**132B. The Theory of Modernism (4)**

(cancelled course—eff. fall 07)

**138. The Artist's Book (4)**

Studio—6 hours. Prerequisite: completion of three upper division Art Studio courses. Creation of an artist's book in an edition of three. Use of a variety of media. May be repeated for credit one time. Pass1 restricted Art Studio majors. Offered in alternate years.—Geiger, Hill, Suh

(change in existing course—eff. fall 07)

**141. Sculpture: Material Explorations (4)**

(cancelled course—eff. fall 07)

**142. Sculpture: Ceramics I (4)**

(cancelled course—eff. fall 07)

**142A. Intermediate Ceramic Sculpture: Mold Work (4)**

Studio—6 hours. Prerequisite: course 8. Creation of ceramic sculpture employing moldworking processes such as: slip casting, hump molds, and sprigging. Pass1 restricted Art Studio majors.—Rosen

(new course—eff. fall 07)

**142B. Intermediate Ceramic Sculpture: Clay, Glaze, and Kiln (4)**

Studio—6 hours. Prerequisite: course 8. Study and practice of glaze formation. Concentration on the use of color in ceramic sculpture. Practical experience with kiln firing. Pass1 restricted Art Studio majors.—Rosen

(new course—eff. fall 07)

**143. Sculpture: Ceramics II (4)**

(cancelled course—eff. fall 07)

**143A. Advanced Ceramic Sculpture: Studio Projects (4)**

Studio—6 hours. Prerequisite: course 8; 142A or 142B. Exploration of ceramic fabrication. Hollow and solid building, casting, throwing, using fired, found, and fabricated ceramic elements. May be repeated for credit two times. Pass I restricted Art Studio majors.—Rosen  
(new course—eff. fall 07)

**143B. Advanced Ceramic Sculpture: Issues in Contemporary Ceramics (4)**

Studio—6 hours. Prerequisite: course 8; 142A or 142B. Individual studio work in conjunction with readings, field trips, critiques and writing about contemporary ceramic art. May be repeated for credit two times. Pass I restricted Art Studio majors.—Rosen  
(new course—eff. fall 07)

**144. Sculpture: Figure Modeling (4)**

(cancelled course—eff. fall 07)

**145. Sculpture: Concepts (4)**

(cancelled course—eff. fall 07)

**146. Sculpture: Ceramics III (4)**

(cancelled course—eff. fall 07)

**147. Theory and Criticism of Photography (4)**

Lecture—3 hours; term paper. Prerequisite: course 9. Development of camera vision, ideas, and aesthetics and their relationship to the fine arts from 1839 to the present. Offered in alternate years. GE credit: ArtHum, Wrt.—(II.) Geiger, Suh  
(change in existing course—eff. fall 07)

**148. Theory and Criticism: Painting and Sculpture (4)**

Lecture—3 hours; term paper. Prerequisite: course 5 or 7. Study of forms and symbols in historic and contemporary masterpieces. Offered in alternate years. GE credit: ArtHum, Wrt.—(II.) Thiebaud  
(change in existing course—eff. fall 07)

**150. Theory and Criticism of Electronic Media (4)**

Lecture—3 hours; term paper. Prerequisite: course 24 recommended. Study of electronic media, focusing on critique, application, and relationship to art practice. Analysis of the conceptual basis of electronic media as an artistic mode of expression. Offered in alternate years. GE credit: ArtHum, Wrt.—(I.) Martin  
(change in existing course—eff. fall 07)

**151. Intermediate Sculpture (4)**

Studio—6 hours. Prerequisite: course 5. Individualized explorations through multiple projects in a variety of sculpture media and techniques. Builds upon technical skills and concepts covered in Art 5.—I, II, III. (I, II, III.) Bills, Hill, Puls  
(change in existing course—eff. fall 07)

**152. Sculpture: Special Topics (4)**

(cancelled course—eff. fall 07)

**152A. Advanced Sculpture: Studio Projects (4)**

Studio—6 hours. Prerequisite: courses 5, 151. Sculpture for advanced students. Emphasis on concept, idea development and honing technical skills. Approaches and projects will vary according to the instructor. May be repeated for credit one time when topic differs. Pass I restricted Art Studio majors.—Bills, Hill, Puls  
(new course—eff. fall 07)

**152B. Advanced Sculpture: Material Explorations (4)**

Studio—6 hours. Prerequisite: courses 5, 151. Primary application and exploration of a single sculpture material chosen by the student. Examination of its properties, qualities, and characteristics for three-dimensional expression. May be repeated for credit one time. Pass I restricted Art Studio majors.—Puls  
(new course—eff. fall 07)

**152C. Advanced Sculpture: Concepts (4)**

Studio—6 hours. Prerequisite: courses 5, 151. Investigation of a specific idea chosen by the class. Relationship of idea to form and content. Individual development of conceptual awareness. May be repeated for credit one time. Pass I restricted Art Studio majors.—Puls  
(new course—eff. fall 07)

**152D. Advanced Sculpture: Metals (4)**

Studio—6 hours. Prerequisite: courses 5, 151. Technical aspects of the use of metals in contemporary art practice. Projects assigned to demonstrate the evolution of concepts and processes. May be repeated for credit one time. Pass I restricted Art Studio majors. Bills  
(new course—eff. fall 07)

**152E. Advanced Sculpture: Site Specific Public Sculpture (4)**

Studio—6 hours. Prerequisite: courses 5, 151. Place and site specificity in contemporary sculpture. Individual and group work to conceive and fabricate sculpture in a public space. May be repeated for credit one time. Pass I restricted Art Studio majors.—Hill  
(new course—eff. fall 07)

**152F. Advanced Sculpture: Figure (4)**

Studio—6 hours. Prerequisite: courses 5, 151. Exploration of historical and contemporary approaches to the body in three-dimensions. Projects based on observational and conceptual strategies. Variety of media and techniques, including clay, wax, plaster, plastics, found objects, and others. May be repeated for credit one time. Pass I restricted Art Studio majors.  
(new course—eff. fall 07)

**152G. Advanced Sculpture: The Miniature and Gigantic (4)**

Studio—6 hours. Prerequisite: courses 5, 151. Exploration of scale, from the very small to the very large in a series of projects in a variety of media. Tools and techniques of enlargement and miniaturization. May be repeated for credit one time. Pass I restricted Art Studio majors.  
(new course—eff. fall 07)

**153. Metals (4)**

(cancelled course—eff. fall 07)

**154. Site-Specific Public Art (4)**

(cancelled course—eff. fall 07)

**190. Seminar in Art Practice (4)**

Studio—6 hours. Prerequisite: upper division standing Art Studio major. I Introduction to professional practices. Development of an artist's packet including a resume, cover letter, artist statement, and statement of purpose. Ongoing independent studio work with group critiques. Research on galleries and museums, and readings in contemporary theory and criticism. Pass I restricted Art Studio majors.—I, II, III. (I, II, III.) Hill, Puls, Rosen, Werfel  
(new course—eff. fall 07)

**193. Seminar in Art Practice (4)**

(cancelled course—eff. fall 07)

## Asian American Studies

### New and changed courses in Asian American Studies (ASA)

#### Upper Division Courses

**140. Asian Americans and Media (4)**

Lecture—4 hours. Prerequisite: course 1 or 2. Upper division standing. The politics of Asian American representation in print, radio, television, film, and new media will be examined in tandem with sustained discussion of alternatives offered by independent Asian American media arts. GE credit: ArtHum, Div, SocSci, Wrt.—II, IV. (II, IV.) Hamamoto  
(change in existing course—eff. fall 06)

**150E. Southeast Asian American Experience (4)**

Lecture/discussion—4 hours. Prerequisite: course 1, 2, or 3, or consent of instructor. Upper division status. Historical survey of Southeast Asian experiences with special focus on United States involvement and post 1975 migrations. Defines international and transnational conditions that led up to the large exodus and resettlement of Southeast Asians. Offered in alternate years. GE credit: SocSci, Div.—(III.) Valverde  
(new course—eff. spring 06)

**150F. South Asian American History, Culture, & Politics (4)**

Lecture/discussion—4 hours. Prerequisite: course 1, 2, 3, or 4 or consent of instructor. South Asian American experiences, focusing on the histories, cultures, and politics of Indian, Pakistani, Bangladeshi, and Sri Lankan communities in the U.S. Interdisciplinary approaches to migration, labor, gender, racialization, ethnicity, youth, community mobilization. Offered in alternate years. GE credit: ArtHum, SocSci—(II.) Maira  
(new course—eff. fall 07)

## Astronomy

### New and changed courses in Astronomy (AST)

#### Lower Division Courses

**10G. Introduction to Stars, Galaxies, and the Universe (3)**

Lecture—3 hours. Non-mathematical introduction to astrophysics of the Universe beyond our solar system using concepts of modern physics. Not open for credit to students who have taken course 2 (former course 10), any quarter of Physics 9 or 9H, or any upper division physics course (other than 137 or 160). GE credit: SciEng.—I, III. (I, III.)  
(change in existing course—eff. summer session 1 07)

**10L. Observational Astronomy Laboratory (1)**

Laboratory—2.5 hours. Prerequisite: course 10G or 10S (may be taken concurrently). Introduction to observations of the night sky using small telescopes in nighttime laboratory. Not open for credit to students who have completed course 2 or 10. GE Credit: SciEng.—I, III. (I, III.)  
(change in existing course—eff. spring 08)

**10S. Astronomy of the Solar System (3)**

Lecture—3 hours. Introduction to naked eye and telescopic observations of events in the night sky: positions of sun, moon, planets throughout the year. Historical perspective on how our understanding of the solar system evolved to current non-mathematical astrophysical interpretation of planetary systems. Not open for credit to students who have taken course 2, Physics 9 or 9H, or any upper-division physics course (other than 137 or 160). GE credit: SciEng.—II, III. (II, III.)

*(change in existing course—eff. summer session 1 07)*

**25. Introduction to Modern Astronomy and Astrophysics (4)**

Lecture—3 hours; lecture/discussion—2.5 hours. Prerequisite: good facility in high school physics and mathematics (algebra and trigonometry). Description and interpretation of astronomical phenomena using the laws of modern physics and observations by modern astronomical instruments. Gravity, relativity, electromagnetic radiation, atomic and nuclear processes in relation to the structure and evolution of stars, galaxies and the universe. Not open to students who have received credit for course 2, 10G, or 10L.—I. (I.) Fassnacht, Lubin  
*(new course—eff. fall 07)*

## Atmospheric Science

**New and changed courses in Atmospheric Science (ATM)****Lower Division Course****5. Global Climate Change (3)**

Lecture—2 hours; discussion—1 hour. Scientific concepts needed to understand climate and climate change. Principles of regional variations in climate. Understanding observed seasonal, decadal and millennial changes. Analysis of the Antarctic ozone hole, El Nino and human-induced global warming. GE credit: SciEng.—II. (II.) Weare

*(change in existing course—eff. spring 07)*

**Graduate Courses****280A. Air Quality Policy in the Real World (4)**

Project. Prerequisite: consent of instructor; Atmospheric Science 149 or Engineering: Civil and Environmental 149, and Engineering: Civil and Environmental 242 or equivalent. In-depth investigation of an air quality problem with a team and mentor from government or industry. Science, engineering and policy will be involved. Findings will be presented orally and in writing. Not offered every year. (Deferred grading only, pending completion of sequence.)—II, III. (II, III.)

*(new course—eff. winter 07)*

**280B. Air Quality Policy in the Real World (4)**

Project. Prerequisite: course 280A; consent of instructor. In-depth investigation of an air quality problem with a team and mentor from government or industry. Science, engineering and policy will be involved. Findings will be presented orally and in writing. (Deferred grading only, pending completion of sequence.) Not offered every year.—II, III. (II, III.)  
*(new course—eff. winter 07)*

## Biological Chemistry

**New and changed courses in Biological Chemistry (BCM)****Professional Courses****405. Metabolism, Endocrinology, Reproduction and Nutrition (9.5)**

Lecture—3.8 hours; discussion/laboratory—2.8 hours. Prerequisite: consent of instructor; medical students only. Basic and pathophysiologic processes involved in human metabolic and nutritional regulation and in reproductive and endocrine control systems across the lifespan. Integrate information across these systems and use clinical reasoning process to identify and understand relevant perturbations and diseases. (Same course as Human Physiology 405, Internal Medicine 405, Obstetrics and Gynecology 405) (Deferred grading only, pending completion of sequence. P/F grading only.)—II, III. (II, III.) Kulkarni-Date, Sweeney, Townner, Turgeon  
*(new course—eff. winter 07)*

**410A. Biochemistry and Molecular Biology (3.5)**

Lecture—3 hours. Prerequisite: consent of instructor. Medical Students only. Biochemistry of proteins and nucleic acids, followed by molecular genetics, regulation of gene expression, biomembranes and structural proteins. Applications to clinically relevant systems are emphasized, particularly cystic fibrosis, synaptic conductance, muscular dystrophy, and oncogenes and cell proliferation control. (P/F grading only.)—I, IV. (I, IV.) Hagerman, Voss  
*(change in existing course—eff. spring 06)*

**418. Mammalian Endocrinology and Homeostasis (3)**

*(cancelled course—eff. winter 09)*

## Biological Sciences

**New and changed courses in Biological Sciences (BIS)****Lower Division Courses****2A. Introduction to Biology: Essentials of Life on Earth (4)**

Lecture—3 hours; discussion—1 hour. Essentials of life including sources and use of energy, information storage, responsiveness to natural selection and cellularity. Origin of life and influence of living things on the chemistry of the Earth. Not open for credit to students who have completed course 1A with a grade of C- or better.—I, II, III. (I, II, III.) Roth  
*(new course—eff. winter 08)*

**2B. Introduction to Biology: Principles of Ecology and Evolution (5)**

Lecture—3 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: course 1A or 2A. Introduction to basic principles of ecology and evolutionary biology, focusing on the fundamental mechanisms that generate and maintain biological diversity across scales ranging from molecules and genes to global processes and patterns. Not open for credit for student who have completed Biological Sciences 1B with a grade of C- or better.—I, II, III. (I, II, III.) Grosberg  
*(new course—eff. spring 08)*

**2C. Introduction to Biology: Biodiversity and the Tree of Life (5)**

Lecture—4 hours; laboratory—3 hours. Prerequisite: course 1B or 2B. Introduction to organismal diversity, using the phylogenetic tree of life as an organizing theme. Lectures and laboratories cover methods of phylogenetic reconstruction, current knowledge of the tree of life, and the evolution of life's most important and interesting innovations. Not open for credit to students who have completed course 1C with a grade of C- or better.—I, II, III. (I, II, III.) Shaffer  
*(new course—eff. fall 08)*

**10. General Biology (4)**

Lecture/discussion—4 hours. Concepts and issues in biology. Emphasis on composition and structure of organisms; regulation and signaling; heredity, evolution and the interaction and interdependence among life forms and their environments. Designed for students not specializing in biology. Not open for credit to students who have completed course 1A, 2A or 10V. GE credit: SciEng.—I. (I.) Goldberg  
*(change in existing course—eff. fall 08)*

**15. Biology of Aging (3)**

*(cancelled course—eff. winter 07)*

**Upper Division Courses****101. Genes and Gene Expression (4)**

Lecture—4 hours. Prerequisite: courses BIS 1A and 1B, or 2A, 2B and 2C (2C may be taken concurrently); Chemistry 8B or 118B or 128B (may be taken concurrently). Nucleic acid structure and function; gene expression and its regulation; replication; transcription and translation; transmission genetics; molecular evolution.—I, II, III. (I, II, III.) Bowman, Dvorak, Gottlieb, Heyer, O'Neill, Quiros, Rodriguez, Rose  
*(change in existing course—eff. spring 08)*

**105. Biomolecules and Metabolism (3)**

Lecture—3 hours. Prerequisite: courses 1A, 1B, and 1C, or 2A, 2B, and 2C; course 101; Chemistry 8B or 118B or 128B. Fundamentals of biochemical processes, with emphasis on protein structure and activity; energy metabolism; catabolism of sugars, amino acids, and lipids; and gluconeogenesis. One unit of credit for students who have completed course 102 or 103. No credit for students who have completed both courses 102 and 103.—I, II, III. (I, II, III.)  
*(new course—eff. spring 08)*

**122. Population Biology and Ecology (3)**

Lecture—2 hours; laboratory—3 hours. Prerequisite: courses 1A, 1B, 1C, or 2A, 2B, 2C; residence at Bodega Marine Laboratory required. Biological and physical processes affecting plant and animal populations in the rich array of habitats at the Bodega Marine Laboratory ecological preserve. Emphasis on field experience, with complementing lectures to address population and community processes. See Bodega Marine Laboratory Program.—III. (III.) Morgan, Strong  
*(change in existing course—eff. spring 08)*

**124. Coastal Marine Research (3)**

Laboratory—6 hours; fieldwork—6 hours; laboratory/discussion—1 hour. Prerequisite: upper division standing or consent of instructor; concurrent enrollment in at least one course from Environmental Science and Policy 124, 152, Evolution and Ecology 106, 110, 114; residence at or near Bodega Marine Lab required. Student must complete the application available at <http://www.bml.ucdavis.edu>. Independent research on topics related to the accompanying core Bodega Marine Laboratory summer courses. Students will select one instructor to be primary mentor, but integrative topics that draw on the expertise of several BML faculty members will be encouraged. May be repeated two times for credit.—IV. (IV.) Gaylord, Largier, Morgan, Sanford  
*(new course—eff. summer session 1 06)*



**133. Collaborative Studies in Mathematical Biology (3)**

Lecture/discussion—3 hours. Prerequisite: Mathematics 16ABC or the equivalent, one course from course 1A, 1B, 1C, 2A, 2B, 2C, 10 or the equivalent in biology, consent of instructor. Interdisciplinary research and training that uses mathematics and computation to solve current problems in biology. Not offered every year. May be repeated six times for credit.—I, II, III. (I, II, III.)

(new course—eff. fall 08)

## Biomedical Engineering

### New and changed courses in Biomedical Engineering (BIM)

#### Lower Division Course

**20. Fundamentals of Bioengineering (4)**

Lecture—4 hours. Prerequisite: Physics 9B; Mathematics 21D. Basic principles of mass, energy and momentum conservation equations applied to solve problems in the biological and medical sciences.—III. (III.) Yamada

(new course—eff. spring 08)

#### Upper Division Courses

**102. Quantitative Cell Biology (4)**

Lecture/discussion—4 hours. Prerequisite: Biological Sciences 2A; Physics 9B; Mathematics 22B; Chemistry 8B. Use of engineering principles to understand fundamental cell biology. Emphasis on physical concepts underlying cellular processes including protein trafficking, cell motility, cell division and cell adhesion. Current topics including cell biology of cancer and stem cells will be discussed. Only two units of credit for students who have previously taken Biological Sciences 104 or Molecular and Cellular Biology 143.—I. (I.) Yamada

(new course—eff. fall 07)

**105. Probability, Random Processes, and Statistics for Biomedical Engineers (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21D; upper division. Concepts of probability, random variables and processes, and statistical analysis with applications to engineering problems in biomedical sciences. Contents include discrete and continuous random variables, probability distributions and models, hypothesis testing, statistical inference and stochastic processes. Emphasis on BME applications. Limited to upper division standing.—I. (I.) Saiz

(new course—eff. winter 09)

**107. Mathematical Methods for Biological Systems (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 22A and 22B. Restricted to upper division engineering. Essential mathematical and numerical techniques for engineering problems in medicine and biology. Contents include matrix algebra, linear transforms, ordinary and partial differential equations, probability and stochastic processes, and an introduction to Monte Carlo and molecular dynamics simulations.—II. (II.) Raychaudhuri

(change in existing course—eff. winter 07)

**111. Biomedical Instrumentation Laboratory (4)**

Lecture—4 hours; laboratory—6 hours. Prerequisite: courses 107 and 108; Statistics 120, 131A, or equivalent; Engineering 100; Neurology, Physiology, & Behavior 101. Basic biomedical signals and sensors. Topics include analog and digital records using electronic, hydrodynamic, and optical sensors, and measurements made at cellular, tissue and whole organism level. Limited to upper division Biomedical Engineering majors.—II. (II.) Marcu, Pan

(change in existing course—eff. fall 08)

**116. Research and Design Methods for Biomedical Engineers (5)**

Lecture—2 hours; practice—3 hours; extensive writing. Prerequisite: Biological Sciences 1A; Mathematics 22B; Physics 9C. Introduction to the engineering research and design process as applied to biomedical devices and therapeutics. Small group design projects and presentations in interdisciplinary topics relating biomedical engineering to biology and medicine. GE Credit: Wrt.—I. (I.) Louie

(change in existing course—eff. fall 07)

**151. Mechanics of DNA (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1A and Mathematics 22B. Structural, mechanical and dynamic properties of DNA. Topics include DNA structures and their mechanical properties, in vivo topological constraints on DNA, mechanical and thermodynamic equilibria, DNA dynamics, and their roles in normal and pathological biological processes. Offered in alternate years.—III. Benham

(new course—eff. spring 07)

**161A. Biomolecular Engineering (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 1A; Chemistry 8B; upper division standing. Introduction to the basic concepts and techniques of biomolecular engineering such as recombinant DNA technology, protein engineering, and molecular diagnostics. Only three units of credit for students who have completed course 161S.—I. (I.) Yokobayashi

(change in existing course—eff. fall 07)

**161S. Biomolecular Engineering: Brief Course (1)**

Lecture—1 hour. Prerequisite: Biological Sciences 1A; Chemistry 8B; course 161L concurrently. Basic concepts and techniques in biomolecular analysis, recombinant DNA technology, and protein purification and analysis. Not open for credit to students who have completed Biomedical Engineering 161A. Not offered every year.—IV. Yokobayashi

(new course—eff. summer session II 07)

**162. Quantitative Concepts in Biomolecular Engineering (4)**

Lecture—4 hours. Prerequisite: Mathematics 22B and Physics 9D. Introduction to fundamental physical mechanisms governing structure and function of biomacromolecules. Emphasis on a quantitative understanding of the nano- to microscale biomechanics of interactions between and within individual molecules, as well as of their assemblies, in particular membranes. Offered in alternate years.—II. Heinrich

(new course—eff. spring 07)

**173. Cell and Tissue Engineering (4)**

Laboratory/discussion—4 hours. Prerequisite: course 109. Engineering principles to direct cell and tissue behavior and formation. Cell sourcing, controlled delivery of macromolecules, transport within and around biomaterials, bioreactor design, tissue design criteria and outcomes assessment.—I. (I.) Leach

(new course—eff. fall 07)

## Graduate Courses

**204. Physiology for Bioengineers (5)**

Lecture—4 hours. Prerequisite: Biological Sciences 1A or equivalent; graduate standing or consent of instructor. Basic human physiology of the nervous, muscular, cardiovascular, respiratory, and renal systems and their interactions; Emphasis on the physical and engineering principles governing these systems, including control and transport processes, fluid dynamics, and electrochemistry.—I. (I.) Benham

(change in existing course—eff. fall 07)

**211. Design of Polymeric Biomaterials and Biological Interfaces (4)**

Lecture—4 hours. Prerequisite: Engineering 45 or consent of instructor; upper division undergraduates or graduate students. Design, selection and application of polymeric biomaterials. Integration of the principles of polymer science, surface science, materials science and biology.—II. (II.) Revzin

(new course—eff. fall 07)

**213. Principles and Applications of Biological Sensors (4)**

Lecture—4 hours. Prerequisite: Chemistry 2C. Biological sensors based on principles of electrochemical, optical and affinity detection. Methods for integration of sensing elements (e.g. enzymes) into biosensors and miniaturization of biosensors.—I. (I.) Revzin

(new course—eff. fall 07)

**217. Mechanobiology in Health and Disease (4)**

Lecture/discussion—4 hours. Prerequisite: course 106 or equivalent (e.g. Engineering 103), Biological Sciences 101 or equivalent, Neurology, Physiology, and Behavior 101 or equivalent. Principles by which biomechanical forces affect cell and tissue function to impact human health and disease. Emphasis on cardiovascular system: structure and function, biofluid mechanics and mechanotransduction, disease mechanisms and research methods. Cartilage, bone and other systems; current topics discussed.—III. (III.) Passerini

(new course—eff. spring 08)

**218. Microsciences (4)**

Lecture/discussion—4 hours. Introduction to the theory of physical and chemical principles at the microscale. Scale effects, surface tension, microfluidic mechanics, micromechanical properties, intermolecular interactions and micro tribology.—I. (I.) Pan

(new course—eff. fall 07)

**239. Advanced Finite Elements and Optimization (4)**

Lecture—4 hours. Prerequisite: Engineering 180 or Applied Science 115 or Mathematics 128C. Introduction to advanced finite elements and design optimization methods, with application to modeling of complex mechanical, aerospace and biomedical systems. Application of states of the art in finite elements in optimum design of components under realistic loading conditions and constraints. Offered in alternate years. (Same course as Mechanical Engineering 239.)—(II.) Sarigul-Klijn

(new course—eff. fall 07)

**249. Microsensor Design and Fabrication (3)**

(cancelled course—eff. fall 07)

**252. Computational Methods in Biomedical Imaging (4)**

Lecture—4 hours. Prerequisite: course 108, Mathematics 22B, Electrical and Computer Engineering 106. Analytic tomographic reconstruction from projections in 2D and 3D; model-based image reconstruction methods; maximum likelihood and Bayesian methods; applications to CT, PET, and SPECT.—II. (II.) Qi

(new course—eff. fall 07)

**272. Tissue Engineering (3)**

Lecture/discussion—3 hours. Prerequisite: Biological Sciences 104 or Molecular and Cellular Biology 121. Based on morphogenetic signals, responding stem cells and extracellular matrix scaffolding. Design and development of tissues for functional restoration of various organs damaged/lost due to cancer, disease and trauma. Fundamentals of morphogenetic signals, responding stem cells and extracellular matrix scaffolding.—II. (II.) Reddi  
(new course—eff. winter 07)

**273. Integrative Tissue Engineering and Technologies (4)**

Lecture/discussion—4 hours. Prerequisite: courses 202 and 204 or similar; graduate standing; course 272 strongly encouraged, although not a prerequisite. Engineering principles to direct cell and tissue behavior and formation. Contents include controlled delivery of macromolecules, transport within and around biomaterials, examination of mechanical forces of engineered constructs, and current experimental techniques used in the field.—III. (III.) Leach  
(new course—eff. spring 07)

**284. Mathematical Methods for Biomedical Engineers (4)**

Lecture/discussion—4 hours. Prerequisite: Mathematics 22B, Statistics 130A, or consent of instructor; upper division biomedical engineering majors, and graduate students in sciences and engineering; priority given to Biomedical Engineering graduate students. Theoretical applications of linear systems, ordinary and partial differential equations, and probability theory and random processes that describe biological systems and instruments that measure them. Students will be introduced to numerical solution techniques in MATLAB.—(I.) I. Raychaudhuri  
(change in existing course—eff. fall 07)

**285. Computational Modeling in Biology and Immunology (4)**

Lecture/discussion—4 hours. Prerequisite: graduate standing or consent of instructor. Essential computational modeling techniques in biology and immunology. Emphasis on applications of Monte Carlo methods in studying immune recognition and response. Introduction to Brownian dynamics and Molecular dynamics simulations as applied in molecular level diffusion and interactions.—III. (III.) Raychaudhuri  
(new course—eff. spring 07)

## Biophysics

**New and changed courses in Biophysics (BPH)****Graduate Courses****200A. Current Techniques in Biophysics (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 102 or equivalent; Chemistry 110A or equivalent. Current techniques in Biophysics. Topics in 200A include mathematical methods, modeling, mass spectrometry, stochastic process, scanning probe microscopy, electron microscopy, fluorescence, membrane diffusion/mechanics, and single particle tracking. (S/U grading only.)—II. (II.) Fallner  
(new course—eff. winter 09)

**200B. Current Techniques in Biophysics (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 102 or equivalent; Chemistry 110A. Current Techniques in Biophysics. Topics include protein folding, membrane structure and dynamics, Raman spectroscopy, fluorescence resonance energy transfer, time resolved fluorescence, quantum dot, fluorescence imaging, esr, high resolution nmr, and in vivo nmr. (S/U grading only.)—III. (III.) Jue  
(change in existing course—eff. spring 07)

**293. Introduction to Research Topics (1)**

Seminar—1 hour. Presentation of current research activities of the Biophysics Graduate Group faculty. Facilitation of students in developing their research interest, and promoting collegial interactions. May be repeated one time for credit. (S/U grading only.)—I. (I.) Longo  
(new course—eff. fall 03)

## Biostatistics

**New and changed courses in Biostatistics (BST)****Graduate Course****226. Statistical Methods for Bioinformatics (4)**

Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course 131C or consent of instructor; data analysis experience recommended. Standard and advanced statistical methodology, theory, algorithms, and applications relevant to the analysis of omics data. (Same course as Statistics 226.) Offered in alternate years.—(II.)  
(change in existing course—eff. winter 07)

## Biotechnology

**New and changed courses in Biotechnology (BIT)****Lower Division Course****1. Introduction to Biotechnology (4)**

Lecture—3 hours; discussion—1 hour. Principles and applications of biotechnology. Topics include microbial biotechnology, agricultural biotechnology, biofuels, cloning, bioremediation, medical biotechnology, DNA fingerprinting and forensics. GE Credit: Sci-Eng.—III. (III.) Dandekar, Yoder  
(new course—eff. fall 07)

**Upper Division Courses****160. Principles of Plant Biotechnology (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1A or 2A; Biological Sciences 101 or Plant Sciences 152. Principles and concepts of plant biotechnology including recombinant DNA technology, molecular biology, genomics, cell and tissue culture, gene transfer and crop improvement strategies using transgenic crops. Not open for credit to students who have completed Plant Biology 160. (Former course Plant Biology 160.)—II. (II.) Dandekar  
(new course—eff. winter 08)

**161A. Genetics and Biotechnology Laboratory (6)**

Lecture—3 hours; laboratory—9 hours. Prerequisite: Plant Sciences 152 or Biological Sciences 101. Techniques of genetic analysis at the molecular level including recombinant DNA, gene mapping and basic computational biology. Not open for credit to students who have completed Plant Biology 161A. (Former course Plant Biology 161A.)—II. (II.) Beckles  
(new course—eff. winter 08)

**161B. Plant Genetics and Biotechnology Laboratory (6)**

Lecture—3 hours; laboratory—9 hours. Prerequisite: Plant Sciences 152 or Biological Sciences 101. Advanced techniques of genetic analysis at the molecular and organismal levels, including transformation, gene expression, analysis of transgenic plants and QTL analysis. Not open for credit to students who have taken Plant Biology 161B. (Former course Plant Biology 161B.)—III. (III.) Bennett, Blumwald  
(new course—eff. spring 08)

**188. Undergraduate Research Proposal (3)**

Lecture/discussion—3 hours. Prerequisite: upper division standing. Preparation and review of a scientific proposal. Problem definition, identification of objectives, literature survey, hypothesis generation, design of experiments, data analysis planning, proposal outline and preparation. (Same course as Plant Sciences 188.) GE Credit: Wri.—III. (III.)  
(change in existing course—eff. spring 09)

## Cell Biology and Human Anatomy

**New and changed courses in Cell Biology and Human Anatomy (CHA)****Graduate Course****200. Graduate Human Gross Anatomy (6)**

Lecture—4 hours; laboratory—6 hours. Prerequisite: consent of instructor. Lectures on human gross anatomy and cadaver dissection laboratory. Topics arranged by region; emphasis on osteology, neuromuscular anatomy, cardiovascular anatomy, gastrointestinal anatomy and anatomy of reproductive systems. Only two units of credit for students who have completed course 101. Open only to full-time graduate students.—II. (II.) Gross, Tucker  
(change in existing course—eff. winter 08)

**Professional Courses****400. Developmental, Gross, and Radiologic Anatomy (7.5)**

Lecture—3 hours; laboratory—5 hours. Prerequisite: consent of Committee on Educational Progress. Medical Students only. An integrated presentation of developmental, gross and radiologic anatomy. Embryology and radiology correlated with the dissection of the entire body. Embryology from implantation to birth. (Deferred grading only, pending completion of sequence.) (P/F grading only.)—I, IV. (I, IV.) Tucker  
(change in existing course—eff. summer 06)

**402. Cell and Tissue Biology (4.5)**

Lecture—2 hours; laboratory—4 hours. Prerequisite: approval of the Committee on Student Progress. Medical Students only. Microscopic structure of the basic cells, tissues and organs of the body with an emphasis on how structure explains function. Analysis and identification of sectioned material at the light microscopic and ultrastructural levels. (Deferred grading only, pending completion of sequence.) (P/F grading only.)—I, IV. (I, IV.) Primakoff  
(change in existing course—eff. summer 06)

**403. Medical Neuroanatomy (5)**

Lecture—3 hours; laboratory—1 hour; discussion/laboratory—1 hour. Prerequisite: successful completion of course 400, block 1; restricted to medical students only. Anatomy of the normal human nervous system, to include gross external and internal morphology of brain and spinal cord, and function neuroanatomy of motor, sensory and cognitive systems. Incorporates application of neuroanatomy to clinical problem solving. (Same course as Human Physiology 403.) (P/F grading only.)—IV. (IV.) Kumari  
(change in existing course—eff. summer 07)

**493. Clinically-Oriented Anatomy (6)**

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. This course will review aspects of the anatomy of the head and neck, thoracic cavity, abdomen, pelvis, extremities, vascular system, peripheral nervous system and central nervous system. The focus will be the understanding of anatomy related to common surgical procedures. Limited enrollment. (Same course as Surgery 493) (H/P/F grading only.)—III. (III.) Khatri, Kumari (new course—eff. spring 07)

**493B. Anatomy Medical Education Special Study Module (6)**

Seminar—10 hours; clinical activity—14 hours; autotutorial—6 hours; independent study—10 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. Attend all of the lectures and laboratory sessions for courses 400 and 402 during the four-week section (approximately seven anatomy labs and three to four histology labs); tutor first-year students during the laboratory sessions; prepare and present a clinical correlate session. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Beck, Gross, Fitzgerald, Tucker (new course—eff. spring 07)

## Chemistry

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### New and changed courses in Chemistry (CHE)

#### Upper Division Courses

**100. Environmental Water Chemistry (3)**

Lecture—3 hours. Prerequisite: course 2C. Practical aspects of water chemistry in the environment, including thermodynamic relations, coordination chemistry, solubility calculations, redox reactions and rate laws. Computer modeling of the evolution in water chemistry from contact with minerals and gases.—II. (II.) Casey (new course—eff. fall 06)

**104. Forensic Applications of Analytical Chemistry (3)**

Lecture—2 hours; laboratory—3 hours. Prerequisite: course 2C. Theory and application of standard methods of chemical analysis to evidentiary samples. Use and evaluation of results from screening tests, FTIR, GC and GCMS to various sample types encountered in forensics.—I. (I.) Land (new course—eff. fall 07)

**105. Analytical and Physical Chemical Methods (4)**

Lecture—2 hours; laboratory—6 hours. Prerequisite: course 110A (may be taken concurrently) or courses 107A-107B. Fundamental theory and laboratory techniques in analytical and physical chemistry. Errors and data analysis methods. Basic electrical circuits in instruments. Advanced solution equilibria. Potentiometric analysis. Chromatographic separations. UV-visible spectroscopy. Lasers.—I, III. (I, III.) (change in existing course—eff. fall 06)

**115. Instrumental Analysis (4)**

Lecture—2 hours; laboratory—6 hours. Prerequisite: courses 105 and 110B (may be taken concurrently) or 107A-107B. Intermediate theory and laboratory techniques in analytical and physical chemistry. Advanced data analysis methods and goodness-of-fit criteria. Fouriertransform spectroscopic methods and instrumentation. Mass spectrometry. Electrochemistry. Liquid chromatography. GE credit: Wrt.—I, II. (I, II.) (change in existing course—eff. fall 06)

**120. Physical Chemistry Laboratory: Advanced Methods (3)**

(cancelled course—eff. fall 06)

**122. Chemistry of Nanoparticles (3)**

Lecture—3 hours. Prerequisite: course 110C (may be taken concurrently). Chemical and physical aspects of inorganic nanoparticles. Topics include synthesis, structure, colloidal behavior, catalytic activity, size and shape dependency of physical properties, analytical methods and applications.—III. (III.) Osterloh (new course—eff. fall 07)

**124A. Inorganic Chemistry: Fundamentals (3)**

Lecture—3 hours. Prerequisite: course 2C. Symmetry, molecular geometry and structure, molecular orbital theory of bonding (polyatomic molecules and transition metals), solid state chemistry, energetics and spectroscopy of inorganic compounds.—I. (I.) (change in existing course—eff. fall 06)

**130A. Pharmaceutical Chemistry (3)**

Lecture—3 hours. Prerequisite: course 118C or 128C. Examination of the design principles and experimental methods used in pharmaceutical and medicinal chemistry.—II. (II.) (new course—eff. fall 06)

**130B. Pharmaceutical Chemistry (3)**

Lecture—2 hours; lecture/laboratory—1 hours. Prerequisite: course 130A. Continuation of course 130A with emphasis on case studies of various drugs and the use of computational methods in drug design.—III. (III.) (new course—eff. fall 06)

**135. Advanced Bio-organic Chemistry Laboratory (3)**

Lecture—1 hour; laboratory—6 hours. Prerequisite: course 118C or 129C. Separation, purification, identification and biological evaluation of organic compounds using modern methods of synthesis, computational chemistry and instrumentation. Emphasis on pharmaceutical and medicinal substances.—III. (III.) (change in existing course—eff. fall 06)

**140. Synthetic Methods (4)**

(cancelled course—eff. fall 06)

### Graduate Course

**219L. Laboratory in Spectroscopy of Organic Compounds (1)**

Laboratory—2.5 hours. Prerequisite: course 219 (may be taken concurrently); open to Chemistry graduate students only or consent of instructor. Practical application of NMR, IR and MS techniques for organic molecules. (S/U grading only.)—III. (III.) (new course—eff. fall 06)

## Chicana/Chicano Studies

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### New and changed courses in Chicana/Chicano Studies (CHI)

#### Lower Division Courses

**215. Chicana/o and Latina/o Health Care Issues (4)**

Lecture—4 hours. Prerequisite: Spanish 3 or the equivalent. Overview of health issues of Chicanas/os and Latinas/os in the State of California; role of poverty/lack of education and limited access to health care. All course instruction for this course will be in Spanish. Course is taught abroad. Not open for credit to students who have completed course 21. GE Credit: Div.—I. (I.) de la Torre (new course—eff. spring 06)

**40. Comparative Health: Top Leading Causes of Death (4)**

Lecture/discussion—3 hours; discussion—1 hour. Prerequisite: Statistics 13 or consent by instructor. Introduction to the epidemiology of the leading causes of death for ethnic/racial minorities. Assessment of disproportionate rates at which ethnic/racial minorities suffer and die from chronic and infectious diseases and injuries and statistical methods used to calculate these rates. Not open for credit to students who have completed course 40S. GE Credit: Div, SciEng, Wrt.—II, III. (II, III.) Garcia (change in existing course—eff. fall 06)

**40S. Comparative Health: Leading Causes of Death (4)**

Lecture—4 hours. Prerequisite: Statistics 13 or consent by instructor. Introduction to epidemiology of leading causes of death for ethnic/racial minorities. Assessment of disproportionate rates at which ethnic/racial minorities suffer & die from chronic and infectious diseases & injuries & statistical methods used to calculate these rates. Offered abroad. Not open for credit to students who have completed course 40. GE Credit: Div, SciEng, Wrt.—I. (I.) de la Torre (new course—eff. fall 06)

### Upper Division Courses

**122S. Psychology Perspectives Chicana/o and Latina/o Family (4)**

Lecture—4 hours. Role of migration and acculturation on family structure and functioning. From a psychological and Chicana/o Studies perspective, contemporary gender roles and variations in family structures are examined. Special topics include family violence, addiction, family resilience and coping strategies. This course is taught abroad. Not open for credit to students who have completed course 122.—IV. (IV.) Flores (new course—eff. spring 06)

**125S. Latino Families in the Age of Globalization: Migration and Transculturation (4)**

Lecture/discussion—4 hours. Prerequisite: Spanish 3 or equivalent highly recommended. Impact of globalization on Latino families in the American continent. Relationships of political structure, economics and family. Intimate partner violence, child maltreatment and alcohol/drug abuse in contemporary Latino families. Offered in a Spanish speaking country.—IV. (IV.) Flores (new course—eff. spring 07)

**131S. Chicanas in Politics and Public Policy (4)**

Lecture/discussion—4 hours. Historical and political analysis of Chicana/Latina political involvement and activities in the general political system, women's movement, Chicano/a movement. Course also examines the public policy process and the relationship of Chicanas/Latinas to public policy formation. Offered abroad. Not open for credit to students who have completed course 131. GE Credit: Div, SocSci.—I. (I.) de la Torre (new course—eff. spring 06)

**135C. Transnational Latina/o Political Economy (4)**

Lecture—3 hours; term paper. Prerequisite: Spanish 3 or equivalent, or consent of instructor; Economics 1A and 1B recommended. Intensive reading, discussion and research on selected topics from Latin America and the US with regard to immigrant and native communities. Topics include comparative immigration and macroeconomic policies in the US and Latin America. Offered in a Spanish speaking country.—IV. (IV.) de la Torre (new course—eff. spring 07)



**140A. Quantitative Methods: Chicano/Latino Health Research (4)**

Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: two years of high school algebra or the equivalent in college. Focuses on measuring Latino/Chicano health outcomes using a quantitative approach. Assesses main types of study designs and addresses measurement of disease frequency and health effects. GE Credit: SciEng.—I, III. (I, III.) Garcia

(new course—eff. spring 06)

**170. Contemporary Issues in Chicano Art (4)**

Lecture—4 hours. Issues and conflicts in the dismantling of the Contemporary Chicano Art Movement. Response and challenge to the dominant culture.—II. (II.) Montoya

(new course—eff. winter 07)

**180. Grant Writing in the Chicana/o/Latina/o Community (4)**

Lecture—4 hours. Prerequisite: course 10, 23 or consent of instructor. Upper division standing. Overview of key elements for grant writing. Topics include community needs assessments, development of human subjects protocols, data collection, methods, evaluation designs and community based methodologies for grant development applications in the Latino community.—III. (III.) de la Torre

(new course—eff. spring 06)

**182. Race and Juvenile Justice (4)**

Lecture—4 hours. Prerequisite: course 10, Womens Studies 10, or Sociology 10, or equivalent. Individual and institutional responses to “troublesome” youth of color through history and in contemporary society. Emphasis on how race, as well as ethnicity, class, and gender have informed the treatment of “delinquent” youth. Offered in alternate years. GE Credit: ArtHum, Div, SocSci, Wrt.—III. Garcia

(new course—eff. winter 07)

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## Chinese

**New and changed courses in Chinese (CHN)****Lower Division Courses****1A. Accelerated Intensive Elementary Chinese (15)**

Lecture/discussion—15 hours. Prerequisite: placement exam required. Special nine week accelerated, intensive summer session course that combines the work of courses 1, 2, and 3. Introduction to Chinese grammar and development of all language skills in a cultural context with emphasis on communication. Not open for credit to students who have completed course 1, 2, or 3.—IV. (IV.) Liu

(change in existing course—eff. summer 07)

**4A. Accelerated Intensive Intermediate Chinese (15)**

Lecture/discussion—15 hours. Prerequisite: course 3 or 1A or placement exam. Special nine week accelerated, intensive summer session course that combines the work of courses 4, 5, and 6. Intermediate-level training in spoken and written Chinese in cultural and communicative contexts, based on language skills developed in course 3 or 1A. Not open to students who have completed course 4, 5, or 6.—IV. (IV.)

(new course—eff. fall 07)

**10. Modern Chinese Literature (In English) (4)**

Lecture—3 hours; term paper or discussion—1 hour. Introductory course requiring no knowledge of Chinese language or history. Reading and discussion of short stories and novels and viewing of two films. Designed to convey a feeling for what China has experienced in the twentieth century. Not open for credits to students who have already taken, or are taking concurrently, course 104. GE credit: ArtHum, Div, Wrt.—I, II. (I, II.) Chen

(change in existing course—eff. spring 08)

**Upper Division Courses****100A. Chinese Intellectual Traditions: Daoist Traditions (4)**

Lecture/discussion—4 hours. Prerequisite: course 11 or a course in Chinese history recommended. English-language survey of key Daoist texts and scholarship. Topics include Daoist concepts of the cosmos, the natural world, scripture, the body, and immortality; Daoist divinities; Daoism and the state. Offered in alternate years. GE Credit: ArtHum, Div, Wrt.—(II.) Halperin

(new course—eff. fall 07)

**102. Chinese American Literature (in English) (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: a course in Chinese history recommended; upper division standing. English language survey of Chinese American literature which reflects cultural roots in China before immigration and the diaspora experience in the United States after immigration. Memory, nostalgia, national identities, cross-cultural communication, globalization, and trans-national politics. GE credit: ArtHum, Div, Wrt.—II, III. (II, III.) Chen

(change in existing course—eff. spring 08)

**103. Modern Chinese Drama (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: a course in Chinese history recommended; upper-division standing. English language survey of modern Chinese spoken drama in the twentieth century and its major playwrights, in the context of Chinese history and the interaction of Chinese culture with other cultures. GE credit: ArtHum, Div, Wrt.—II, III. (II, III.) Chen

(change in existing course—eff. spring 08)

**104. Modern Chinese Fiction (in English) (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 10 or a course in Chinese history recommended. English language survey of Chinese fiction as it evolved amidst the great historical, social and cultural changes of the twentieth century. Thorough study of the most influential writers and genres. GE credit: ArtHum, Div, Wrt.—I, II. (I, II.) Chen

(change in existing course—eff. spring 08)

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## Classics

**New and changed courses in Classics (CLA)****Lower Division Courses****3. Rome and the Mediterranean: 800 B.C.E. to 500 C.E. (4)**

Lecture—3 hours; discussion—1 hour. Introduction to the history, literature, material culture, political and social institutions and values of Roman Civilization, with an emphasis on the development of the Roman Empire and the interactions of Roman culture with other Mediterranean cultures. GE credit: ArtHum.—III. (III.) Stem

(change in existing course—eff. spring 08)

**98. Directed Group Study (1-5)**

Prerequisite: consent of instructor. (P/NP grading only.)

(new course—eff. fall 07)

**Graduate Course****200A. Approaches to the Classical Past (4)**

Seminar—3 hours; term paper. Survey of major areas of classical scholarship, with special emphasis on the continuing impact of Mediterranean antiquity on later literature, history, art, and culture. Offered in alternate years.—(I.) Albu

(change in existing course—eff. fall 06)

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## Communication

**New and changed courses in Communication (CMN)****Graduate Course****282. Special Topics in Health Communication (4)**

Seminar—4 hours. Prerequisite: graduate standing; consent of instructor. Reading, discussion, research and writing on a focused topic in health communication. May be repeated for credit when topic differs. (Same course as Epidemiology and Preventive Medicine 282). Not offered every year.—III. Bell, Casady

(change in existing course—eff. fall 06)

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## Community and Regional Development

**New and changed courses in Community and Regional Development (CRD)****Lower Division Courses****47A. Orientation to Community Resources—San Francisco (2)**

(cancelled course—eff. spring 07)

**47B. Orientation to Community Resources—Central Valley (2)**

(cancelled course—eff. spring 07)

**Lower Division Courses****173. The Continuing Learner (4)**

(cancelled course—eff. spring 08)

**174. Communication for Community Change (4)**

(cancelled course—eff. spring 08)

**180. Transnational Community Development (4)**

Lecture/discussion—4 hours; extensive writing; project; term paper. Prerequisite: course 1, or Anthropology 2, or Sociology 1. The effects of grassroots, non-state, non-corporate actors from abroad on local, national and international development. Socioeconomic, political, and cultural implications of transnational actions undertaken by international non-governmental organizations, individual migrants, and migrant grassroots civic organizations. GE credit: SocSci.—III. (III.) Guarnizo

(new course—eff. spring 08)

## Comparative Literature

### New and changed courses in Comparative Literature (COM)

#### Lower Division Course

##### 20. Humans and the Natural World (4)

Lecture/discussion—3 hours; term paper. Changing relationship between humans and the natural environment in ancient and modern authors as Virgil, Li Po, Basho, Darwin, and Thoreau. GE credit: ArtHum, Wrt.—II. (II.) McLean

*(change in existing course—eff. fall 07)*

#### Upper Division Courses

##### 100. World Cinema (4)

Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: upper-division standing, or consent of instructor. A comparative, cross-cultural study of a topic, theme, or movement in world cinema beyond the boundary of a single national tradition. Topics may include "postsocialist cinemas in East Europe and Asia," "cinema and globalization," and "popular Asian cinemas." May be repeated three times for credit when topic differs. GE Credit: ArtHum, Div, Wri.—I, III.(I, III.) Lu

*(new course—eff. fall 06)*

##### 152S. Literature of the Americas (Taught in Mexico) (4)

Lecture/discussion—6 hours; term paper; fieldwork—6 hours. Prerequisite: Subject A; at least one course in literature, or consent of instructor. Various stylistic, historical, social, and cultural factors that contribute to a hemispheric vision of American literature, encompassing works by Canadian, United States, Caribbean, Brazilian, and Spanish-American writers. May be repeated one time for credit. Course may be repeated as course 152, with a different course content because when taught on the UC Davis campus; there are no field trips and therefore no museums, archaeological sites, or on-site cultural experiences. The readings will also vary because of this difference. GE credit: ArtHum, Div, Wrt.—IV. (IV.) Blanchard

*(new course—eff. fall 07)*

##### 155. Classical Literatures of the Islamic World 600-1800 (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Subject A or consent of instructor. Major classical texts of the Islamic world with attention to intermingling of diverse cultural influences and historical context. Includes epic, romance, lyric, mystical narrative, fairy tales, essays. Texts from Arabic, Persian, Ottoman Turkish, and Urdu literature. Offered in alternate years. GE credit: ArtHum, Div, Wrt.—(II.) Sharlet

*(new course—eff. fall 07)*

##### 164A. The European Middle Ages (4)

Lecture/discussion—3 hours; term paper. Prerequisite: Subject A. Medieval literary genres as the foundation for modern literary forms. Topics and themes as love, God, vision, nature, history and politics, and sign theory. GE credit: ArtHum, Wrt.—I. (I.) Schildgen

*(change in existing course—eff. fall 07)*

##### 164B. The Renaissance (4)

Lecture/discussion—3 hours; term paper. Prerequisite: Subject A. Literature, new science, gender, politics, and exploration in European Renaissance. Readings in Petrarch, Machiavelli, Montaigne, Tasso, Ariosto, Stampa, Shakespeare, Labé and Aphra Behn. GE credit: ArtHum, Wrt.—II. (II.) Schiesari

*(change in existing course—eff. fall 07)*

##### 164D. The Enlightenment (4)

Lecture/discussion—3 hours; term paper. Prerequisite: Subject A. Enlightenment writers such as Swift, Voltaire, Sterne, Rousseau, Wollstonecraft, and Kant. Emphasis on the revolutionary impact of eighteenth-century philosophical ideas and literary forms on modern political, social, and aesthetic culture. Offered in alternate years. GE credit: ArtHum, Wrt.

*(change in existing course—eff. fall 07)*

##### 166. Literatures of the Modern Middle East (4)

Lecture/discussion—3 hours; term paper. Major translated works in modern Middle Eastern and North African literature, including Arabic, Hebrew, Persian, and Turkish. Social and historical formation, with topics such as conflict and coexistence, journeys, and displaced people, gender and family. GE credit: ArtHum, Wrt.—I. (I.) Sharlet

*(change in existing course—eff. fall 07)*

##### 166B. The Novel (4)

Lecture/discussion—3 hours; term paper. Prerequisite: Subject A. The novel as global genre: picaresque, epistolary, Bildungsroman, historical novel, contemporary forms. May be repeated one time for credit. GE credit: ArtHum, Wrt.—II. (II.)

*(change in existing course—eff. fall 07)*

##### 180S. Selected Topics in Comparative Literature (Taught Abroad) (4)

Lecture/discussion—6 hours; extensive writing; fieldwork—6 hours. Prerequisite: Subject A; at least one course in literature, or consent of instructor. Study of selected topics appropriate to student and faculty interests and areas of specialization of the instructor. May be repeated one time for credit. Not offered every year. GE credit: ArtHum, Wrt.—IV. (IV.)

*(new course—eff. fall 07)*

## Crop Science and Management

### New and changed courses in Crop Science and Management (CSM)

#### Lower Division Courses

##### 92. Internship (1-12)

*(cancelled course—eff. winter 07)*

##### 99. Special Study for Undergraduates (1-12)

*(cancelled course—eff. winter 07)*

#### Upper Division Courses

##### 192. Internship (1-12)

*(cancelled course—eff. winter 07)*

##### 194H. Special Study for Honors Students (1-5)

*(cancelled course—eff. winter 07)*

##### 199. Special Study for Advanced Undergraduates (1-5)

*(cancelled course—eff. winter 07)*

## Dermatology

### New and changed courses in Dermatology (DER)

#### Professional Course

##### 420. Integumentary System (2)

Lecture/discussion—4 hours. Prerequisite: approval of School of Medicine Committee on Student Progress; medical students only. Cell biology, pathology, and physical diagnosis of the skin. Recognition of normal variations, and common or important dermatoses. Patient demonstrations of select conditions. (P/F grading only.)—IV. (IV.) Isseroff

*(change in existing course—eff. summer 07)*

## Design

### New and changed courses in Design (DES)

#### Lower Division Courses

##### 1. Introduction to Design (4)

Lecture—4 hours. Introduction to the design discipline through readings, writing, visual problem solving, and critical analysis. Topics: design principles and elements, vocabulary, color theory, Gestalt principles, conceptualization strategies. Role of designer and products in contemporary culture including social responsibility and sustainability.—I. (I.) Sylva

*(change in existing course—eff. fall 08)*

##### 14. Design Drawing (4)

Studio—5 hours; lecture—2 hours. Prerequisite: course 1; students with a background in drawing or Advanced Placement Art Studio units are encouraged to submit a portfolio for review to waive this course. Priority to Design majors. Drawing as a tool for design. Basic skills in objective observation and representation, including line, shape, tone, and space. Drawing as a tool for formulating and working through design problems.—IV. (IV.) Sylva

*(change in existing course—eff. summer session 1 06)*

##### 15. Form and Color (4)

Studio—5 hours; lecture—2 hours. Prerequisite: course 1, 14 or consent of instructor. Priority to Design majors. Understanding color, form and composition as ways of communicating design concepts and content. Color theory, color mixing, interaction of color. Explores a variety of materials, media and presentation techniques.—IV. (IV.) Sylva

*(change in existing course—eff. summer session 1 06)*

##### 18. Three-Dimensional Design (4)

*(cancelled course—eff. spring 08)*

##### 23. Personal Adornment (4)

*(cancelled course—eff. winter 07)*

##### 50. Model Making (4)

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 21 or consent of instructor. Priority to Design majors. Introduction to concepts, methods and materials for model making in design. The use of models for idea generation, as well as specifics for study models, semi-detailed and presentation models.—I, III, IV. (I, III, IV.) Kessler

*(change in existing course—eff. summer 07)*

**60. Introduction to Surface Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15. Priority to Design majors. Introduction to diverse methods for creating imagery, patterns, and textures on cloth. Explorations and experimentation with dyes and pigments, mechanical resists, color removing, and physical and chemical alterations of textile surfaces and structures.—I, IV. (I, IV.) Rivers

(new course—eff. summer session 1 06)

**70. Introduction to Textile Design Structures (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: course 1. Priority given to Design majors. Introduction to diverse methods for creating textile structures. Exploration of the creative potential of hand-constructed textiles, manipulation of fabric to create dimensional surfaces, and the basics of building and joining fabric structures. Only two units of credit to students who have completed courses 23 or 24. Not open for credit for students who have completed both 23 and 24.—I, IV. (I, IV.) Savageau

(new course—eff. spring 07)

**77. Introduction to Structural Design for Fashion (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 70. Priority given to Design majors. The study and practice of designing clothing for the human body. Emphasis on flat pattern development, structural joining sequences and the development of three-dimensional garments from two-dimensional drawings. Not open for credit to students who have completed course 77A.—II, IV. (II, IV.) Avila

(new course—eff. spring 07)

**77A. Soft Product Development (4)**

(cancelled course—eff. spring 07)

**77B. Soft Product Development (4)**

(cancelled course—eff. fall 06)

**Upper Division Courses****100. Design, Creativity, and Fantasy (4)**

(cancelled course—eff. spring 08)

**107. Advanced Structural Design for Fashion (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 70, 77 (77A also acceptable) or consent of instructor. Priority to Design majors. Advanced study and practice of designing clothing for the human body through pattern development and structural joining. Emphasis on draping techniques and advanced conceptualization for fashion design. Not open for credit to students who have taken course 77B.—III, IV. (III, IV.) Avila

(new course—eff. summer session 1 06)

**113. Visual Communication: Digital Imaging (4)**

Lecture—2 hour; studio—5 hours. Prerequisite: courses 1, 13, 15, 16, or consent of instructor; priority to Design majors. Digital imaging for designers, combining theoretical perspectives with practical applications. Expansion of use and meaning of the single photographic image through collage techniques, grids, triptychs and image sequencing. Alteration of image meaning through the addition of text.—I, II, III, IV. (I, II, III, IV.) Sylva

(change in existing course—eff. summer session 08)

**115. Letterforms and Typography (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 16. Fundamentals of letterforms and typography. Characteristics of typefaces, formatting and composition of type. Principles of legibility, visual hierarchy, rules and blocks, grids, and integration of type with images. Not available for credit to students having completed course 22.—I, II, III, IV. (I, II, III, IV.) Nguyen

(change in existing course—eff. summer session 08)

**116. Visual Communication: Graphic Design Studio (4)**

Studio—5 hours; lecture—2 hours. Prerequisite: courses 1, 13, 14, 15, 16, 113, 115. Priority to Design majors. Through multiple, conceptually-linked assignments, this course focuses on the fundamental choices designers make in translating concepts into graphic form, taking projects from initial concept and research, to design strategies, to project resolution and audience reception. Not open for credit to students who have completed course 152 or 152A—I. (I.) Sylva

(new course—eff. fall 06)

**117. Visual Communication: Internet and Interactive Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 13, 14, 15, 16, 113, and 115. Priority to Design majors. Technical and conceptual aspects of creating interactive visual media for screen-based delivery, concentrating on web sites. Attention to conceptual framework, visual design, information architecture and interactivity. Researched and written pre-production materials required. Not open for credit to students who have completed course 153.—II, IV. (II, IV.) Drew

(new course—eff. winter 07)

**121. Design Delineation (4)**

(cancelled course—eff. spring 08)

**122. Textile Structures: Two- and Three-Dimensional Constructions (4)**

(cancelled course—eff. winter 08)

**124. Textile Structures: Architectural Concepts (4)**

(cancelled course—eff. spring 08)

**125. Structures in the Landscape (4)**

(cancelled course—eff. spring 08)

**127A. Sustainable Design (4)**

Lecture—4 hours. Prerequisite: course 1; 14, 15, and 16 recommended. Principles, practice and materials of contemporary sustainable design in the context of environmental crisis. History of sustainable design in relation to the fields of textiles, visual communication, interior architecture, exhibition design and lighting. Only two units of credit for students who have completed course 127.—II. (II.) Savageau

(new course—eff. winter 08)

**127B. Studio Practice in Sustainable Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 16 and 127A. Analysis and practice of sustainable design within studio context. Design project that incorporate the reuse of post-consumer waste; standard materials vs. sustainable materials; Cradle to Cradle philosophy and practice; biomimicry; Life Cycle Analysis. Required field trips. Not open for credit for students who have completed course 127.—III. (III.) Savageau

(new course—eff. spring 08)

**131. Global Fashion and Product Design (4)**

Studio—8 hours. Prerequisite: course 1, 60, 77, and 107. Priority given to Design, Textiles and Clothing, and Theater majors. Exploration of materials, embellishments, and structural techniques derived from historic and contemporary world cultures. Emphasis on unique qualities of individual expression applied to hand made textiles, fashion and textile products.

Rivers

(change in existing course—eff. fall 06)

**132C. Computer-Aided Textile Design (4)**

(cancelled course—eff. winter 08)

**136A. Lighting Technology and Interior Design (4)**

Lecture/discussion—3 hours; laboratory—3 hours. Prerequisite: courses 1, 14, 16, 21; courses 134A and 134B recommended; consent of instructor. Priority given to Design majors. Introduction to lighting design and technology. Understanding the role of lighting in the development of functional and aesthetically pleasing environments. Energy efficiency in lighting. Limited enrollment.—I. (I.) Siminovitch

(new course—eff. spring 07)

**136B. Designing with Light (4)**

Lecture/discussion—3 hours; laboratory—3 hours. Prerequisite: courses 1, 14, 16, 21, 136A; courses 134A and 134B recommended; consent of instructor. Priority given to Design majors. Design and manipulation of light sources, luminaires, and lighting controls to enhance the functional and aesthetic impact of interior and exterior spaces. Design projects explore lighting effects, light distribution characteristics, and luminaire design. Limited enrollment.—II. (II.) Siminovitch

(new course—eff. spring 07)

**137A. Principles of Daylighting (4)**

Lecture/discussion—3 hours; studio—4 hours. Prerequisite: courses 1, 14, 15, 16, 21, 134A and 134B or consent of instructor; course 50 recommended. Priority given to Design and Engineering majors. The impact of natural light on the built environment and methods to control glare and maximize energy savings.—III. (III.) Papamichael

(new course—eff. spring 07)

**137B. Daylighting Design Studio (4)**

Lecture/discussion—3 hours; studio—4 hours. Prerequisite: course 137A; courses 136A and 136B recommended. Daylighting design issues; ambient and task lighting; lighting requirements in residential, commercial, and industrial applications; daylight analysis and design; side and top lighting; glazing selection; shading systems; integration with electric lighting; daylighting and energy efficiency; photo-sensor lighting controls. Limited enrollment.

GE Credit: ArtHum, SciEng.—I, IV. (I, IV.)

Papamichael

(new course—eff. fall 06)

**143. History of Fashion (4)**

Lecture—4 hours. Prerequisite: course 1; course 40A or 40B recommended. Priority to upper division Design majors. History of fashion from the earliest times to the present with emphasis on both aesthetic and functional aspects. GE credit: ArtHum.—Rivers

(change in existing course—eff. summer session 2 06)

**150A. Computer-Assisted Drawing for Designers (4)**

Lecture—2 hours; studio—4 hours. Prerequisite: course 16 and 21 or consent of instructor. Priority to Design majors. Computer assisted drawing and modeling using a mid-level, multi-use CAD program. Basic architectural drawing and modeling technique in both two-dimensional and three-dimensional CAD environments. Not open for credit to students who have taken course 150.—I, II, IV. (I, II, IV.)

(new course—eff. summer session 1 06)

**152. Visual Communication: Graphic Design Production (4)**

(cancelled course—eff. fall 06)

**153. Visual Communication: Internet and Interactive (4)**

(cancelled course—eff. spring 07)

**154. Visual Communication: Message Campaign Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 13, 14, 15, 16, 113, 115, 116. Priority to Design majors. Principles and application of visual design strategies for advertising. Emphasis on promotion of design for social change. Creation of public visual-media campaign. Not open for credit to students who have completed course 152B.—II, III, IV. (II, III, IV.) Sylva

*(change in existing course—eff. fall 06)*

**155A. Topics Studio: Pattern, Form and Surface (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 13, 14, 15, 16, 113, 115, 116. Priority to Design majors. Design approaches in visual communications arising from a critical examination of the history of form, pattern, and surface in design disciplines. Through experimentation and exploration, students will develop non-traditional working methods to arrive at innovative solutions to traditional graphic media.—II, III, IV. (II, III, IV.) Nguyen

*(new course—eff. summer session 1 06)*

**156A. Visual Presentation: Exhibition Design (4)**

*(cancelled course—eff. fall 06)*

**156C. Visual Presentation: Installation and Design (4)**

*(cancelled course—eff. fall 06)*

**157. Visual Communications: Intermediate Internet and Interactive Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 13, 14, 15, 16, 113, 115, 117. Priority given to Design majors. Technical and conceptual aspects of creating web sites that address current trends, such as CSS for type and position and interactivity with ActionScript. Attention to conceptual framework, visual design and user interaction design. Research and written pre-production materials required. Not open for credit to students who have completed course the 191C version of this course.—I, III. (I, III.) Drew

*(new course—eff. spring 07)*

**160. Textile Surface Design: Patterns and Resists (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 70. Priority given to Design majors. Use of traditional and contemporary processes to create images and patterns on fabric using disperse, fiber-reactive, vat, acid dyes, and textile pigments. Emphasis on individual exploration and interpretation of processes and techniques. Not open for credit to students who have completed course 160A.—II, IV. (II, IV.) Rivers

*(new course—eff. spring 07)*

**160A. Textile Design: Patterns and Resists (4)**

*(cancelled course—eff. spring 07)*

**160B. Textile Design: Screen Printing and Advanced Techniques (4)**

*(cancelled course—eff. spring 07)*

**161. Textile Surface Design: Screen and Digital Printing (4)**

Studio—5 hours; lecture—2 hours. Prerequisite: courses 1, 13, 14, 15, 16, 160 or consent of instructor. Priority given to Design majors. Design of textiles and screen printing on fabrics; soft-product development; integration of hand-produced and digitally generated imagery on cloth. Not open for credit to students who have completed course 160B.—III, IV. (III, IV.) Rivers

*(new course—eff. spring 07)*

**170. Experimental Fashion Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 16, 70, 77, 107. Priority given to Design majors. Fashion design as a vehicle for contemporary self expression. Emphasis on developing two-dimensional conceptualization of ideas and translating them into one-of-a-kind garments utilizing new fabric technologies and archetypal forms. Field trip required. Not open for credit to students who have completed course 170A.—I. (I.) Avila

*(new course—eff. fall 07)*

**170A. Fashion Design: Unique Expression (4)**

*(cancelled course—eff. fall 07)*

**170B. Apparel Design (4)**

*(cancelled course—eff. fall 06)*

**171. Fashion Drawing: Technical and Illustration (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 16, 77. Priority to Design majors. Exploration of fashion design processes for industry within the social and physical context. Emphasis on two-dimensional conceptualization of ideas, garment construction, and ideation processes utilizing commercial textiles. Field Trip required. Not open for credit to students who have completed course 170B.—I. (I.) Avila

*(new course—eff. fall 06)*

**177. Computer-Assisted Fashion Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 1, 14, 15, 16, 77, 107 required; 170, 171 recommended. Priority to Design majors. Advanced exploration of apparel design processes for industry and personal expression with emphasis on computer-assisted design applications. Field trip required. III. (III.) Avila

*(change in existing course—eff. summer session 1 06)*

**179. Fashion Design: Signature Collection (4)**

Lecture/discussion—3.5 hours; studio—3.5 hours. Prerequisite: courses 1, 14, 15, 16, 70, 77, 107, 170; consent of instructor. Priority to Senior Design majors. Advanced exploration of fashion design with an emphasis on professional portfolio development and presentation. Emphasis on conceptualizing, designing, and fabricating a cohesive line of wearable garments suitable for presenting in a public fashion show. May be repeated once for credit. Not open for credit to students who have taken more than eight units of course 191A.—II. (II.) Avila

*(new course—eff. winter 07)*

**180A. Advanced Interior Design: Institutional Spaces (4)**

Lecture/discussion—2 hours; studio—5 hours. Prerequisite: courses 1, 16, 21, 134A, 134B; courses 138, 144 and 150A highly recommended; consent of instructor. Priority given to Design majors. Advanced interior design problems focused on complex institutional spaces. Introduction to building codes related to interior design. Integration of building systems with interior design solutions.—I. (I.) Harrison

*(change in existing course—eff. fall 07)*

**180B. Advanced Interior Architecture (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: courses 134A, 134B, 180A and senior standing; priority to Design majors. Advanced problems in interior architectural design emphasizing space planning for corporate and institutional environments. Field trips required.—II. (II.)

*(change in existing course—eff. fall 08)*

**185. Exhibition Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: course 1, 14, 15, 16, 21, 50, 150A or consent of instructor; priority given to Design majors. Design of museum and commercial exhibition environments. Exhibition research, concept development and object selection, spatial planning, display furniture, object placement and staging, interpretive strategies and architectural finishes.—I. (I.) McNeil

*(new course—eff. fall 06)*

**186. Environmental Graphic Design (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: course 1, 14, 15, 16, 50, 115 or consent of instructor; course 21 recommended; priority given to Design majors. Design of informational and directional graphics for the built environment. Application and integration of typography, imagery and symbols into the architectural landscape. Development of universal wayfinding and graphic navigational systems to help people find their way.—II, IV. (II, IV.) McNeil

*(new course—eff. fall 06)*

**187. Narrative Environments (4)**

Lecture—2 hours; studio—5 hours. Prerequisite: course 185 or 186 or consent of instructor; priority given to Design majors. Design of narrative environments and multi-sensory experiences for cultural, commercial, entertainment and public spaces. Interpretive planning and design for specific exhibit audiences. The manipulation of objects and the communication of complex ideas in the exhibition environment.—III. (III.) McNeil

*(change in existing course—eff. spring 08)*

**Graduate Courses****221. Theory and Issues in Design (4)**

Seminar—3 hours; independent study. Prerequisite: graduate standing in Design or consent of instructor. Perspectives on theoretical and aesthetic issues related to the design professions such as methodology in historical and contemporary contexts, implications of technology on design theory and practice, and design relationships to environmental sustainability, recycling, and other social issues. May be repeated once for credit.—I. (I.)

*(change in existing course—eff. fall 06)*

**222. Research Methods and Critical Writing for Design (4)**

Seminar—3 hours; independent study. Prerequisite: course 221; graduate standing in Design or consent of instructor. Focused on research methods and critical writing related to design topics including case studies, original and secondary sources, critical reviews. Expectation of a paper meeting professional standards suitable for publication from each student at end of course. May be repeated once for credit.—II. (II.)

*(change in existing course—eff. fall 06)*

**223. Professional Practice and Ethics in Design (4)**

Seminar—3 hours; independent study. Prerequisite: courses 221, 222; graduate standing in Design or consent of instructor. Introduce students to issues of professional design practice: business ethics, contracts and business practices, social responsibility through case studies, guest lectures and field trips, and readings. Short written assignments and presentations will be required.—III. (III.)

*(new course—eff. fall 06)*

**224. Seminar in Design Research and Teaching (4)**

Independent study—6 hours; extensive writing—4 hours; discussion—2 hours. Prerequisite: courses 221, 222, 223; concurrent academic appointment (TA) in courses 142A, 142B, 143, 144, 145; graduate standing in Design; consent of instructor. Student will work closely with instructor on a research and writing project related to subject matter of undergraduate history courses noted above with the goal of introducing student to advanced historical research processes and development of writing skills. May be repeated two times for credit.—I, II, III. (I, II, III.)

*(change in existing course—eff. fall 07)*

## Dramatic Art

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### New and changed courses in Dramatic Art (DRA)

#### Lower Division Courses

##### 5. Understanding Performance: Appreciation of Modern Theatre, Dance, Film and Performance Art (4)

Lecture/discussion—2 hours; laboratory/discussion—5 hours; tutorial—1 hour. Relevance of theatre and performance to modern culture and society. Approaches to theatre/dance/media/performance art, integrated into Mondavi Centre for the Arts and Theatre and Dance Department programs. GE Credit: ArtHum, Div.—I, II, III. (I, II, III.)

*(new course—eff. fall 06)*

##### 43A. Contact Improvisation Dance (2)

Lecture/laboratory—4 hours. Fundamentals of contact improvisation and its applications to all forms of dance, performance, sports, physical safety and health. Solo improvisation, safety, communication, alignment, basic lifting and weight-sharing, intuition, developing relaxed readiness and personal expression. May be repeated two times for credit. Not offered every year.—I, II, III, IV. (I, II, III, IV.)

*(new course—eff. fall 07)*

##### 43B. Intermediate Contact Improvisation (2)

Lecture/laboratory—4 hours. Prerequisite: course 43A. Building on the fundamentals. Reviewing basics, extended improvising, skillfully working with partners of different sizes and abilities, advanced lifting, advanced safety practices, embracing risk and disorientation, subtle nuances of communication. May be repeated two times for credit.—I, II, III, IV. (I, II, III, IV.)

*(new course—eff. fall 07)*

#### Upper Division Courses

##### 114. Theatre on Film (4)

Lecture/discussion—3 hours; film viewing—2 hours; term paper. Prerequisite: consent of instructor; graduate standing; course 1, 14, 15. Study of six/eight plays on film, using mixed casts and raising issues of diversity. Focus: sociohistorical context for production and reception, interpretation and analysis of topics (gender, ethnicity, age, politics, philosophy), and filming, screenwriting, design, and acting/directing for film. GE Credit: ArtHum, Div, SocSci, Wrt.

*(new course—eff. spring 07)*

##### 144. Introduction to Traditional Chinese Physical Culture (4)

Lecture/discussion—4 hours. Traditional Chinese Wushu practices, explored through practical work in dance laboratory conditions. Integration of practice with conceptual analysis; contemporary social, educational and artistic applications. GE Credit: ArtHum, SocSci.—II. (II.) Hunter

*(change in existing course—eff. spring 07)*

##### 156A. History of Theatre and Dance: Ancient to 1650 (4)

*(cancelled course—eff. fall 07)*

##### 156B. History of Theatre and Dance: 1650-1900 (4)

*(cancelled course—eff. fall 07)*

##### 156C. History of Theatre and Dance: The Twentieth Century (4)

*(cancelled course—eff. fall 07)*

#### Graduate Courses

##### 244. Critical Approaches to Traditional Systems of Body Movement (4)

Discussion/laboratory—6 hours; project; term paper. Introduction to traditional systems for body movement, development of critical approaches to them, and experiments in how they inform training and practice in theatre, dance, and performance. May be repeated five times for credit. Not offered every year.

*(new course—eff. winter 07)*

##### 257. Interdisciplinary Seminar in Theatre, Dance and Performance (4)

Seminar—3 hours; project. Prerequisite: consent of instructor. Interdisciplinary seminar for first and second year MFA students in Dramatic Art. Topics will range from current practice in dance, theatre, film and performance, to leading edge developments by outstanding practitioners in the field. Students must be enrolled on the MFA in Dramatic Art. Students taking the PhD in Performance Studies or the DE in Studies in Performance and Practice may apply to join the class. May be repeated two times for credit.—II. (II.)

*(new course—eff. spring 07)*

##### 265A. Performance Studies: Modes of Production (4)

Seminar—3 hours; term paper; project. Introduces students to the literature of performance production in a variety of media: theatre, dance, film, video, computer-based, looking at cultural, aesthetic, rhetorical and political theory. Offered in alternate years. May be repeated three times for credit when topic differs.

*(change in existing course—eff. fall 06)*

##### 265B. Performance Studies: Signification and the Body (4)

Seminar—3 hours; term paper; project. Introduces students to analysis of the body in performance, drawing on theoretical models from several fields. Offered in alternate years. May be repeated three times for credit when topic differs.

*(change in existing course—eff. winter 07)*

##### 265C. Performance Studies: Performance and Society (4)

Seminar—3 hours; term paper; project. Introduces students to the role of performance (broadly defined), in everyday life, sociopolitical negotiation, identity, social movements, the media, and the state. Offered in alternate years. May be repeated three times for credit when topic differs.

*(change in existing course—eff. fall 06)*

##### 265D. Performance Studies: Theory, History, Criticism (4)

Seminar—3 hours; term paper; project. Introduction to the theory, history and criticism, informing performance studies. Offered in alternate years. May be repeated three times for credit when topic differs.

*(change in existing course—eff. fall 06)*

#### Professional Course

##### 459. Approaches to Theatre and Dance (4)

Seminar—3 hours; term paper; project. Prerequisite: consent of instructor; advanced graduate students. Work on approaches to theatre, dance, film/video, design and performance, with a focus on methodology and professional development. May be repeated five times for credit. Not offered every year.

*(new course—eff. spring 07)*

## Ecology

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### New and changed courses in Ecology (ECL)

#### Graduate Courses

##### 200A. Principles and Applications of Ecology (5)

Lecture—4 hours; discussion—1 hour. Prerequisite: first course in Ecology (e.g., Environmental Science and Policy 100), Statistics 102, Mathematics 16A, 16B or consent of instructor; pass 1 open to graduate majors. Provides a broad background in the principles and applications of ecology, and serves as a foundation for advanced ecology courses. Topics include ecophysiology, behavioral ecology, population ecology, genetics and evolution. Emphasis on historical developments, current understanding, and real world applications.—I. (I.) Holyoak, Rice

*(change in existing course—eff. fall 06)*

##### 200B. Principles and Applications of Ecology (5)

Lecture—4 hours; discussion—1 hour. Prerequisite: course 200A; pass 1 open to graduate majors. Principles and applications of ecology, continuing topical coverage from ECL200A. The course covers principles of community structure and functioning, species diversity patterns, ecosystem ecology and biogeochemistry, landscape ecology, biogeography and phylogenetics.—II. (II.) Holyoak, Strong

*(change in existing course—eff. winter 07)*

##### 216. Ecology and Agriculture (3)

Lecture—3 hours. Prerequisite: Plant Biology 142 or consent of instructor. Ecological principles and relationships as applied to agriculture. Integration of ecological approaches into agricultural research to develop environmentally sound management practices. Topics include crop autoecology, biotic interactions among crops and pests, and crops systems ecology. Not open for credit to students who have completed Vegetable Crops 216 (Former course Vegetable Crops 216).—I. (I.) Jackson

*(change in existing course—eff. fall 07)*

##### 242. Ecological Genetics: Applied Genetics for Ecology, Health, and Conservation of Natural Populations (3)

Lecture—2 hours; discussion—0.5 hours; laboratory—0.5 hours. Prerequisite: undergraduate genetics and ecology/conservation biology courses recommended. Introduction to the field of applied ecological genetics to include applications in conservation ecology, population genetics, population biology, wildlife health and disease ecology. Limited enrollment. (Same course as Population Health and Reproduction 242.)—I. (I.) Ernest

*(new course—eff. winter 08)*



## Economics

### New and changed courses in Economics (ECN)

#### Upper Division Courses

##### 100. Intermediate Micro Theory (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A, 1B; Mathematics 16A-16B or 21A-21B with grade of C- or better in each. Price and distribution theory under conditions of perfect and imperfect competition. General equilibrium and welfare economics. Not open for credit to students who have completed Agricultural and Resource Economics 100A or 100B.—I, II, III. (I, II, III.)

(change in existing course—eff. fall 04)

##### 101. Intermediate Macro Theory (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A, 1B; Mathematics 16A-16B or 21A-21B with grade of C- or better in each. Theory of income, employment and prices under static and dynamic conditions, and long term growth.—I, II, III. (I, II, III.)

(change in existing course—eff. fall 04)

##### 103. Economics of Uncertainty and Information (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100, Mathematics 16A and 16B or Mathematics 21A and 21B. Optimal decisions under uncertainty, expected utility theory, economics of insurance, asymmetric information, signalling in the job market, incentives and Principal-Agent theory, optimal search strategies and the reservation price principle.—I. (I.)

(change in existing course—eff. fall 07)

##### 104. Intermediate Microeconomics (4)

(cancelled course—eff. winter 07)

##### 105. Intermediate Macroeconomics (4)

(cancelled course—eff. winter 07)

##### 106. Decision Making (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or 104; Mathematics 16A-16B or 21A-21B; Statistics 13 or 32, with grade of C or better in each course, or consent of the instructor. Descriptive and normative analysis of individual decision making, with applications to personal, professional, financial, and public policy decisions. Emphasis on decision making under uncertainty and over time. Heuristics and biases in the psychology of decisions; overcoming decision traps.—II. (II.) Nehring

(new course—eff. fall 06)

##### 116. Comparative Economic Systems (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100; Mathematics 16B and 21B. Economics analysis of the relative virtues of capitalism and socialism, including welfare economics. Marxian exploitation theory, the socialist calculation debate (Hayek and Lange), alternative capitalist systems (Japan, Germany, U.S.) and contemporary models of market socialism.—II. (II.)

(change in existing course—eff. fall 07)

##### 121A. Industrial Organization (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A-1B; 100, or consent of instructor. An appraisal of the role of competition and monopoly in the American economy; market structure, conduct, and economic performance of a variety of industries. GE credit: SocSci.—II. (II.)

(change in existing course—eff. fall 07)

##### 121B. Industrial Organization (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A, 1B, 100, or consent of instructor. The study of antitrust and economic regulation. Emphasis on applying theoretical models to U.S. industries and case studies, including telecommunications, software, and electricity markets. Topics include natural monopoly, optimal and actual regulatory mechanisms, deregulation, mergers, predatory pricing, and monopolization.—III. (III.)

(change in existing course—eff. winter 07)

##### 122. Theory of Games and Strategic Behavior (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100, Mathematics 16A and 16B or 21A and 21B or consent of instructor. Introduction to game theory. Explanation of the behavior of rational individuals with interacting and often conflicting interests. Non-cooperative and cooperative theory. Applications to economics, political science and other fields.—II. (II.)

(change in existing course—eff. fall 07)

##### 130. Public Microeconomics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100, or consent of instructor. Public expenditures; theory and applications. Efficiency and equity of competitive markets; externalities, public goods, and market failures; positive and normative aspects of public policy for expenditure, including benefit-cost analysis. Topics include consumer protection, pollution, education, poverty and crime.—I. (I.)

(change in existing course—eff. fall 07)

##### 131. Public Finance (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100. Economic burden of taxation; equity and efficiency considerations in tax design; structure and economic effects of the U.S. tax system (including personal income tax, corporation income tax, and property tax); tax loopholes; recent developments; tax reform proposals.—II. (II.)

(change in existing course—eff. fall 07)

##### 134. Financial Economics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A, 1B, and 100; Mathematics 16A; Statistics 13. General background and rationale of corporation; finance as resource allocation over time; decision making under uncertainty and the role of information; capital market and interest rate structure; financial decisions. Students who have completed Agricultural and Resource Economics 171A may not receive credit for this course.—II. (II.)

(change in existing course—eff. fall 07)

##### 135. Money, Banks and Financial Institutions (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 101; Statistics 13. Banks and the banking system. Uncertainty and asymmetric information in the lending process; efficiency of competitive equilibrium in lending markets. Regulation and the conduct of monetary policy.—I. (I.) Salyer

(change in existing course—eff. spring 07)

##### 136. Topics in Macroeconomic Theory (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 101. Advanced Topics in macroeconomics theory. The course develops the theoretical and empirical analysis of a specific field of macroeconomics. Possible topics include, business cycle theories, growth theory, monetary economics, political economics and theories of unemployment and inflation.—II. (II.)

(change in existing course—eff. fall 07)

##### 137. Macroeconomic Policy (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 101. Theory and practice of macroeconomic policy, both monetary and fiscal.—III. (III.)

(change in existing course—eff. fall 07)

##### 140. Econometrics (4)

Lecture—2 hours; discussion—2 hours. Prerequisite: course 100 and course 101; Mathematics 16A and 16B or Mathematics 21A and 21B; Statistics 13, course 102 or any upper division Statistics course. Introduction of problems of observation, estimation and hypotheses testing in economics through the study of the theory and application of linear regression models, critical evaluation of selected examples of empirical research and exercises in applied economics. Not open for credit to students who have completed Agricultural and Resource Economics 106.—II. (II.) Jorda

(change in existing course—eff. fall 06)

##### 151A. Economics of the Labor Market (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100. Theory of labor supply and demand; determination of wages and employment in the labor market. Policy issues: labor force participation by married women; minimum wages and youth unemployment; effect of unions on wages.—I, II, III. (I, II, III.)

(change in existing course—eff. fall 07)

##### 152. Economics of Education (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or 104; course 102; Mathematics 16B or 21B; Statistics 13 or 32, with grade of C- or better in each course, or consent of the instructor. Application of theoretical and empirical tools of economics to the education sector. Demand for Education; Education Production and Market Structures in Education. Policy applications: class size reduction, school finance equalization, accountability, and school choice.—I. (I.) Cascio

(new course—eff. fall 07)

##### 160A. International Microeconomics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100, or consent of instructor. International trade theory: impact of trade on the domestic and world economies; public policy toward external trade. Only two units of credit allowed to students who have completed course 162.—I. (I.)

(change in existing course—eff. fall 07)

##### 160B. International Macroeconomics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A, 1B, 100, 101, or consent of instructor. Macroeconomic theory of an open economy. Balance of payments adjustment mechanism, international monetary economics issues; international financial institutions and their policies. Only two units of credit allowed to students who have completed course 162.—I. (I.)

(change in existing course—eff. fall 07)

##### 190. Topics in Economics (4)

Lecture/discussion—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Selected topics in economic analysis and public policy. Variable content. May be repeated for credit.—I, II, III. (I, II, III.)

(change in existing course—eff. fall 07)

##### 190X. Upper Division Seminar (1-4)

Seminar—1-4 hours. Prerequisite: courses 100 and 101, and consent of the instructor. In-depth examination at an upper division level of a special topic in Economics. Emphasis on focused analytical work.—I. (I.)

(change in existing course—eff. fall 07)

### Graduate Courses

#### 203A. Advanced Economic Theory (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 200A; 200B. Advanced topics in general equilibrium theory and welfare economics: existence, determinateness and efficiency; intertemporal economics; uncertainty.—I. (I.)

(change in existing course—eff. fall 07)

#### 207. Contemporary Economics Seminar (1)

(cancelled course—eff. spring 08)

**240E. Topics in Time Series Econometrics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 240A, 240B and 240C. Modern econometric techniques for time series data. Expand on topics covered in Economics 240A, 240B and 240C. Contents may vary from year to year. (Same course as Agricultural and Resource Economics 240E.)—III. (III.) Jorda

*(change in existing course—eff. fall 07)*

**240F. Topics in Cross Section Econometrics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 240A, 240B and 240D. Modern econometric techniques for cross-section data. Expand on topics covered in Economics 240A, 240B and 240D. Contents may vary from year to year. (Same course as Agricultural and Resource Economics 240F.)—III. (III.) Cameron

*(new course—eff. fall 07)*

**291. Contemporary Economics Seminar (2)**

Seminar—2 hours. Prerequisite: graduate standing in Economics. Seminar series on topics of current interest. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)

*(new course—eff. fall 07)*

## Economy, Justice and Society

### New and changed courses in Economy, Justice and Society (EJS)

#### Graduate Course

**290. Interdisciplinary Social Analysis (3)**

*(cancelled course—eff. fall 07)*

## Education

### New and changed courses in Education (EDU)

#### Lower Division Course

**81. Learning in Science and Mathematics (2)**

Lecture/discussion—2 hours; field work—2 hours. Exploration of how students learn and develop understanding in science and mathematics classrooms. Introduction to case studies and interview techniques and their use in K-6 classrooms to illuminate factors that affect student learning. Limited enrollment. (Same course as Geology 81.) (P/NP grading only.)—I, II, III. (I, II, III.) Day, Passmore

*(new course—eff. winter 07)*

#### Upper Division Courses

**119. The Use and Misuse of Standardized Tests (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 110 or consent of instructor. Principles underlying educational and psychological testing. Purposes of testing for individual achievement and evaluation of school programs. Interpretation and misinterpretations of outcomes. Analysis of SAT, GRE and other common tests. Experience in test administration and outcome interpretation. GE Credit: Wrt.—III. (III.) Abedi

*(new course—eff. spring 06)*

**173. Language Development (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Linguistics 1 or consent of instructor; Linguistics 103A, 103B. Theory and research on children's acquisition of their native language, including the sound system, grammatical systems, and basic semantic categories. (Same course as Linguistics 173.)—(III.) Uchikoshi

*(change in existing course—eff. spring 07)*

**181. Teaching in Science and Mathematics (2)**

Lecture/discussion—2 hours; field work—2 hours. Prerequisite: Geology 81/Education 81, previous experience in a K-12 classroom, or consent of instructor. Exploration of effective teaching practices based on examination of how middle school students learn math and science. Selected readings, discussion and field experience in middle school classrooms. (Same course as Geology 181.) (P/NP grading only.)—I, II, III. (I, II, III.) Day, Passmore

*(new course—eff. winter 07)*

### Graduate Courses

**206A. Inquiry into Classroom Practice: Traditions and Approaches (2)**

Lecture/discussion—2 hours; fieldwork. Prerequisite: consent of instructor; open to graduate teaching credential students. Introduction to traditions and approaches of teachers conducting research in their own classrooms: purposes, focal areas, methods of data collection and analysis, and written genre conventions.—I, II. (I, II.)

*(change in existing course—eff. fall 07)*

**206B. Inquiry into Classroom Practice: Application of Teacher Research Approaches (4)**

Lecture/discussion—3 hours; fieldwork—1 hour. Prerequisite: satisfactory completion of course 206A or consent of instructor; open to graduate teaching credential students. Analysis and application of teacher research through the development, implementation and evaluation of a short-term classroom research-based intervention. Particular attention to research that enhances learning of English language learners and under-performing students.—II, III. (II, III.)

*(change in existing course—eff. spring 07)*

**206C. Inquiry into Classroom Practice: Study Design (4)**

Seminar—3 hour; fieldwork—1 hour. Prerequisite: satisfactory completion of course 206B or consent of instructor. Proposal development for classroom-based inquiry designed to address student learning needs. Mixed methods research design and preliminary data collection approaches. Design and application of baseline student assessment for proposal development. Literature review. Data collection in K-12 classrooms required. Open to Graduate MA Credential students only.—I. (I.)

*(change in existing course—eff. spring 07)*

**206D. Inquiry into Classroom Practice: Data Analysis and Research Reporting (4)**

Seminar—2 hours; fieldwork—1 hour; extensive writing or discussion. Prerequisite: satisfactory completion of course 206C or consent of instructor. Support of the inquiry begun in course 206C through continuous collaborative critique and feedback resulting in the writing and presentation of a research study. Open to Graduate MA Credential students.—II. (II.)

*(new course—eff. winter 07)*

**211. Sociocultural and Situative Perspectives on Learning and Cognition (4)**

Lecture/discussion—3 hours; extensive writing—1 hour. Prerequisite: graduate standing or consent of instructor. Sociocultural and situative theories of cognition and learning. Major ideas of L.S. Vygotsky, followed by modern perspectives: situated cognition, cognitive apprenticeship, situated learning, communities of practice, cultural-historical activity theory, and distributed cognition. Implications of each theoretical perspective for educational practice. Offered in alternate years.—(III.) White

*(new course—eff. spring 07)*

**225. Education Policy and Law (4)**

Lecture/discussion—4 hours. Prerequisite: graduate standing or consent of instructor. Examination of law as an instrument of social policy. Specific focus on the legalization of education decision making, its causes, dimensions, and effects on administrative and teacher authority.—III. (III.) Timar

*(new course—eff. spring 09)*

**245. Theory and Research in Early Literacy (4)**

Seminar—3 hours; field work—1 hour. Prerequisite: graduate standing or consent of instructor. Analysis of children's initial processes in learning to read extending from the preschool years into second grade. Topics include emergent literacy, phonological awareness, word recognition, decoding, spelling, vocabulary, comprehension, second language reading, assessment, intervention, and instruction. Offered in alternate years.—III. Uchikoshi

*(new course—eff. spring 07)*

**246. Reading as a Social and Cultural Process (4)**

Lecture—3 hours; field work—1 hour. Prerequisite: course 211 recommended or consent of instructor. Recent theoretical and empirical work on reading in social contexts. Topics include reading as an individual interactive process; reading as a social and cultural process; critical perspectives on reading; implications of contrastive theoretical perspectives for curriculum and instruction in reading. Offered in alternate years.—(I.) Murphy

*(new course—eff. fall 07)*

**247. Research on Response to Culturally Diverse Literature, K-12 (4)**

Lecture—3 hours; field work—1 hour. Research on response to culturally diverse literature in classrooms and other K-12 settings. Topics include reader response theories, values in expanding the literary canon, problems of cultural authenticity, resistance to multicultural literature, and instruction for diverse texts and learners. Offered in alternate years.—II. Athanases

*(new course—eff. fall 06)*

**271. Supervision of Student Teachers: Research, Theory & Practice (4)**

Lecture/discussion—3 hour; fieldwork—1 hour. Prerequisite: graduate standing. Research, theory and practice in the preparation and supervision of teachers. Practice in the supervision of candidates in university teaching credential programs during the student teaching field placement and the mentoring of novice teachers by expert teachers.—II. (II.) Kato

*(new course—eff. winter 05)*

### Professional Courses

**327A. Teaching Methods for Secondary Foreign Language/Spanish, Part I (3)**

Lecture—3 hours. Prerequisite: acceptance into a teacher education program or consent of instructor. Introduction to methods for teaching Spanish as a foreign and a heritage language in secondary schools. State and National Standards. Theories on second language acquisition. Lesson plans. Effective teaching strategies and class management. Open to Graduate Teaching Credential students.—I. (I.) Dubcovsky

*(new course—eff. fall 07)*

**327B. Teaching Methods for Secondary Foreign Language/Spanish, Part II (3)**

Lecture—3 hours. Prerequisite: course 327A or consent of instructor. Continuation to methods for teaching Spanish as a foreign and a heritage language in secondary schools. Research and practice on foreign and heritage language teaching. Expansion of effective teaching strategies and class management. Open to Graduate Teaching Credential students.—II. (II.) Dubcovsky

(new course—eff. winter 08)

## Engineering

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### New and changed courses in Engineering (ENG)

#### Lower Division Course

**45H. Honors Properties of Materials (1)**

Discussion—1 hour. Prerequisite: enrollment in the Materials Science and Engineering Honors Program; concurrent enrollment in course 45 required. Examination of special materials science and engineering topics through additional readings, discussions, collaborative work, or special activities which may include projects, laboratory experience or computer simulations. Open only to students in the Materials Science and Engineering Honors program.—II. (II.)

(new course—eff. winter 10)

#### Upper Division Courses

**121. Fluid Power Actuators and Systems (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: courses 100, 102, 104 and either 103 or Biological Systems Engineering 103. Hydraulic and pneumatic systems with emphasis on analysis and control of actuators. Design of hydraulic and pneumatic systems, specification and sizing of components, and selection of electro-hydraulics/electro-pneumatics, servo valves, and closed loop systems to solve basic control problems.—II. (II.) Rosa

(new course—eff. spring 07)

**191. Effective Communication Strategies in Engineering (1)**

(cancelled course—eff. winter 08)

## Engineering: Aeronautical Science and Engineering

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### New and changed courses in Engineering: Aeronautical Science and Engineering (EAE)

#### Upper Division Courses

**130C. Space Systems Design (4)**

(cancelled course—eff. winter 08)

**138. Aircraft Propulsion (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 45, 103, and 105; Mechanical Engineering 106. Analysis and design of modern aircraft gas turbine engines. Development and application of cycle performance prediction techniques for important engine configurations. Introduction to the operation and design of inlets, compressors, burners, turbines, and nozzles. Cycle design studies for specific applications.—II. (II.) Davis

(change in existing course—eff. winter 07)

**141. Space Systems Design (4)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: Engineering 102, and Mechanical Engineering 106. Introduction to space systems design including space project organization, requirements definition and specification, concepts formulation, system tradeoffs, subsystem design. Prototype space mission concepts are presented and a multidisciplinary mission design is developed that considers all relevant architecture elements. Offered in alternate years.—I. Joshi

(new—eff. fall 08)

## Engineering: Applied Science

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### New and changed courses in Engineering: Applied Science (EAD)

#### Upper Division Courses

**108L. Optics Laboratory (4)**

Discussion—1 hour; laboratory—6 hours; extensive problem solving—3 hours. Prerequisite: courses 108A, 108B. Practical applications of principles of geometrical and physical optics. Optical properties of materials, imaging, lens fabrication, interferometry, polarization, photometry, polarization, diffraction and propagation. Small course fee for materials.—III. (III.) Kolner

**117A. Simulation and Modeling of Deterministic Dynamical Systems (5)**

Lecture—3 hours; laboratory—3 hours; extensive problem solving—3 hours. Prerequisite: course 2, 116; Physics 104A. Numerical techniques for simulation and modeling of nonlinear deterministic systems. Examples from fluid, continuum, molecular mechanics, low dimensional nonlinear systems. Emphasis on error and stability through adaptive methods, evaluation of relationships between physical systems, the model equations, numerical implementation. Jensen, McCurdy, Miller, Orel, Rocke

(change in existing course—eff. fall 10)

**161. Optical Design (4)**

(cancelled course—eff. fall 08)

**161A. Optical Design (4)**

Lecture—3 hours; lecture/laboratory—3 hours. Prerequisite: course 108A; senior level standing. Optical materials and design of optical systems. Computer assisted design of optical systems including construction and final system characterization. Knowledge and skills acquired in earlier course work are used for designing that include engineering standards and realistic constraints. (Deferred grading only, pending completion of sequence.)—II. (II.) Baldis

(new course—eff. winter 08)

**161B. Optical Design (4)**

Lecture—3 hours; laboratory—1 hour. Prerequisite: courses 108A, 161A (completed during the previous quarter); senior level standing. Design of a complete optical system, construction, testing, and calibration. The knowledge and skills acquired in earlier course work are used for designing that includes engineering standards and realistic constraints. Knowledge and skills acquired in 161A are essential. (Deferred grading only, pending completion of sequence.)—III. (III.) Baldis

(new course—eff. spring 08)

**165. Statistical and Quantum Optics (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: Chemistry 110A; Electrical and Computer Engineering 130B. Waves and photons; photon number and fluctuations; field and number correlations; atom-photon interactions; line broadening, Einstein coefficients; strong field interactions; photon bunching and anti-bunching; photoelectric counting distributions for chaotic and coherent light; squeezed states.—I. (I.) Yeh

(change in existing course—eff. fall 08)

**166. Lasers and Nonlinear Optics (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 165. Optical gain and amplification, laser threshold conditions, laser pumping requirements and techniques, laser resonator optics, cavity design, specific laser systems, short pulse generation, Q-switching, mode-locking, principles of nonlinear optics, second harmonic generation, optical parametric amplification, electro-optic effect.—II. (II.) Krol, Yeh

(change in existing course—eff. fall 08)

**172. Optical Methods for Biological Research (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 108B, Biological Sciences 2A, and Chemistry 110A. Optical techniques for resolving significant research problems in biology. Examples include the sequence, structure, and movement of DNA; nuclear organization and DNA replication; channel transport; membrane receptor sites and cell fusion; protein-protein interactions and supramolecular organization.—III. (III.) Yeh

(change in existing course—eff. fall 08)

**192. Internship (1-5)**

Internship—3-36 hours. Prerequisite: consent of instructor; upper division standing; approval of project prior to the period of the internship. Supervised work experience in Optical Science Engineering or Computational Applied Science. May be repeated for credit. (P/NP grading only.)—I, II, III. (I, II, III.)

(new course—eff. fall 07)

### Graduate Courses

**205B. Mathematical Methods (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 205A. Laplace transforms, Fourier transforms, Delta sequences, Direct solution of PDEs, Green's functions for PDEs.—II. (II.) Jensen, Miller, Orel, Rodrique

(change in existing course—eff. winter 06)

**205C. Mathematical Methods (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 22A and 22B or equivalent. Spherical harmonics, Bessel functions, special functions, finite and infinite vector spaces.—I. (I.) Jensen, Miller, Orel

(change in existing course—eff. fall 05)

**213B. Computer Graphics (3)**

(cancelled course—eff. spring 06)

**214. Scientific Visualization (3)**

(cancelled course—eff. winter 06)

**215. Computer Animation (4)**

(cancelled course—eff. spring 06)

**216A. Special Topics in Computer Science (1-5)**

(cancelled course—eff. fall 05)

**216B. Special Topics in Computer Science (1-5)**

(cancelled course—eff. spring 06)

**216C. Special Topics in Computer Science (1-5)**

(cancelled course—eff. fall 05)

**216D. Special Topics in Computer Science (1-5)**

(cancelled course—eff. fall 05)

**216E. Special Topics in Computer Science (1-5)***(cancelled course—eff. fall 05)***216F. Special Topics in Computer Science (1-5)***(cancelled course—eff. fall 05)***216G. Special Topics in Computer Science (1-5)***(cancelled course—eff. fall 05)***231A. Applied Quantum Mechanics (3)**

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 205ABC (may be taken concurrently). Classical properties of matter; introduction to quantum mechanics by the correspondence principle. Solvable bound state/continuum problems in 1-D: well, barrier, and harmonic oscillator. Solvable problems in 3-D: HO, well, and hydrogen atom. Matrix theory: Schroedinger, Heisenberg, and interaction pictures.—II. (II.) Orel, Krol, Yeh

*(change in existing course—eff. spring 08)***231B. Applied Quantum Mechanics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 231A. Approximate methods in quantum mechanics, perturbation methods, variational methods, time dependent perturbation theory, scattering, and radiation.—III. (III.) Orel, Krol, Yeh

*(change in existing course—eff. spring 08)*

## Engineering: Chemical

### New and changed courses in Engineering: Chemical (ECH)

#### Upper Division Courses

**152A. Chemical Engineering Thermodynamics (3)**

Lecture—3 hours. Prerequisite: course 51. Application of principles of thermodynamics to chemical processes. Not open for credit to students who have completed Engineering 105 or 105A.—II. (II.)

*(change in existing course—eff. winter 07)***152B. Chemical Engineering Thermodynamics (4)**

Lecture/discussion—4 hour. Prerequisite: course 152A. Continuation of course 152A. Not open for credit to students who have completed Engineering 105.—III. (III.)

*(change in existing course—eff. spring 07)***155A. Chemical Engineering Laboratory (4)**

Laboratory—6 hours; discussion—1 hour; term paper. Prerequisite: courses 141, 142, and 143 (may be taken concurrently); satisfaction of the upper division English composition requirement. Open only to majors in Chemical Engineering, Chemical Engineering/Materials Science, Biochemical Engineering, Biomedical Engineering, and Biological Systems Engineering. Laboratory experiments in transport phenomena, chemical kinetics, and thermodynamics. GE credit: Wrt.—I, II. (I, II.)

*(change in existing course—eff. winter 07)***155B. Chemical Engineering Laboratory (4)**

Laboratory—6 hours; discussion—1 hour; extensive writing—1 hour. Prerequisite: courses 143 (may be taken concurrently), 155A; satisfaction of the upper division English composition requirement. Open only to majors in Chemical Engineering, Chemical Engineering/Materials Science, Biochemical Engineering, Biomedical Engineering, Food Engineering, and Biosystems Engineering. Continuation of course 155A. Laboratory experiments in transport phenomena, chemical kinetics, and thermodynamics. GE credit: Wrt.—II, III. (II, III.)

*(change in existing course—eff. winter 07)***157. Process Dynamics and Control (4)**

Lecture/discussion—4 hours. Prerequisite: course 140. Fundamentals of dynamics and modeling of chemical processes. Design and analysis of feedback control of chemical processes.—I. (I.)

*(change in existing course—eff. fall 07)***161A. Biochemical Engineering Fundamentals (4)**

Lecture/discussion—4 hours. Prerequisite: Chemistry 128A, Mathematics 22B, Microbiology 102 (or consent of instructor). Biokinetics; bioreactor design and operation; transport phenomena in bioreactors; microbial, plant, and animal cell cultures.—II. (II.)

*(change in existing course—eff. winter 09)***161B. Bioseparations (4)**

Lecture/discussion—4 hours. Prerequisite: course 143. Product recovery and purification of biochemicals. Cell disruption, centrifugation, filtration, membrane separations, extraction, and chromatographic separation.—II. (II.)

*(change in existing course—eff. winter 09)***166. Catalysis (3)**

Lecture—3 hours. Prerequisite: course 146 (may be taken concurrently) or consent of instructor. Principles of catalysis based on an integration of principles of physical, organic, and inorganic chemistry and chemical kinetics and chemical reaction engineering. Catalysis in solution; catalysis by enzymes; catalysis in swellable polymers; catalysis in microscopic cages (zeolites); catalysis on surfaces.—II. (II.) Gates

*(change in existing course—eff. winter 07)*

#### Graduate Courses

**253A. Advanced Fluid Mechanics (4)**

Lecture—4 hours. Prerequisite: courses 141 and 259. Kinematics and basic principles of fluid flow. Principles of constitutive equations. Navier-Stokes equations for Newtonian fluids. Survey of rectilinear creeping flow, lubrication flow and boundary layer theory.—I. (I.)

*(change in existing course—eff. fall 07)***253B. Advanced Heat Transport (4)**

Lecture—4 hours. Prerequisite: courses 142 and 259 or the equivalent. Fundamental energy postulates and derivation of microscopic and macroscopic energy equations. Mechanisms of conduction. Isotropic, thermoelastic and anisotropic materials solution problems using Greens functions and perturbation theory.—II. (II.)

*(change in existing course—eff. winter 07)***253C. Advanced Mass Transfer (4)**

Lecture—4 hours. Prerequisite: courses 143 and 259 (may be taken concurrently) or the equivalents. Kinematics and basic conservation principles for multicomponent systems. Constitutive equations for momentum, heat and mass transfer, applications to binary and ternary systems. Details of diffusion with reaction, and the effects of concentration.—I. (I.)

*(change in existing course—eff. fall 07)***256. Chemical Kinetics and Reaction Engineering (4)**

Lecture—4 hours. Prerequisite: courses 146 or the equivalent. Analysis of the performance of chemical reactors and design of chemical reactors based on the principles of chemical kinetics and transport phenomena. Consideration of noncatalytic/catalytic reactions in single fluid phases and emphasis on reactions in multiphase mixtures, especially gas-solid reactors.—II. (II.)

*(change in existing course—eff. winter 07)***262. Transport Phenomena in Multiphase Systems (3)**

Lecture/discussion—3 hours. Prerequisite: course 253C. Heat, mass and momentum transfer in multiphase, multicomponent systems with special emphasis on transport processes in porous media. Derivation of the averaging theorem and application of the method of volume averaging to multicomponent, reacting systems.—III. (III.)

*(change in existing course—eff. summer 07)***293. Graduate Student Seminar (1)***(cancelled course—eff. winter 08)*

## Engineering: Chemical and Materials Science

### New and changed courses in Engineering: Chemical and Materials Science (ECM)

#### Graduate Courses

**268. Process Monitoring and Data Analysis (3)**

Lecture—3 hours. Prerequisite: senior or graduate standing in engineering or physical sciences or consent of instructor. Analytical approaches to the proper management of experimental and process system data, ranging from univariate and multivariate statistical methods to neural networks, wavelets and Markov models. Offered in alternate years.—III. Palazoglu

*(new course—eff. spring 07)***281. Green Engineering: Theory and Practice (3)**

Lecture/discussion—3 hours. Prerequisite: graduate standing in Engineering or consent of instructor. Methods of evaluating alternative technologies, processes, materials, chemicals, and/or products relative to pollution, waste, toxic substance use, and sustainability. Topics include environmental regulations, recycling, life-cycle assessment, economic analysis, design for the environment, green chemistry and toxicology. Offered in alternate years.—II. Schoenung

*(new course—eff. fall 06)***290. Chemical Engineering & Materials Science Seminar (1)**

Seminar—1 hour. Prerequisite: graduate standing or consent of instructor. Selected topics of current interest in Chemical Engineering and Materials Science Engineering. The subjects covered will vary from year to year and will be announced at the beginning of each quarter. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)

*(change in existing course—eff. winter 07)*

## Engineering: Civil and Environmental

### New and changed courses in Engineering: Civil and Environmental (ECI)

#### Lower Division Course

##### 3. Introduction to Civil and Environmental Engineering Systems (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: trigonometry; restricted to lower division students. pass 1 restricted to Civil Engineering majors. An introduction to civil engineering systems. A general view of the engineering process as obtained by participation in laboratory experiments illustrative of the solution of representative, but simplified, engineering problems. Not open for credit to upper division students.—I. (I.) Darby

*(change in existing course—eff. fall 08)*

#### Upper Division Courses

##### 236. Design of Fiber Reinforced Polymer Composite Structures (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 135. Basics of mechanics and design of polymer matrix composites: composite classification, manufacturing process, micromechanical property determination, classical lamination theory, strength theories, first-ply-failure, test methods, design practice, strengthening and retrofitting of existing reinforced concrete structures.—II. (II.) Cheng

*(new course—eff. winter 08)*

##### 237. Bridge Design (4)

Lecture—4 hours. Prerequisite: courses 130, 135; course 234 recommended. Open to graduate students only. Bridge types, behavior and construction characteristics; design philosophy, details according to Caltrans and American Association of State Highway and Transportation Officials codes, principles; seismic design and retrofit of concrete bridges; modern bridges using advanced fiber reinforced polymer composites; fieldtrip required.—II. (II.) Cheng

*(new course—eff. fall 07)*

##### 262. Transit Systems Analysis (3)

*(cancelled course—eff. winter 07)*

##### 280A. Nonlinear Finite Elements for Elastic-Plastic Problems (4)

Lecture—4 hours. Prerequisite: consent of instructor. State of the art finite element methods and tools for elastic-plastic problems, including computational techniques based on the finite element method and the theory of elastoplasticity. Offered in alternate years.—(III.) Jeremic

*(new course—eff. spring 08)*

##### 280B. Nonlinear Dynamic Finite Elements (4)

Lecture—4 hours. Prerequisite: consent of instructor. State of the art computational methods and tools for analyzing linear and nonlinear dynamics problems. Offered in alternate years.—III. Jeremic

*(new course—eff. spring 09)*

##### 285N. Computational Geomechanics (4)

*(cancelled course—eff. spring 08)*

## Engineering: Computer Science

### New and changed courses in Engineering: Computer Science (ECS)

#### Lower Division Courses

##### 10. Basic Concepts of Computing (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: two years of high school algebra. Introduction to principles of computing. Methods and algorithms for solving problems by use of a digital computer. Not open for credit to students who have completed course 30 or Engineering 6.—I, II, III. (I, II, III.) Amenta, Ludaescher, Gertz

*(change in existing course—eff. fall 07)*

##### 60. Data Structures and Programming (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 20, 40 (C++ and UNIX); grade of C- or better in each course. Design and analysis of data structures for a variety of applications. Trees, heaps, searching, sorting, hashing, graphs. Extensive programming. Not open for credit to students who have completed course 110.—I, II, III. (I, II, III.) Rogaway

*(new course—eff. fall 07)*

#### Upper Division Courses

##### 110. Data Structures and Programming (4)

*(cancelled course—eff. fall 07)*

##### 122A. Algorithm Design and Analysis (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 20, 60. Complexity of algorithms, bounds on complexity, algorithms for searching, sorting, pattern matching, graph manipulation, combinatorial problems, randomized algorithms, introduction to NP-complete problems.—I, II, III. (I, II, III.) Gusfield, Martel, Rogaway

*(change in existing course—eff. fall 07)*

##### 124. Theory and Practice of Bioinformatics (4)

Lecture—3 hours; laboratory—1 hour. Prerequisite: course 10 or 30 or Engineering 6; Statistics 12 or 13 or 32 or 100 or 131A or Mathematics 135A; Biological Science 1A or Molecular and Cellular Biology 10. Fundamental biological, mathematical and algorithmic models underlying bioinformatics; sequence analysis, database search, gene prediction, molecular structure comparison and prediction, phylogenetic trees, high throughput biology, massive datasets; applications in molecular biology and genetics; use and extension of common bioinformatics tools.—III. (III.) Filkov, Gusfield

*(change in existing course—eff. fall 07)*

##### 130. Scientific Computation (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 30 or Engineering 6; Mathematics 22A. Matrix-vector approach using MATLAB for floating point arithmetics, error analysis, interpolations, numerical integration, matrix computations, nonlinear equations and optimization. Parallel computing for matrix multiplication and the Cholesky factorization.—III. (III.) Bai, Hamann, Joy

*(change in existing course—eff. fall 07)*

##### 140A. Programming Languages (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 50 or Electrical Computer Engineering 70; course 60. Syntactic definition of programming languages. Introduction to programming language features including variables, data types, data abstraction, object-orientedness, scoping, parameter disciplines, exception handling. Comparative study of several high-level programming languages.—I, II. (I, II.) Olsson, Pandey, Su

*(change in existing course—eff. fall 07)*

##### 145. Scripting Languages And Their Applications (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: programming skill at the level of course 60. Goals and philosophy of scripting languages, with Perl and Python as prime examples. Applications include networking, threaded programming, and graphical user interfaces (GUI's). Offered in alternate years.—III. Matloff

*(change in existing course—eff. fall 07)*

##### 152A. Computer Networks (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 60; Mathematics 135A or Statistics 131A or Statistics 120 or Statistics 32. Overview of local and wide-area computer networks. ISO seven-layer model. Physical aspects of data transmission. Data-link layer protocols. Network architectures. Routing. TCP/IP protocol suite. Local area networks. Medium access protocols. Network performance analysis. Only two units of credit for students who have taken course 157. (Same course as Electrical and Computer Engineering 173A.)—I, II, III. (I, II, III.) Chuah, Ghosal, Liu, Matloff, Mohapatra, Mukherjee

*(change in existing course—eff. fall 07)*

##### 156. Discrete-Event Simulation (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: programming skill at the level of course 60; calculus-based course in probability theory, such as Statistics 120 or 130A or 131A or Mathematics 135A or Engineering Civil and Environmental 114. Design of discrete-event simulation software. Random number generators. Event, process and activity-scanning approaches. Data structures and algorithms for event lists. Statistical output analysis. Applications to computer systems and networks; reliable systems; transportation; business management.—I. (I.) Matloff

*(change in existing course—eff. fall 07)*

##### 163. Information Interfaces (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 60; 175 recommended. Art and science of information visualization and interfaces for information systems. Design principles of human-computer interaction. Visual display and navigation of nonspatial and higher dimensional data. Implementations, performance issues, tradeoffs, and evaluation of interactive information systems.—III. (III.) Amenta, Ma

*(change in existing course—eff. fall 07)*

##### 165A. Database Systems (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 60. Database design, entity-relationship and relational model, relational algebra, query language SQL, storage and file structures, query processing, system architectures.—II. (II.) Gertz, Ludaescher

*(change in existing course—eff. fall 07)*

##### 175. Computer Graphics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 60; Mathematics 22A. Principles of computer graphics. Current graphics hardware, elementary operations in two- and three-dimensional space, transformational geometry, clipping, graphics system design, standard graphics systems, individual projects.—I, II. (I, II.) Amenta, Hamann, Joy, Staadt

*(change in existing course—eff. fall 07)*

#### Graduate Courses

##### 234. Computational Functional Genomics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 124; graduate standing in Computer Science or Life Sciences. Bioinformatics methods for analysis and inference of functional relationships among genes using large-scale genomic data, including methods for integration of gene expression, promoter sequence, TF-DNA binding and other data, and approaches in modeling of biological networks.—II. (II.) Filkov

*(new course—eff. winter 07)*



**235A. Computer and Information Security (4)**

Lecture—3 hours; project. Prerequisite: course 150; course 152A recommended. Modern topics in computer security, including: protection, access control, operating systems security, network security, applied cryptography, cryptographic protocols, secure programming practices, safe languages, mobile code, malware, privacy and anonymity, and case studies from real-world systems. Not open for credit to students who have taken course 235.—I. (I.) Chen  
(new course—eff. summer session 1 06)

**235B. Foundations of Computer and Information Security (4)**

Lecture—3 hours; project. Prerequisite: course 235A; courses 120, 150 recommended. Theoretical foundations of methods used to protect data in computer and communication systems. Access control matrix and undecidability of security; policies; Bell-LaPadula, Biba, Chinese Wall models; non-interference and non-deducibility; information flow and the confinement problem. Not open for credit to students who have taken course 235.—II. (II.) Bishop  
(new course—eff. summer session 1 06)

**243. Code Generation and Optimization (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 201A or Engineering Electrical and Computer 270. Compiler optimizations for performance, code size and power reduction. Topics include control- and data-flow analysis, redundancy elimination, loop and cache optimizations, register allocation, local and global instruction scheduling, and modulo scheduling.—II. (II.) Wilken  
(change in existing course—eff. spring 07)

**266. Spatial Databases (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 165A. Concepts, models, and architectures for spatial databases, spatial access methods, query processing, spatio-temporal data management, moving objects, spatial data mining. Offered in alternate years.—(II.) Gertz  
(new course—eff. winter 08)

**268. Scientific Data And Workflow Management (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 165A. Scientific data integration, metadata, knowledge representation, ontologies, scientific workflow design and management. Offered in alternate years.—(II.) Gertz, Ludaescher  
(new course—eff. winter 08)

**293. Research in Computer Science (2)**

(cancelled course—eff. fall 07)

**293A. Research in Computer Science (1)**

Lecture—1 hour. Prerequisite: graduate standing in computer science. Study of research topics in computer science, PhD level research methodologies (experimental, applied and theoretical). Study skills necessary to successfully find/solve significant research problems. Finding and successful interacting with a research advisor. Ethical issues in research/collaborative work. (S/U grading only.)—I. (I.) Martel  
(new course—eff. fall 07)

**293B. Research in Computer Science (1)**

Lecture—1 hour. Prerequisite: graduate standing in computer science; course 293A recommended. Study of PhD level research methodologies (experimental, applied and theoretical), presenting research results for the computer science community. Study skills necessary to successfully find/solve significant research problems. (S/U grading only.)—II. (II.) Martel  
(new course—eff. fall 07)

## Engineering: Electrical and Computer

### New and changed courses in Engineering: Electrical and Computer (EEC)

#### Lower Division Course

**70. Computer Structure and Assembly Language (4)**

Lecture—3 hours; workshop—1 hour. Prerequisite: Computer Science Engineering 30. Computer architecture; machine language; assembly language; macros and conditional macros; subroutine/parameter passing; input-output programming, interrupt and trap; direct-memory-access; absolute and relocatable code; re-entrant code; program development in an operating system. Only one unit of credit to students who have completed Computer Science Engineering 50.—I, II. (I, II.) Redinbo, Wilken  
(change in existing course—eff. winter 08)

#### Upper Division Courses

**100. Circuits II (5)**

Laboratory—3 hours; lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 17. Theory, application, and design of analog circuits. Methods of analysis including frequency response, SPICE simulation, and Laplace transform. Operational amplifiers and design of active filters. Only 3.500 units of credit to students who have completed Engineering 100. Restricted to the following majors: Electrical Engineering, Computer Engineering, Computer Science & Engineering, Electrical Engineering/Materials Science, Optical Science & Engineering, Biomedical Engineering, Electrical Engineering Graduate Students.—I, II. (I, II.)  
(change in existing course—eff. fall 07)

**106. Introduction to Image Processing and Computer Vision (4)**

(cancelled course—eff. fall 06)

**130A. Electromagnetics I (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21D, Physics 9D, Engineering 17. Basics of static electric and magnetic fields and fields in materials. Work and scalar potential. Maxwell's equations in integral and differential form. Plan waves in lossless media. Lossless transmission lines.—I, II. (I, II.) Heritage, Knoesen  
(change in existing course—eff. fall 07)

**132A. RF and Microwaves in Wireless Communication (5)**

Lecture—3 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: course 110B, 130B, 140B. The study of Radio Frequency and Microwave theory and practice for design of wireless electronic systems. Transmission lines, microwave integrated circuits, circuit analysis of electromagnetic energy transfer systems, the scattering parameters.—I. (I.) Branner  
(change in existing course—eff. fall 07)

**132B. RF and Microwaves in Wireless Communication (5)**

Lecture—3 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: course 132A. Passive RF and microwave device analysis, design, fabrication, and testing for wireless applications. RF and microwave filter and coupler design. Introductory analysis and design of RF and microwave transistor amplifiers.—II. (II.) Branner  
(change in existing course—eff. winter 07)

**135. Optical Communications I: Fibers (4)**

Lecture—3 hours; project. Prerequisite: course 130B. Principles of optical communication systems. Planar dielectric waveguides. Optical fibers: single-mode, multi-mode, step and graded index. Attenuation and dispersion in optical fibers. Optical sources (LEDs and lasers) and receivers. Design of digital optical transmission systems.—II. (II.) Knoesen, Yoo  
(change in existing course—eff. winter 07)

**140A. Principles of Device Physics I (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 17; Physics 9D. Semiconductor device fundamentals, equilibrium and non-equilibrium statistical mechanics, conductivity, diffusion, density of states, electrons and holes, p-n junctions, Schottky junctions, and junction field effect transistors.—I, II. (I, II.) Colinge, Hunt, Smith  
(change in existing course—eff. fall 07)

**146A. Integrated Circuits Fabrication (3)**

Lecture—2 hours; laboratory—3 hours. Prerequisite: course 140B. Basic fabrication processes for Metal Oxide Semiconductor (MOS) integrated circuits. Laboratory assignments covering oxidation, photolithography, impurity diffusion, metallization, wet chemical etching, and characterization work together in producing metal-gate PMOS test chips which will undergo parametric and functional testing.—I. (I.) Hunt  
(change in existing course—eff. fall 08)

**161. Probabilistic Analysis of Electrical & Computer Systems (4)**

Lecture—3 hours; discussion—1 hour. Prerequisites: course 100. Probabilistic and statistical analysis of electrical and computer systems. Discrete and continuous random variables, expectation and moments. Transformation of random variables. Joint and conditional densities. Limit theorems and statistics. Noise models, system reliability and testing.—I, III. (I, III.) Abdel-Ghaffar, Ding, Levy, Scaglione, Tuqan, Zhao  
(new course—eff. fall 08)

**165. Statistical and Digital Communication (4)**

Lecture—3 hours; project—3 hours. Prerequisite: course 160, 161. Introduction to random process models of modulated signals and noise, and analysis of receiver performance. Analog and digitally modulated signals. Signal-to-noise ratio, probability of error, matched filters. Intersymbol interference, pulse shaping and equalization. Carrier and clock synchronization.—II. (II.) Abdel-Ghaffar, Ding, Ford, Levy  
(change in existing course—eff. winter 09)

**166. Digital Communication Design Techniques (4)**

(cancelled course—eff. fall 05)

**167. Telecommunications Measurements and Instrumentation (4)**

(cancelled course—eff. fall 06)

**173A. Computer Networks (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Computer Science Engineering 60; Mathematics 135A or Statistics 131A, or Statistics 120 or Statistics 32. Overview of local and wide-area computer networks. ISO seven-layer model. Physical aspects of data transmission. Data-link layer protocols. Network architectures. Routing. TCP/IP protocol suite. Local area networks. Medium access protocols. Network performance analysis. Only two units of credit for students who have taken course 157. (Same course as Computer Science Engineering 152A.)—I, II, III. (I, II, III.) Chuah, Ghosal, Liu, Matloff, Mahapatra, Mukherjee  
(change in existing course—eff. fall 07)

**180A. Digital Systems I (5)**

Lecture—3 hours; laboratory—6 hours. Prerequisite: Physics 9C. Introduction to digital system design including combinational logic design, sequential and asynchronous circuits, computer arithmetic, memory systems and algorithmic state machine design; computer aided design (CAD) methodologies and tools.—I, II, III, IV. (I, II, III, IV.) Akella, Al-Asaad, Oklobdzija, Redinbo, Wilken  
(change in existing course—eff. fall 07)

**180B. Digital Systems II (5)**

Lecture—3 hours; laboratory—6 hours. Prerequisite: course 110A; 180A. Computer-aided design of digital systems with emphasis on hardware description languages (VHDL), logic synthesis, and field-programmable gate arrays (FPGA). May cover advanced topics in digital system design such as static timing analysis, pipelining, memory system design, testing digital circuits.—I, II, III. (I, II, III.)  
(change in existing course—eff. fall 07)

**189A-V. Special Topics in Electrical Engineering and Computer Science (1-5)**

Prerequisite: consent of instructor. Special Topics in (A) Computer Science; (B) Programming Systems; (C) Digital Systems; (D) Communications; (E) Signal Transmission; (F) Digital Communication; (G) Control Systems; (H) Robotics; (I) Signal Processing; (J) Image Processing; (K) High-Frequency Phenomena and Devices; (L) Solid-State Devices and Physical Electronics; (M) Systems Theory; (N) Active and Passive Circuits; (O) Integrated Circuits; (P) Computer Software; (Q) Computer Engineering; (R) Microprocessing; (S) Electronics; (T) Electromagnetics; (U) Opt-Electronics; (V) Computer Networks. May be repeated for credit when topic differs.—I, II, III. (I, II, III.)  
(change in existing course—eff. fall 07)

**190C. Research Group Conferences in Electrical and Computer Engineering (1)**

Discussion—1 hour. Prerequisite: upper division standing in Electrical and Computer Engineering; consent of instructor. Research group conferences. May be repeated for credit. (P/NP grading only.)—I, II, III. (I, II, III.)  
(change in existing course—eff. fall 07)

**192. Internship in Electrical and Computer Engineering (1-5)**

Internship—3-15 hours. Prerequisite: completion of a minimum of 84 units; project approval before period of internship; consent of instructor. Supervised work experience in electrical and computer engineering. May be repeated for credit if project is different. (P/NP grading only.)—I, II, III. (I, II, III.)  
(change in existing course—eff. fall 07)

**193A. Senior Design Project (2)**

Project—6 hours. Prerequisite: senior standing in Electrical or Computer Engineering; course 196 (may be taken concurrently); consent of instructor. Team design project for seniors in Electrical or Computer Engineering. Project involves analysis, design, implementation and evaluation of an Electrical Engineering or Computer Engineering system. Project is supervised by a faculty member. (Deferred grading only, pending completion of sequence.)—I, II. (I, II.)  
(new course—eff. fall 08)

**193B. Senior Design Project (2)**

Project—6 hours. Prerequisite: course 193A. Team design project for seniors in Electrical Engineering or Computer Engineering. Project involves analysis, design, implementation and evaluation of an Electrical Engineering or Computer Engineering system. Project is supervised by a faculty member. (Deferred grading only, pending completion of sequence.)—II, III. (II, III.)  
(new course—eff. winter 09)

**194A. Micromouse Design Project (2)**

Discussion—1 hour; laboratory—3 hours. Prerequisite: Course 70 or Computer Science Engineering 50; Engineering 17 and course 196 (may be taken concurrently); course 100 or Engineering 100 recommended (may be taken concurrently); course 180A recommended (may be taken concurrently). Design of robotic mouse for the IEEE Micromouse competition. May be repeated once for credit. (Deferred grading only, pending completion of sequence.)—I. (I.)  
(change in existing course—eff. fall 08)

**194B. Micromouse Design Project (2)**

Discussion—1 hour; laboratory—3 hours. Prerequisite: course 70 or Computer Science Engineering 50, Engineering 17 (may be taken concurrently); course 100 or Engineering 100 recommended (may be taken concurrently), course 180A recommended (may be taken concurrently). Design of robotic mouse for the IEEE Micromouse competition. Limited enrollment. May be repeated once for credit. (Deferred grading only, pending completion of sequence.)—II. (II.)  
(change in existing course—eff. fall 08)

**194C. Micromouse Design Project (1)**

Discussion—1 hour. Prerequisite: course 70 or Computer Science Engineering 50, Engineering 17 (may be taken concurrently); course 100 or Engineering 100 recommended (may be taken concurrently), course 180A recommended (may be taken concurrently). Design of robotic mouse for the IEEE Micromouse competition. Limited enrollment. May be repeated once for credit. (Deferred grading only, pending completion of sequence.)—III. (III.)  
(change in existing course—eff. fall 08)

**195A. NATCAR Design Project (3)**

Lecture—1 hour; laboratory—6 hours. Prerequisite: courses 110A, 110B or 157A (can be taken concurrently); 170 recommended (taken concurrently) if student intends to complete project with digital circuits. Design and construct an autonomous race car. Students work in groups to design, build and test speed control circuits, track sensing circuits, and a steering control loop. Limited enrollment. (Deferred grading only pending completion of sequence.)—I. (I.) Spencer  
(change in existing course—eff. fall 07)

**195B. NATCAR Design Project (2)**

Laboratory—6 hours. Prerequisite: course 195A. Design and construct an autonomous race car. Students work in groups to design, build and test speed control circuits, track sensing circuits, and a steering control loop. (Deferred grading only pending completion of sequence.)—II. (II.) Spencer  
(change in existing course—eff. fall 07)

**195C. Student Design Project (1)**

(cancelled course—eff. fall 08)

**196B. Senior Design Project (1)**

(cancelled course—eff. fall 08)

**197T. Tutoring in Electrical and Computer Engineering (1-3)**

Discussion—1 hour; discussion/laboratory—2-8 hours. Prerequisite: upper division standing; consent of instructor. Tutoring in Electrical and Computer Engineering courses, especially introductory circuits. For upper-division undergraduate students who will provide tutorial assistance. (P/NP grading only.)—I, II, III. (I, II, III.)  
(change in existing course—eff. fall 07)

**198. Directed Group Study (1-5)**

Prerequisite: consent of instructor. May be repeated three times for credit. (P/NP grading only.)  
(change in existing course—eff. fall 07)

**199. Special Study for Advanced Undergraduates (1-5)**

Prerequisite: consent of instructor. (P/NP grading only.)  
(change in existing course—eff. fall 07)

**Graduate Courses****209. Multimedia Compression and Processing (4)**

(cancelled course—eff. fall 07)

**228. Advanced Microwave Circuit and Device Design Techniques (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 132B. Theory, design, fabrication, analysis of advanced microwave circuits and devices. Wideband transformers, stripline/microstripline broadband couplers. Lumped and distributed filter synthesis. Broadband matching theory applied to microwave devices. Wideband and low noise FET/HEMT amplifiers. Advanced microwave oscillator theory. Phase noise analysis. Offered in alternate years.—III. Branner  
(change in existing course—eff. spring 07)

**252. Multivariable Control System Design (3)**

Lecture—3 hours. Prerequisite: course 250. Modern control system design, theory, and techniques. Topics will include single-loop feedback design; stability, performance and robustness of multivariable control systems; LQG design; H-infinity design; frequency response methods; and optimization-based design. Offered in alternate years.—(III.) Gundes  
(change in existing course—eff. fall 05)

**253. Adaptive Systems (3)**

(cancelled course—eff. winter 07)

**264. Estimation and Detection of Signals in Noise (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 260. Introduction to parameter estimation and detections of signals in noise. Bayes and Neyman-Pearson likelihood-ratio tests for signal detection. Maximum-likelihood parameter estimation. Detection of known and Gaussian signals in white or colored noise. Applications to communications, radar, signal processing.—III. (III.) Ding, Levy, Zhao  
(change in existing course—eff. fall 07)

**274. Internet Measurements, Modeling and Analysis (4)**

Lecture—3 hours; project. Prerequisite: Computer Science Engineering 252 or course 273. Advanced topics in the theoretical foundations of network measurements, modeling, and statistical inferring. Applications to Internet engineering, routing optimization, load balancing, traffic engineering, fault tolerance, anomaly detection, and network security. Individual project requirement. Offered in alternate years.—(III.) Chua  
(change in existing course—eff. winter 07)

**284. Design and Optimization of Embedded Computing Systems (4)**

Lecture—4 hours. Prerequisite: courses 170 and 180B, or consent of instructor. Computer Science Engineering 122A recommended. Introduction to design and optimization of digital computing systems for embedded applications. Topics include combinatorial optimization techniques, performance and energy optimization in embedded systems, compilation and architecture-specific mapping, programmable and reconfigurable platforms; design automation and algorithmic improvements to design process.—II. (II.) Ghiasi  
(new course—eff. winter 07)

## Engineering: Materials Science and Engineering

### New and changed courses in Materials Science and Engineering (EMS)

#### Lower Division Courses

##### 6H. Honors Materials Science Computer Applications (1)

Discussion—1 hour. Prerequisite: enrollment in the Materials Science and Engineering Honors Program; concurrent enrollment in Engineering 6 required. Examination of materials science computer applications through additional readings, discussions, collaborative work, or special activities which may include projects or computer simulations. Open only to students in the Materials Science and Engineering Honors program.—II. (II.)

*(new course—eff. winter 09)*

##### 9H. Honors Solid-State Materials Science (1)

Discussion—1 hour. Prerequisite: enrollment in the Materials Science and Engineering Honors Program; concurrent enrollment in Physics 9D required. Examination of solid-state materials science and modern physics topics through additional readings, discussions, collaborative work, or special activities which may include projects, laboratory experience or computer simulations. Open only to students in the Materials Science and Engineering Honors program.—III. (III.)

*(new course—eff. spring 10)*

#### Upper Division Courses

##### 181. Materials Processing (4)

Lecture—3 hours; lecture/discussion—1 hour. Prerequisite: Engineering 45; upper division standing in engineering, physics, chemistry, or geology. Principles of phase equilibria, thermodynamics and reaction kinetics applied to materials processing. Effects of processing variables on the structure-property relationship. Fundamentals of the manufacturing processes for electronic, optical, functional and structural materials. GE credit: Wrt.—II. (II.)

*(change in existing course—eff. winter 07)*

##### 188H. Honors Materials Design (1)

Discussion—1 hour. Prerequisite: enrollment in the Materials Science and Engineering Honors Program. Examination of special topics covered in the materials design course through additional readings, discussions, collaborative work, or special activities which may include projects, laboratory experience or computer simulations. Open only to students in the Materials Science and Engineering Honors program.—II. (II.)

*(new course—eff. winter 10)*

##### 188BH. Honors Materials Design (1)

Discussion—1 hour. Prerequisite: enrollment in the Materials Science and Engineering Honors Program. Examination of special topics covered in the materials design course through additional readings, discussions, collaborative work, or special activities which may include projects, laboratory experience or computer simulations. Open only to students in the Materials Science and Engineering Honors Program.—III. (III.)

*(new course—eff. spring 10)*

#### Graduate Courses

##### 230. Fundamentals of Electron Microscopy (3)

Lecture—2 hours; lecture/discussion—1 hour. Prerequisite: course 162. Principles and techniques of scanning and transmission of electron microscopy used in the study of materials will be described. Emphasis upon practical applications. Offered in alternate years.—(II.) Browning

*(change in existing course—eff. fall 07)*

##### 242. Advanced Mechanical Properties of Materials (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 174. Strength and structure of engineering materials. The dependence of their mechanical properties on time, stress, and temperature. Generalized concepts of dislocation theory in plastic deformation, including creep, superplasticity and cavitation. Influence of microstructure in optimizing the mechanical strength properties. Offered in alternate years.—(II.) Mukherjee

*(change in existing course—eff. fall 07)*

##### 243. Kinetics of Phase Transformation in Engineering Materials (3)

Lecture—3 hours. Prerequisite: graduate standing in Engineering and consent of instructor; course 160 recommended. Theory of alloying, kinetics of phase changes, homogenous and heterogeneous transformation, transformation by shear, order-disorder reactions. Offered in alternate years.—(III.) Groza

*(change in existing course—eff. fall 07)*

##### 247. Advanced Thermodynamics of Solids (3)

Lecture—3 hours. Prerequisite: course 160. Thermodynamics of gas-solid reactions and solutions; criteria for phase stability, thermodynamics of surfaces and interfaces; thermodynamics of defects in compounds, their influence on transport processes; thermodynamics of EMF cells and application to solid state electrolytes. Offered in alternate years.—(I.) Munir

*(change in existing course—eff. fall 07)*

##### 248. Fracture of Engineering Materials (3)

Lecture—3 hours. Prerequisite: course 174. Description of the failure of materials by crack propagation. Topics include the stress fields about elastic cracks, the Griffith-Irwin analysis, descriptions of plastic zones, fracture toughness testing, microstructural aspects of fracture and failure at elevated temperatures. Offered in alternate years.—(I.) Gibeling

*(change in existing course—eff. fall 07)*

##### 249. Mechanisms of Fatigue (3)

Lecture—3 hours. Prerequisite: course 174 or consent of instructor; course 248 recommended. Microstructural description of the mechanisms of fatigue in metals. Topics include a phenomenological treatment of cyclic deformation, dislocation processes in cyclic deformation, fatigue crack nucleation, Stage I crack growth, threshold effects and high temperature cyclic deformation. Offered in alternate years.—(I.) Gibeling

*(change in existing course—eff. fall 07)*

##### 282. Glass: Science and Technology (3)

Lecture—2 hours; extensive writing—1 hour. Prerequisite: graduate standing in Chemistry, Physics or Engineering, or consent of instructor. Modern paradigms in glass science and their applications to technologies. Relation of macroscopic properties of glasses and glass-forming liquids to atomic-level structures, including principles of formation, relaxation, transport phenomena, nucleation, crystallization and phase separation in glasses. Offered in alternate years.—III. Sen

*(new course—eff. spring 07)*

## Engineering: Mechanical

### New and changed courses in Engineering: Mechanical (EME)

#### Upper Division Course

##### 151. Statistical Methods in Design and Manufacturing (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 107B, 150A. Methods of statistical analysis with emphasis on applications in mechanical design and manufacturing. Applications include product evaluation and decision making, stress-strength interference, probabilistic design, systems reliability, and fatigue under random loading.—II. (II.) Hull

*(change in existing course—eff. winter 07)*

## Engineering: Mechanical and Aeronautical

### New and changed courses in Engineering: Mechanical and Aeronautical (MAE)

#### Graduate Courses

##### 207. Engineering Experimentation and Uncertainty Analysis (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Mechanical Engineering 107 and 107B. Design and analysis of engineering experiments with emphasis on measurement standards, data analysis, regressions and general and detailed uncertainty analysis, including statistical treatment of experimental data intervals, propagation of bias and precision errors, correlated bias approximations, and using jitter programs.—II. (II.) Baughn

*(change in existing course—eff. winter 06)*

##### 239. Advanced Finite Elements and Optimization (4)

Lecture—4 hours. Prerequisite: Engineering 180 or Applied Science 115 or Mathematics 128C. Introduction to advanced finite elements and design optimization methods, with application to modeling of complex mechanical, aerospace and biomedical systems. Application of states of the art in finite elements in optimum design of components under realistic loading conditions and constraints. Offered in alternate years. (Same course as Biomedical Engineering 239.)—(II.) Sarigul-Klijn

*(new course—eff. fall 07)*

##### 267. Parallel Computations in Fluid/Thermal Sciences (4)

Lecture—2 hours; discussion—2 hours. Prerequisite: Mechanical Engineering 106, 165, Engineering 180 or equivalent; or consent of instructor. Programming languages and constructs for engineering analysis on parallel computers including MPI (distributed), OpenMP (shared), and Fortran95. Graduate or junior/senior undergraduate as a technical elective—I, III. (I, III.) Davis

*(new course—eff. fall 07)*

##### 268. Wind Power Engineering (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 102 and 103, or equivalent, or consent of instructor. Fundamentals for understanding the conversion of wind power to mechanical power and electricity. Related engineering, economic and societal issues. Offered in alternate years.—(I.) van Dam

*(new course—eff. fall 06)*

**269. Fuel Cell Systems (4)**

Lecture—2 hours; discussion—2 hours. Prerequisite: Mechanical Engineering 106, 107, 165, or equivalent, or consent of instructor; graduate or junior/senior undergraduate as a technical elective. Basics of electrochemistry and fuel cell engines in mobile and stationary applications. Aspects of fuel cell energy converters and their subsystems including practice with existing fuel cell and hydrogen systems on campus. Limited enrollment. Offered in alternate years.—II. Erickson  
(new course—eff. fall 06)

## English

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### New and changed courses in English (ENL)

#### Lower Division Courses

**10A. Literatures in English I: To 1700 (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1 or equivalent. Historical introduction to English language and literature from 800-1700. Linguistic borrowing, innovation, and change. Emergence of key literary genres. Colonial America as a new site of English literary production and consumption. GE Credit: Wri.  
(new course—eff. fall 08)

**10B. Literatures in English II: 1700-1900 (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 10A. Historical introduction to English language and literature from 1700-1900. Linguistic borrowing, innovation, colonization, and change. Emergence and development of key literary genres. America, Britain, Ireland, Scotland, and India as important sites of English literary production and consumption. GE Credit: Wri.  
(new course—eff. fall 08)

**10C. Literatures in English III: 1900 to Present (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 10B. Historical introduction to English language and literature from 1900 - present. Linguistic borrowing, innovation, and change. Emergence and development of key literary genres. Formal experimentation. Modernism as transnational phenomenon. GE Credit: Wri.  
(new course—eff. fall 08)

**40. Introductory Topics in Literature (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1 or equivalent. Study of a special topic. Literature written in English in any period or place or genre. Thematic, formal, or temporal focus. May be repeated two times for credit if content differs. GE Credit: Wri.  
(new course—eff. fall 08)

**43. Introductory Topics in Drama (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1 or equivalent. Close reading of selected works of British and American drama. Range of historical periods. Focused on a topic. Frequent written assignments. GE Credit: Wri.  
(change in existing course—eff. fall 08)

**44. Introductory Topics in Fiction (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1 or equivalent. Close reading of British and American Fiction. Short stories, novellas, novels. Focused on a topic. Frequent written exercises. GE Credit: Wri.  
(change in existing course—eff. fall 08)

**45. Introductory Topics in Poetry (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1 or equivalent. Close reading of selections from English and American poetry. Focused on a topic. Frequent written exercises. GE Credit: Wri.  
(change in existing course—eff. fall 08)

### Upper Division Courses

**100FA. Creative Writing Advanced Fiction (4)**

Discussion—4 hours. Prerequisite: course 100F. Development and evaluation of students' work in prose, primarily in the workshop format. Some reading and discussion of published novels and short stories. Conferences with individual students once per quarter. Priority to English majors. Admission by application only.—III. (III.)  
(new course—eff. spring 08)

**100PA. Creative Writing Advanced Poetry (4)**

Discussion—4 hours. Prerequisite: course 100P. Development and evaluation of students' work in poetry, primarily in the workshop format. Some reading and discussion of published works of poetry. Conferences with individual students once per quarter. Priority to English majors. Admission by application only.—III. (III.)  
(new course—eff. spring 08)

**164. Writing Science (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or Science and Technology Studies 1, or equivalent. Texts and writing practices in the production of scientific knowledge. Surveys the literary structure of scientific arguments; history of scientific genres; rhetoric and semiotics in scientific culture; graphical systems in the experimental laboratory; narratives of science, including science fiction. (Same course as Science & Technology Studies 164.) GE Credit: Wrt.—I. Milburn  
(new course—eff. fall 06)

**168. 20th Century American Poetry (4)**

Lecture—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1. Historical Study of American poetry since 1900, with thematic and formal focus at the instructor's discretion. May be repeated two times for credit if content differs. GE credit: Wrt.  
(new course—eff. fall 07)

**173. Science Fiction (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or Science and Technology Studies 1, or equivalent. The literary modes and methods of science fiction. Representative texts, authors, and themes of the genre—e.g., time travel, alternative universes, and utopias. Relations of science fiction to science, philosophy, and culture. (Same course as Science and Technology Studies 173.) GE credit: ArtHum, Wrt.  
(change in existing course—eff. winter 08)

**181A. African American Literature to 1900 (4)**

Lecture/discussion—3 hours; term paper. Prerequisite: course 3 or University Writing Program 1. African American literature from the colonial period to 1900. Particular attention to the rapid development of the African American literary culture from a primarily oral tradition to various literary genres, including the slave narrative. GE credit: Div, Wrt.  
(change in existing course—eff. fall 07)

**181B. African American Literature 1900-Present (4)**

Lecture/discussion—3 hours; term paper. Prerequisite: course 3 or University Writing Program 1. Major African American writers in the context of cultural history from 1900 to the present. Writers may include Richard Wright, Ann Petry, James Baldwin, Ralph Ellison, Paule Marshall, Toni Morrison, Alice Walker, Clarence Major. GE credit: Div, Wrt.  
(change in existing course—eff. fall 07)

**184. Literature and the Environment (4)**

Lecture/discussion—3 hours; term paper. Prerequisite: course 3 or University Writing Program 1. Historical and/or thematic survey of topics in writing about the environment. GE credit: ArtHum, Wrt.  
(change in existing course—eff. fall 07)

### Professional Courses

**391. Teaching Creative Writing (2)**

Discussion—2 hours. Prerequisite: graduate standing; appointment as Teaching Assistant in the English. Designed for new instructors of English 5F or 5P; discussion of ways to facilitate creative writing workshops and to respond to student manuscripts. (S/U grading only.)  
(change in existing course—eff. winter 07)

**393. Teaching Literature and Composition (2)**

Discussion—2 hours. Prerequisite: graduate standing; appointment as Teaching Assistant in the English Department. Designed for new instructors of English 3 or the equivalent courses; discussion of problems related to teaching literature and composition to lower division students. (S/U grading only.)  
(change in existing course—eff. winter 07)

## Entomology

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### New and changed courses in Entomology (ENT)

#### Upper Division Course

**140S. Biodiversity and Conservation in South Africa (8)**

Lecture—3 hours; lecture/discussion—2 hours; term paper; field work. Prerequisite: Biological Sciences 1A, 1B, 1C. A comprehensive overview of biodiversity in a South African context. This Quarter Abroad course, based in Stellenbosch, provides immersion in another culture and exposure to a novel biota. Field visits involve weekends and homework requires evening effort. Limited enrollment. May be repeated once for credit. Only six units of credit allowed to students who have previously taken course 2 or Evolution and Ecology 2. Engineering 36. GE credit: SciEng, Wrt.—II. (II.) Cranston, Gullan  
(new course—eff. winter 07)

## Environmental and Resource Sciences

### New and changed courses in Environmental and Resource Sciences (ERS)

#### Lower Division Courses

##### 30. World Ecosystems & Geography (3)

Lecture—3 hours. An introduction to the earth's major geographic regions and associated ecosystems, such as deserts, temperate forests, and oceans with an examination of how climate, vegetation regimes, ecological processes, and human activities interact in different regions of the world. (Same course as Environmental Science and Policy 30.) GE credit: SciEng.—II, III. (II, III.)  
(new course—eff. fall 07)

##### 60. Global Environmental Interactions (4)

(cancelled course—eff. fall 08)

#### Upper Division Courses

##### 108. Environmental Monitoring (3)

Lecture/discussion—2 hours; laboratory—2 hours; fieldwork. Prerequisite: entry-level course work in student's major; specifically: Evolution and Ecology 101, Environmental Science and Policy 100, Environmental Toxicology 101, Wildlife, Fish, and Conservation Biology 100, Environmental and Resource Sciences 100, Soil Science 100, Environmental Horticulture 100, Landscape Architecture 50 or the equivalent for any of these courses. Instrumentation and methods for environmental and ecological monitoring; GPS, sensors, datalogging, and GIS. Wide range of measurement techniques for environmental parameters.—III. (III.) Hopmans  
(new course—eff. spring 07)

##### 120. Global Environmental Interactions (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Chemistry 8B or the equivalent General Biology or equivalent. Relationships among climate, hydrology, biogeochemical cycles, soils and vegetation distribution in diverse landscapes and biomes. Emphasis on physical, chemical, and biological processes affecting ecosystems from the poles to the equator, and human impacts on the environment. Limited enrollment.—II. (II.) Southard  
(new course—eff. fall 08)

##### 144. Trees and Forests (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Plant Sciences 2 or Biological Sciences 1C or 2C. Biological structure and function of trees as organisms; understanding of forests as communities and as ecosystems; use of forests by humans; tree phenology, photosynthesis, respiration, soil processes, life histories, dormancy, forest biodiversity, and agroforestry. Not open for credit to students who have completed Plant Biology 144 or Environmental Horticulture 144. (Former course Plant Biology/Environmental Horticulture 144.) (Same course as Plant Sciences 144).—I. (I.) Bledsoe, Berry, Dahlgren  
(new course—eff. winter 08)

##### 194H. Senior Honor Thesis (2-6)

Independent study. Prerequisite: senior standing, overall GPA of 3.500 or higher and consent of master adviser. Independent study, guided research on an environmentally related subject of special interest to the student. May be repeated for credit.—I, II, III. (I, II, III.)  
(change in existing course—eff. fall 07)

##### 195. Integrating Environmental Science and Management (2)

Lecture/discussion—2 hours. Prerequisite: consent of instructor; senior status in Environmental Science and Management major or other environmental science major (e.g., Environmental and Resource Sciences, Environmental Biology & Management, Environmental Toxicology, Environmental Policy Analysis and Planning, Wildlife, Fish, and Conservation Biology, Hydrologic Sciences). Students learn about contemporary environmental issues or problems from the combined perspectives of the physical sciences, ecological sciences and policy/management. May be repeated two times for credit.—II. (II.)  
(new course—eff. winter 08)

## Environmental Horticulture

### New and changed courses in Environmental Horticulture (ENH)

#### Lower Division Courses

##### 92. Internship (1-12)

(cancelled course—eff. winter 07)

##### 99. Special Study for Undergraduates (1-5)

(cancelled course—eff. winter 07)

#### Upper Division Courses

##### 144. Trees and Forests (4)

(cancelled course—eff. winter 08)

##### 192. Internship (1-12)

(cancelled course—eff. winter 07)

##### 197T. Tutoring in Environmental Horticulture (1-5)

(cancelled course—eff. winter 07)

##### 198. Directed Group Study (1-5)

(cancelled course—eff. winter 07)

##### 199. Special Study for Advanced Undergraduates (1-5)

(cancelled course—eff. winter 07)

#### Graduate Courses

##### 290. Seminar (1)

(cancelled course—eff. winter 07)

##### 290C. Research Group Conference (1)

(cancelled course—eff. winter 07)

##### 297T. Tutoring in Environmental Horticulture (1-4)

(cancelled course—eff. winter 07)

##### 298. Group Study (1-5)

(cancelled course—eff. winter 07)

##### 299. Research (1-12)

(cancelled course—eff. winter 07)

#### Professional Course

##### 396. Teaching Assistant Training Practicum (1-4)

(cancelled course—eff. winter 07)

## Environmental Science and Policy

### New and changed courses in Environmental Science and Policy (ESP)

#### Lower Division Courses

##### 1. Environmental Analysis (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: University Writing 1; Biological Sciences 1A, 1B; upper-division University Writing Program recommended. Analysis of the physical, biological, and social interactions which constitute environmental problems. Emphasis on analysis of environmental problems, the consequences of proposed solutions, and the interaction of environmental science and public policy in creating solutions.—II. (II.) Holyoak  
(change in existing course—eff. fall 07)

##### 30. World Ecosystems & Geography (3)

Lecture—3 hours. An introduction to the earth's major geographic regions and associated ecosystems, such as deserts, temperate forests, and oceans with an examination of how climate, vegetation regimes, ecological processes, and human activities interact in different regions of the world. (Same course as Environmental and Resource Sciences 30.) GE credit: SciEng.—II, III. (II, III.)  
(new course—eff. fall 07)

#### Upper Division Courses

##### 111. Marine Environmental Issues (1)

Discussion—1 hour; seminar—2 hours. Prerequisite: upper division standing or consent of instructor; concurrent enrollment in at least one course from courses 124, 152, Evolution and Ecology 106, 110, 114; residence at or near Bodega Marine Laboratory required. Student must complete the application available at <http://www.bml.ucdavis.edu>. An examination of critical environmental issues occurring in coastal waters. Course links together material from concurrent courses at BML to develop an integrative understanding of marine environments and their conservation. Includes readings, group discussions, and interaction with visiting speakers. May be repeated two times for credit. (Same Course as Evolution and Ecology 111.)—IV. (IV.) Gaylord, Largier, Morgan, Sanford  
(new course—eff. summer session 1 06)

##### 114. Experimental Invertebrate Biology (3)

Lecture—2 hours; discussion—1 hour; laboratory—3 hours; fieldwork—3 hours. Prerequisite: upper division standing or consent of instructor; introductory cell, animal and plant biology (Biological Sciences 1A, 1B and 1C), invertebrate zoology (Evolution and Ecology 112), ecology (Evolution and Ecology 101), and/or evolution (Evolution and Ecology 100) are recommended; residence at or near Bodega Marine Lab required. Student must complete the application available at <http://www.bml.ucdavis.edu>. The biology, ecology, and evolution of local marine invertebrates with a focus on adaptations to environmental and biological factors encountered on the California coast. Hands-on field and laboratory learning with an emphasis on generating and testing hypotheses.—IV. (IV.) Sanford  
(new course—eff. summer session 1 06)

##### 116G. The Oceans: Discussion (2)

(cancelled course—eff. winter 07)



**116N. Oceanography (3)**

Lecture—2 hours; laboratory—3 hours; field work. Prerequisite: one of Geology 1, 2, 16 or 50. Advanced oceanographic topics: Chemical, physical, geological, and biological processes; research methods and data analysis; marine resources, anthropogenic impacts, and climate change; integrated earth/ocean/atmosphere systems; weekly lab and one weekend field trip. Offered in alternate years. (Same course as Geology 116N.)—(II.) Hill, McClain, Spero  
(new course—eff. winter 07)

**124. Marine and Coastal Field Ecology (3)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours; fieldwork—3 hours. Prerequisite: upper division standing or consent of instructor. Introductory animal biology (Biological Sciences 1B) recommended; residence at or near Bodega Marine Lab required. Student must complete the application available at <http://www.bml.ucdavis.edu>. Ecology of marine populations and communities living in diverse habitats along the California coast. Hands-on learning using scientific process and tools of the biological trade to address ecological questions arising during field trips. Critical thinking through discussing scientific literature.—IV. (IV.) Morgan  
(change in existing course—eff. summer session 1 06)

**126. Environmental and Occupational Epidemiology (4)**

(cancelled course—eff. fall 07)

**127. Plant Conservation Biology (4)**

Lecture/discussion—3 hours; discussion—1 hour; term paper. Prerequisite: Environmental Science and Policy 100 or equivalent upper division general ecology. Principles governing the conservation of plant species and plant communities, including the roles of fire, exotic species, grazing, pollination, soils, and population genetics; analytic and practical techniques for plant conservation; and introduction to relevant legal, ethical, and policy issues. Limited enrollment.—II. (II.) Harrison  
(new course—eff. winter 07)

**152. Coastal Oceanography (3)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours; fieldwork—3 hours. Prerequisite: upper division standing or consent of the instructor; physics (Physics 9B), calculus (Mathematics 21B) and exposure to physical and chemical oceanography (Geology/Environmental Science and Policy 150A) are recommended; residence at or near Bodega Marine Laboratory required. Student must complete the application available at <http://www.bml.ucdavis.edu>. The oceanography of coastal waters, including bays, river plumes, nearshore and estuaries; focus on transport patterns, how they are forced and implications for ecological and environmental problems. Pertinent for students in oceanography, ecology, environmental engineering, geology and hydrology.—IV. (IV.) Largier  
(new course—eff. summer session 2 06)

**160. The Policy Process (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Political Science 1; Economics 1A; intermediate statistics; course 172. Alternative models of public policymaking and application to case studies in the U.S. and California.—II. (II.) Sabatier  
(change in existing course—eff. winter 07)

**162. Environmental Policy (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Economics 1A. Compares economic with socio-cultural approaches to understanding the causes of environmental problems and strategies for addressing them. Includes different approaches to the policy process, policy instruments, and environmental behavior. Applies these principles to several problems.—II. (II.)  
(new course—eff. fall 07)

**171. Urban and Regional Planning (4)**

Lecture—3 hours; discussion—1 hour; term paper. Prerequisite: course 1; a course in social science and a course in environmental science. How cities plan for growth in ways that minimize environmental harm. Standard city planning tools (general plan, zoning ordinance) and innovative new approaches. Focus on planning requirements and practices in California. Relationships between local, regional, state, and federal policy.—III. (III.) Handy  
(change in existing course—eff. summer session 1 06)

**179. Environmental Impact Assessment (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: upper division standing and one course in environmental science (course 100, 110 or the equivalent). Introduction to the information resources and methods typically used in environmental impact analysis. Emphasis on how environmental information is applied to planning, environmental regulation, and public policymaking, with case studies from California land use and natural resource policy.—III. (III.) Quinn  
(change in existing course—eff. fall 07)

## Environmental Toxicology

### New and changed courses in Environmental Toxicology (ETX)

#### Upper Division Course

**130. The Role and Applications of Toxicology in Modern Industry (3)**

Lecture—3 hours. Prerequisite: course 101 required; course 103A recommended. Role of toxicology in industry research and development, human health and environmental protection, hazard and risk evaluations, risk management and communications, product stewardship, and regulatory compliance. Scientific principles and methods of toxicology in chemical, energy, pharmaceutical, pesticide, biotechnology industries.—III. (III.) Wong  
(new course—eff. spring 08)

## Epidemiology and Preventive Medicine

### New and changed courses in Epidemiology and Preventive Medicine (EPP)

#### Upper Division Courses

**160. General Health Education and Prevention (1-5)**

Prerequisite: consent of instructor. Restricted to students in the internship program for the Health Education Program only. Topics include addiction, substance abuse/prevention, nutrition, stress management, physical fitness, body image, reproductive anatomy & physiology, contraceptive options, safer sex, sexual health, healthy relationships, and other general wellness/health promotion topics. Practice in peer counseling and outreach presentations. Limited enrollment. (P/NP grading only.)—I. (I.) Lake, Ferguson  
(change in existing course—eff. spring 08)

**163. Peer Counselors in Sexuality Training (4)**

(cancelled course—eff. spring 07)

**164. Peer Counselors in Athletics Training (1)**

(cancelled course—eff. winter 08)

**188. Economics of Preventive Medicine (3)**

(cancelled course—eff. spring 08)

## Graduate Courses

**246. Biostatistics for Clinical Research (4)**

Lecture—3 hours; laboratory/discussion—1 hour. Prerequisite: courses 244 and 245. Emphasizes critical biostatistics for clinical research and targets biomedical audience. Students will develop understanding for basic planning and analysis of clinical studies and learn to develop collaborations with biostatisticians.—II. (II.) Tsodikov  
(new course—eff. summer session 1 06)

**247. Biostatistics for Epidemiology (4)**

Lecture—3 hours; laboratory/discussion—1 hour. Prerequisite: course 246. Introduction to the principles and methods of statistical inference for categorical data and survival data in epidemiological studies. The major topics include contingency table methods, logistic regression, Kaplan-Meier and log-rank methods, and Cox regression.—III. (III.) Liu  
(new course—eff. spring 06)

**290. Topics in Public Health (1)**

Seminar—1.5 hours. Prerequisite: open to students in Master of Public Health program or consent of instructor. Seminar on key issues and current topics in public health. Course begins in August SSII. Students must enroll in August, then Fall and Winter. The course is a series but grades and units are given at end of each quarter. May be repeated four times for credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Leistikow, McCurdy, Schenker  
(change in existing course—eff. summer session 11 06)

**297. Public Health Practicum (1-16)**

Fieldwork—3-32 hours. Open only to Master of Public Health students. Practical fieldwork experience in public health. Placement site will vary based on the interest and experience of each student. May be repeated four times up to 16 units of credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) McCurdy  
(change in existing course—eff. summer session 11 07)

## Professional Course

**470. Clinical Selective in Occupational and Environmental Medicine (3-6)**

Clinical activity—9-18 hours. Prerequisite: fourth-year medical students in good academic standing; consent of instructor. Outpatient clinical experience in Occupational and Environmental Medicine at UCDCM and in local industries. Participants will gain experience in evaluating occ/env medical conditions, use of medical literature resources, the worker's compensation system, and toxicological principles. Students may take up to four weeks for six units. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) McCurdy  
(change in existing course—eff. fall 06)

## Evolution and Ecology

### New and changed courses in Evolution and Ecology (EVE)

#### Upper Division Courses

**100. Introduction to Evolution (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite(s): Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; Biological Sciences 101; Mathematics 16A, 16B, 16C or the equivalent; Statistics 13 or 100 (Statistics 100 recommended). A general survey of the origins of biological diversity and evolutionary mechanisms.—I, II, III. (I, II, III.) Begun, Grosberg, Kopp, Nuzhdin  
(change in existing course—eff. spring 08)

**101. Introduction to Ecology (4)**

Lecture—3 hours; lecture/discussion—1 hour. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; Mathematics 16A, 16B, 16C or the equivalent. A general survey of the principles of ecology.—I, II, III. (I, II, III.) Schoener, Strong, Stachowicz, Sanford, Gaylord, Shapiro, Toft  
(change in existing course—eff. spring 08)

**101Q. Introduction to Computer Models in Ecology (1)**

Autotutorial—1.5 hours; extensive problem solving—1.5 hours. Prerequisite: concurrent enrollment in course 101. Computational methods and mathematical models used to study ecological phenomena.—I, II, III. (I, II, III.) Gaylord, Sanford, Schoener, Stachowicz, Strauss, Strong, Toft  
(new course—eff. fall 06)

**105. Phylogenetic Analysis of Vertebrate Structure (4)**

Lecture—2 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A and 1B, or 2B and 2C. The structure of the classes and subclasses of vertebrates is described and interpreted in terms of phylogeny.—I. (I.) Wainwright  
(change in existing course—eff. fall 08)

**106. Mechanical Design in Organisms (3)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours; fieldwork—3 hours. Prerequisite: upper division standing or consent of instructor; introductory animal biology (Biological Sciences 1B or 2B), invertebrate zoology (course 112), and/or ecology (course 101) are recommended; residence at or near Bodega Marine Lab required. Student must complete the application available at <http://www.bml.ucdavis.edu>. Explores fundamental principles in the form and function of organisms, examining how basic properties of size, shape, structure, and habitat constrain ways in which plants and animals interact and cope with their physical surroundings. Offered in alternate years.—(IV.) Gaylord  
(change in existing course—eff. summer session 08)

**107. Animal Communication (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 1B or 2B; Animal Behavior course (Neurobiology, Physiology, and Behavior 102, Psychology 101, Animal Science 104, Entomology 104, or equivalent). How animals use songs, dances, colors, chemicals, electricity and vibrations to communicate. Mechanisms of signal production and detection (sensory systems), theory of information transfer and signal design, and the role of natural selection in shaping communication.—I. (I.) Patricelli  
(change in existing course—eff. fall 08)

**108. Systematics and Evolution of Angiosperms (5)**

Lecture—3 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C. Diversity and classification of angiosperms (flowering plants) on a world scale, and current understanding of the origin of angiosperms and evolutionary relationships and trends within them based on morphological and molecular evidence. (Same course as Plant Biology 108.) GE credit: SciEng.—III. (III.) Doyle  
(change in existing course—eff. spring 08)

**110. Running, Swimming and Flying (3)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours; fieldwork—3 hours. Prerequisite: upper division standing or consent of instructor; introductory animal biology (Biological Sciences 1B or 2B), invertebrate zoology (course 112), and/or ecology (course 101) are recommended; residence at or near Bodega Marine Lab required. Student must complete the application available at <http://www.bml.ucdavis.edu>. Examines the bases of organism movement in terrestrial, aquatic, and aerial environments, emphasizing both the unifying principles underlying locomotion, as well as a range of strategies employed across diverse groups of organisms.—IV. (IV.) Gaylord  
(change in existing course—eff. summer 08)

**111. Marine Environmental Issues (1)**

Discussion—1 hour; seminar—2 hours. Prerequisite: upper division standing or consent of instructor. Concurrent enrollment in at least one course from Environmental Science and Policy 124, 152, course 106, 110, 114; residence at or near Bodega Marine Laboratory required. Student must complete the application available at <http://www.bml.ucdavis.edu>. An examination of critical environmental issues occurring in coastal waters. Course links together material from concurrent courses at BML to develop an integrative understanding of marine environments and their conservation. Includes readings, group discussions, and interaction with visiting speakers. May be repeated two times for credit. (Same course as Environmental Science and Policy 111.)—IV. (IV.) Gaylord, Largier, Morgan, Sanford  
(new course—eff. summer session 1 06)

**112. Biology of Invertebrates (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1B, or 2B and 2C; courses in systematics, ecology, and evolution recommended. Survey of the invertebrate phyla, emphasizing aquatic forms, and focusing on morphology, development, natural history, ecology, and phylogenetic relationships. Limited enrollment.—II. (II.) Grosberg, Stachowicz  
(change in existing course—eff. fall 08)

**112L. Biology of Invertebrates Laboratory (2)**

Laboratory—6 hours. Prerequisite: Biological Sciences 1B, or 2B and 2C; course 112 concurrently. Field and laboratory experience with representative members of the major invertebrate phyla discussed in course 112. Emphasis on comparative morphology, natural history, ecology, and behavior of living invertebrates. Two field trips required.—II. (II.) Grosberg, Stachowicz  
(change in existing course—eff. fall 08)

**114. Experimental Invertebrate Biology (3)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours; fieldwork—3 hours. Prerequisite: upper division standing or consent of instructor; introductory cell, animal and plant biology (Biological Sciences 1A and 1B and 1C, or 2B), invertebrate zoology (course 112), ecology (course 101), and/or evolution (course 100) are recommended; residence at or near Bodega Marine Lab required. Student must complete the application available at <http://www.bml.ucdavis.edu>. The biology, ecology, and evolution of local marine invertebrates with a focus on adaptations to environmental and biological factors encountered on the California coast. Hands-on field and laboratory learning with an emphasis on generating and testing hypotheses.—IV. (IV.) Sanford  
(change in existing course—eff. summer 08)

**115. Marine Ecology (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 101 or Environmental Science and Policy 100 or Biological Sciences 2B, or consent of instructor. Processes affecting the distribution, abundance, and diversity of plant and animal life in the sea. Introduction to marine habitat diversity and human impacts on marine ecosystems.—I. (I.) Stachowicz  
(change in existing course—eff. fall 08)

**117. Plant Ecology (4)**

Lecture—3 hours; fieldwork—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; Plant Biology 111 recommended. The study of the interactions between plants, plant populations or vegetation types and their physical and biological environment. Special emphasis on California. Four full-day field trips and brief write-up of class project required. (Same course as Plant Biology 117.)—I. (I.) Pearcy  
(change in existing course—eff. fall 08)

**119. Population Biology of Weeds (3)**

Lecture—2 hours; laboratory—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; introductory statistics recommended. Origin and evolution of weeds, reproduction and dispersal, seed ecology, modeling of population dynamics, interactions of weeds and crops, biological control. Laboratories emphasize design of competition experiments and identification of weedy species. (Same course as Plant Biology 119.) Not open for credit to students who have completed Plant Biology 121.—III. (III.) Rejmanek  
(change in existing course—eff. spring 08)

**134. Herpetology (3)**

Lecture—2 hours; term paper. Prerequisite: Biological Sciences 1A, 1B, or 2A, 2B, 2C; Evolution and Ecology 100 recommended. The world-wide diversity of amphibians and reptiles with emphasis on behavior, ecology, functional morphology, and evolutionary history. Offered in alternate years.—III. Shaffer  
(change in existing course—eff. fall 08)

**134F. Field Herpetology (2)**

Fieldwork—5 hours; lecture/discussion—1 hour. Prerequisite: Biological Sciences 1A, 1B, or 2A, 2B, 2C; concurrent enrollment in course 134 and 134L. Multi-day field trips to major California habitats focus on identification of, and ecological experiments on, amphibian and reptile species. Students work in teams to plan experiments, collect and analyze data, write up results and give oral presentations to the class. Offered in alternate years.—III. Shaffer  
(change in existing course—eff. fall 08)

**134L. Herpetology Laboratory (2)**

Laboratory—6 hours. Prerequisite: Biological Sciences 1A, 1B, or 2A, 2B, 2C; course 134 concurrently. The diagnostic characteristics and functional attributes of amphibians and reptiles, emphasizing ecological, biogeographic and phylogenetic patterns. Field experience with common species of reptiles and amphibians in the Davis area. Offered in alternate years.—III. Shaffer  
(change in existing course—eff. fall 08)

**140. Paleobotany (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C. Introduction to plant fossil record, beginning with invasion of land in the Silurian, emphasizing origin and evolution of major groups and adaptations and changing composition and distribution of floras in relation to plate tectonics and climatic change.—I. (I.) Doyle  
(change in existing course—eff. fall 08)

**141. Principles of Systematics (3)**

Lecture—2 hours; independent study. Prerequisite: Biological Sciences 1A or 1C or 2B; course 100 recommended. Historical background, philosophical rationale, contemporary approaches, and working roles of biosystematics, including International Code of Zoological Nomenclature. Offered in alternate years. GE credit: SciEng, Wrt.—(III.) Shapiro  
(change in existing course—eff. fall 08)

**147. Biogeography (4)**

Lecture—3 hours; term paper. Prerequisite: Biological Sciences 1A and 1B, or 2B. Movements of terrestrial organisms. The role of geologic, climatic, and biologic changes in the geographic distribution of organisms. Offered in alternate years.—(I.) Shapiro  
(change in existing course—eff. fall 08)

## Exercise Biology

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### New and changed courses in Exercise Science (EXB)

#### Lower Division Course

**90C. Research Conference (1)**

Discussion—1 hour. Prerequisite: lower division standing in Exercise Biology or related biological science and consent of instructor; concurrent enrollment in course 99. Research findings and methods in exercise biology. Presentation and discussion of research by faculty and students. May be repeated for credit. (P/NP grading only.)—I, II, III. (I, II, III.)  
(new course—eff. fall 06)

#### Upper Division Courses

**110. Exercise Metabolism (3)**

Lecture—3 hours. Prerequisite: course 101 or Neurobiology, Physiology, and Behavior 101. Exercise metabolism with emphasis on skeletal muscle metabolism during activity and inactivity. Basics of bioenergetics, substrate utilization, and cell signaling; mechanisms that regulate these properties.—II. (II.) Spangenburg  
(change in existing course—eff. fall 06)

**111. Environmental Effects on Physical Performance (3)**

Lecture—2 hours; discussion/laboratory—3 hours. Prerequisite: courses 101 or consent of instructor. The effects of thermal, barometric and gravitational conditions on physiological function and physical performance of humans. Acute and chronic effects, emphasizing physiological adaptations and limitations, will be studied.—II. (II.) Shaffrath  
(change in existing course—eff. winter 07)

**112. Clinical Exercise Physiology (4)**

Lecture—3 hours; lecture/discussion—3 hours. Prerequisite: courses 101 or consent of instructor. Physical activity as a therapeutic modality is examined in normal and diseased populations (cardiovascular, pulmonary, diabetic). Assessment (graded exercise testing), exercise prescription and the effects of exercise conditioning are examined in detail.—II. (II.) Holly  
(change in existing course—eff. fall 06)

**117. Exercise and Aging in Health and Disease (3)**

Lecture—2 hours; discussion—1 hour. Prerequisite: course 101 or 113 (concurrently). Etiology of and standard therapy for various diseases associated with aging (e.g., cardiovascular, pulmonary, and renal diseases, diabetes, obesity, lipemias, etc.). Exercise will then be considered as a protective and/or therapeutic modality. GE credit: SciEng.—III. (III.) Shaffrath  
(change in existing course—eff. spring 07)

**118. Bionomics of Work: Physical Performance and Standards in the Workplace (3)**

(cancelled course—eff. fall 06)

**121. Sport Psychology (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 102. Consideration of major theories, research findings and methods of data collection in sport psychology through a critical examination of relevant experimental, clinical, and field data.—III. (III.) Salitsky  
(change in existing course—eff. spring 07)

**122. Psychological Effects of Physical Activity (3)**

Lecture—3 hours. Prerequisite: Psychology 1; upper division standing. Physical activity is evaluated in terms of its ability to enhance the quality of life. Topics studied include: individual factors (self concept, type A); special populations (elderly, cardiovascular); and mental health changes (depression, anxiety).—II. (II.) Salitsky  
(change in existing course—eff. winter 07)

**125. Neuromuscular and Behavioral Aspects of Motor Control (3)**

Lecture—2 hours; lecture/discussion—2 hours. Prerequisite: course 101. Factors which affect control of movement from neuropsychological, physiological, behavioral, and mechanical viewpoints. Topics include central vs. peripheral control mechanisms, open and closed loop theories, motor programming, cognitive learning strategies, and the effects of biochemical and biomechanical influences.—III. (III.) Bodine  
(change in existing course—eff. fall 06)

**146. Theory & Practice of Exercise Training (1)**

(cancelled course—eff. fall 06)

**146L. Shape Up Testing & Training Laboratory (1)**

(cancelled course—eff. fall 06)

**147L. Adult Fitness Training Laboratory (1)**

(cancelled course—eff. fall 06)

**148. Theory and Practice of Exercise Testing (1)**

Lecture/discussion—1 hour. Prerequisite: course 112 (may be taken concurrently). Theory and practice of exercise testing applied to older adult populations. Physiological responses to and limitations of exercise testing. Application of exercise testing and training to healthy and diseased populations. (P/NP grading only.)—I, III. (I, III.) Casazza  
(change in existing course—eff. fall 06)

**148L. Adult Fitness Testing Laboratory (1)**

Laboratory—3 hours. Prerequisite: courses 148 (concurrently). Testing symptomatic and asymptomatic older adults for functional aerobic capacity, body composition, blood lipids, pulmonary function, and cardiovascular disease risk. Counseling adults in appropriate exercise programs and lifestyle modifications. Two quarters minimum; third quarter permitted. May be repeated two times for credit. (Former course Physical Education 148L) (P/NP grading only.)—I, III. (I, III.) Casazza  
(change in existing course—eff. fall 06)

**149L. Cardiopulmonary Rehabilitation Laboratory (1)**

(cancelled course—eff. fall 06)

**179. Frontiers in Exercise Biology (3)**

Lecture—2 hours; discussion—1 hour. Prerequisite: courses 101, 102 and 103 (may be taken concurrently); 104L recommended. Lectures by leading authorities and discussion of the latest research in newly emerging areas in exercise biology. Offered every fourth year.—III.  
(new course—eff. spring 07)

**190C. Research Conference (1)**

Discussion—1 hour. Prerequisite: upper division standing in Exercise Biology or related biological science and consent of instructor; concurrent enrollment in course 199. Research findings and methods in exercise biology. Presentation and discussion of research by faculty and students. May be repeated for credit. (P/NP grading only.)—I, II, III. (I, II, III.)  
(new course—eff. fall 06)

## Film Studies

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### New and changed courses in Film Studies (FMS)

#### Upper Division Courses

**127. Film Theory (4)**

Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: course 1 or consent of instructor. Survey of the conceptual frameworks used to study film (including semiotics, psychoanalysis, spectatorship, auteur, genre and narrative theories). Historical survey of major film theorists. GE credit: ArtHum, Wrt.—III. (III.)  
(change in existing course—eff. fall 07)

**142. New German Cinema (4)**

Lecture/discussion—3 hours; extensive writing. German filmmakers of the 1960s-1980s such as Fassbinder, Herzog, Syberberg, Brückner, Schlöndorff, Kluge, Wenders. Knowledge of German not required. May be repeated for credit with consent of instructor. (Same course as German 142) GE credit: ArtHum, Wrt.—I. (I.) Fisher  
(change in existing course—eff. winter 06)

**176A. Classic Weimar Cinema (4)**

Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: Humanities 1. German Weimar (1919-1933) cinema. Fritz Lang, F.W. Murnau, and G.W. Pabst among others. Influence on world-wide (esp. Hollywood) film genres such as film noir, horror, science fiction, and melodrama. Not open for credit to students who have completed Humanities 176. Offered in alternate years. (Same Course as German 176A.) GE credit: ArtHum, Wrt.—I. Fisher  
(change in existing course—eff. fall 06)

## Food Service Management

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### New and changed courses in Food Service Management (FSM)

#### Upper Division Course

**120. Principles of Quantity Food Production (4)**

Lecture—3 hours; independent study—1 hour. Prerequisite: Food Science and Technology 100B and 101B. Restricted to upper division Clinical Nutrition students only. Fundamental principles of food service management, including quantity food preparation, institutional equipment, receiving and storage, service, menu planning, merchandising, and safety. Students will earn food safety certification.—III. (III.) Hudson  
(change in existing course—eff. spring 08)

## Forensic Science

### New and changed courses in Forensic Science (FOR)

#### Graduate Courses

##### 212. Scientific Evidence and Courtroom Testimony (3)

Lecture—2 hours; discussion—1 hour. Prerequisite: graduate students enrolled in the MS Forensic Science program or by consent of instructor. Explores the relationship between science and the criminal justice system. Admissibility of scientific testimony and documentary proof during the trial, concepts of relevancy, hearsay and opinion rule, examination of expert witnesses, impact of Kelley-Fry and Daubert decisions & court testimony. Limited enrollment.—III. (III.)

(new course—eff. fall 07)

##### 215. Forensic Fire and Arson Investigation (3)

Lecture—3 hours. Prerequisite: open only to students enrolled in the M.S. Forensic Science program or by consent of the Forensic Science Program Director. Principles and techniques of scientific investigation of fires and related crimes; offer peer-reviewed protocols for processing fire and explosion scenes; discuss recognition, collection, analysis of physical evidence, and describe the scientific method for decision-making in fire/arson investigation. Offered in alternate years.—(II.) DeHaan

(new course—eff. fall 07)

##### 221L. Forensic Science Analytical Instrumentation (2)

Lecture/discussion—1 hour; laboratory—3 hours. Methodology and instruments used for the analysis of substances of interest in the discipline of Forensic Science. Practical experience with modern instrumental techniques & methodologies used in the advanced forensic science laboratory. Limited to students accepted in the Forensic Science Graduate program or subject to the approval of the instructor if the student has the appropriate chemistry, calculus and physics courses required of students in the graduate forensic science program.—II. (II.)

(new course—eff. fall 07)

##### 268. Statistics in Forensic Science (3)

Lecture—3 hours. Prerequisite: consent of instructor. Restricted to students enrolled in the M.S. in Forensic Science Program or by consent of Forensic Science Program Director. Statistics that are used by the forensic scientist, their limitations/applications in presenting evidential results in such areas as DNA-STR results, trace evidence correlation, fingerprint statistics, population sampling and the Bayes method.—II. (II.) Stoney

(new course—eff. spring 06)

##### 281. Principles and Practice of Forensic DNA Typing (2)

Lecture—1 hour; laboratory/discussion—3 hours. Prerequisite: consent of instructor; course 278 or 280, or equivalent. Restricted to students enrolled in the M.S. in Forensic Science Program or by consent of Forensic Science Program Director. Overview of the principles underlying forensic DNA typing. Application in the laboratory using techniques to extract, quantify and type human DNA as found in forensic samples.—II, III. (II, III.)

(new course—eff. spring 06)

##### 293. Forensic Science Research Methodology (2)

Lecture—1.5 hour; extensive writing or discussion—0.5 hours. Prerequisite: graduate students enrolled in the MS Forensic Science program or by consent of instructor. Introduction to identification, formulation, and solution of meaningful scientific problems encountered in the Forensic Science area including experimental design and/or theoretical analysis of new and prevailing techniques, theories and hypotheses. Students will present and defend their thesis research/journal article proposals. Limited enrollment. (S/U grading only).—III. (III.)

(new course—eff. fall 07)

## French

### New and changed courses in French (FRE)

#### Lower Division Courses

##### 1A. Accelerated Intensive Elementary French (15)

Lecture/discussion—15 hours. Prerequisite: placement exam required. Special 12 week accelerated, intensive summer session course that combines the work of courses 1, 2, and 3. Introduction to French grammar and development of all language skills in a cultural context with emphasis on communicative ability. Not open for credit to students who have completed courses 1, 2, or 3.—IV. (IV.) Anderson

(new course—eff. summer session 1 06)

##### 53. French as a World Language (4)

Lecture/discussion—3 hours; term paper. The linguistic status of French and its function in multilingual societies and international arenas. Linguistico-political landscape of communities in Euroasia, Africa, and the Americas. Sociolinguistic concepts and emergence of French as a world language. Offered in alternate years. GE credit: Div, SocSci, Wri.—(II.) Anderson

(new course—eff. fall 07)

#### Upper Division Courses

##### 108. Modern French Culture (4)

Lecture—3 hours; extensive writing. Prerequisite: course 100 or consent of instructor. Survey of modern French culture from the Dreyfus affair to the present day. Topics may include women and French culture, decolonialization and modernization, education, social welfare and immigration.—Constable, Simon

(change in existing course—eff. fall 07)

##### 122. French and Francophone Film (4)

Lecture/discussion—4 hours; extensive writing; fieldwork—3 hours. Prerequisite: course 100 or consent of instructor. French and Francophone film from the Lumière Brothers to the present. Topics may include analysis of film form and narrative, major filmmakers and filmic traditions, and film theory. May be repeated one time for credit. Offered in alternate years. GE credit: ArtHum.—(I.) Constable, Fort

(new course—eff. fall 07)

##### 160. Linguistic Study of French—Sound and Form (4)

Seminar—3 hours; term paper. Prerequisite: Linguistics 1 and one of course 104, 105, 109, 110. Introduction to the linguistic study of modern French, with focus on sound structure and form, inflection and derivation.—II. (II.) Anderson, Russell Webb

(change in existing course—eff. fall 07)

##### 161. Linguistic Study of French—Form and Meaning (4)

Seminar—3 hours; term paper. Prerequisite: Linguistics 1 and one of course 104, 105, 109, or 110. Introduction to the linguistic study of modern French, with focus on sentence construction and constituency, meaning and discourse functions.—III. (III.) Anderson, Russell Webb

(change in existing course—eff. fall 07)

#### Graduate Courses

##### 200. Introduction to Graduate Study in French (2)

Seminar—2 hours. Prerequisite: graduate standing. An introduction to a range of methodologies and critical practices in the field of French Studies, including literature, culture, and linguistics. The course will cover basic principles of bibliographic research in the humanities. (S/U grading only).—I. (I.)

(change in existing course—eff. fall 07)

##### 201. History of French (4)

Seminar—3 hours; term paper. Presentation of the main changes in the grammatical structures of French, from Latin to contemporary usage, involving textual analysis and sociolinguistic description.—I. (I.) Anderson, Guynn, Russell Webb

(change in existing course—eff. fall 07)

##### 202. Topics in French Civilization (4)

Seminar—3 hours; term paper. Prerequisite: graduate standing. Interdisciplinary approach to the study of French and Francophone civilization from the Middle Ages to the present. Course content will vary by instructor. May be repeated for credit.—I. (I.) Simon

(new course—eff. fall 07)

##### 215. Topics in French and Francophone Film (4)

Seminar—3 hours; term paper. Prerequisite: graduate standing. Aspects of French and Francophone film from the Lumière Brothers through the present. Topics may include a specific historical period of filmmaking, film theories and the analysis of film form and narrative, and major filmmakers and filmic traditions. May be repeated two times for credit.—III. (III.) Constable, Van Den Abbeele

(new course—eff. fall 07)

##### 250A. French Linguistics I (4)

Seminar—3 hours; term paper. Theoretical approach to the forms and functions of French, with emphasis on phonology and morphology. Overview of current linguistic theories and their application to French. Offered in alternate years.—(II.) Anderson, Russell Webb

(change in existing course—eff. fall 07)

##### 250B. French Linguistics II (4)

Seminar—3 hours; term paper. Theoretical approach to the forms and functions of French, with emphasis on syntax and semantics. Overview of current linguistic theories and their application to French. Offered in alternate years.—(II.) Anderson, Russell Webb

(change in existing course—eff. fall 07)

##### 251. Topics in the Linguistic Study of French (4)

Seminar—3 hours; term paper. Prerequisite: course 201, 250A or 250B, or consent of the instructor. Questions relevant to the linguistic study of French, such as language acquisition, sociolinguistics, or theoretical examination of structure. Intended for students in French Linguistics and those applying linguistic models to literature or teaching. May be repeated for credit when topic differs.—III. (III.) Anderson, Russell Webb

(change in existing course—eff. fall 07)

##### 261. Current Issues in Modern French Syntax (4)

(cancelled course—eff. fall 07)

**291. Foreign Language Learning in the Classroom (4)**

Seminar—3 hours; project. Overview of approaches to university-level foreign language instruction and the theoretical notions underlying current trends in classroom practices across commonly taught foreign languages. (Same course as German 291 and Spanish 291.)—I, II, (I, II.) Anderson, Arnett, Blake, Iwasaki

(new course—eff. fall 06)

**Professional Courses****390C. The Teaching of French in College (2)**  
(cancelled course—eff. fall 07)**390D. Teaching Intermediate French (2)**  
(cancelled course—eff. fall 07)

## Geology

**New and changed courses in Geology (GEL)****Lower Division Courses****30. Fractals, Chaos and Complexity (3)**

Lecture/discussion—3 hours. Modern ideas about the unifying ideas of fractal geometry, chaos and complexity. Basic theory and applications with examples from physics, earth sciences, mathematics, population dynamics, ecology, history, economics, biology, computer science, art and architecture. Offered in alternate years. (Same course as Physics 30.) GE Credit: SciEng.—II. Rundle

(new course—eff. winter 08)

**81. Learning in Science and Mathematics (2)**

Lecture/discussion—2 hours; field work—2 hours. Exploration of how students learn and develop understanding in science and mathematics classrooms. Introduction to case studies and interview techniques and their use in K-6 classrooms to illuminate factors that affect student learning. Limited enrollment. (Same course as Education 81.) (P/NP grading only.)—I, II, III. (I, II, III.) Day, Passmore

(new course—eff. winter 07)

**92. Internship (1-12)**

Internship—3-36 hours. Prerequisite: consent of instructor; lower division standing. Work-learn experience on and off campus in all subject areas offered by the department. Internships supervised by a member of the faculty. May be repeated for credit up to 12 units. (P/NP grading only.)—I, II, III. (I, II, III.)

(new course—eff. fall 06)

**98. Directed Group Study (1-5)**

Prerequisite: consent of instructor. May be repeated for credit. May be repeated for credit up to three times. (P/NP grading only.)—I, II, III. (I, II, III.)

(new course—eff. fall 06)

**Upper Division Courses****116. The Oceans (3)**

(cancelled course—eff. winter 07)

**116G. The Oceans: Discussion (2)**

(cancelled course—eff. winter 07)

**116N. Oceanography (3)**

Lecture—2 hours; laboratory—3 hours; field work. Prerequisite: one of Geology 1, 2, 16 or 50.

Advanced oceanographic topics: Chemical, physical, geological, and biological processes; research methods and data analysis; marine resources, anthropogenic impacts, and climate change; integrated earth/ocean/atmosphere systems; weekly lab and one weekend field trip. Offered in alternate years. (Same course as Environmental Science & Policy 116N.)—(II.) Hill, McClain, Spero

(new course—eff. winter 07)

**136. Ecogeomorphology of Rivers and Streams (5)**

Lecture—1 hour; discussion/laboratory—2 hours; fieldwork; term paper or discussion. Prerequisite: upper division or graduate standing in any physical science, biological science, or engineering, and consent of instructor. Integrative multidisciplinary field analysis of streams. Class project examines hydrology, geomorphology, water quality and aquatic and riparian ecology of degraded and pristine stream systems. Includes cooperative two-week field survey in remote wilderness settings with students from diverse scientific backgrounds. Restricted to advanced students in the physical sciences, biological sciences, or engineering. No repeat credit.—III, IV. (III, IV.) Mount, Moyle

(change in existing course—eff. spring 05)

**181. Teaching in Science and Mathematics (2)**

Lecture/discussion—2 hours; field work—2 hours. Prerequisite: Geology 81/Education 81, previous experience in a K-12 classroom, or consent of instructor. Exploration of effective teaching practices based on examination of how middle school students learn math and science. Selected readings, discussion and field experience in middle school classrooms. (Same course as Education 181.) (P/NP grading only.)—I, II, III. (I, II, III.) Day, Passmore

(new course—eff. winter 07)

**Graduate Course****262. Paleobiology Graduate Seminar: Methodological Aspects (3)**

Lecture—1 hour; seminar—2 hours. One or more major methods used in the study of fossils: Morphometrics and three-dimensional reconstruction of fossils, phylogenetic methodology, the application of geochemical techniques, and electron microscopy. May be repeated four times for credit if topic varies.—III. (III.) Carlson, Motani, Vermeij

(new course—eff. spring 08)

## German

**New and changed courses in German (GER)****Lower Division Courses****1. Elementary German (5)**

Discussion—5 hours; laboratory—1 hour. Introduction to German grammar and development of all language skills in a cultural context with special emphasis on communication. Students who have successfully completed German 2 or 3 in the 10th or higher grade in high school may receive unit credit for this course on a P/NP grading basis only. Although a passing grade will be charged to the student's P/NP option, no petition is required. All other students will receive a letter grade unless a P/NP petition is filed. Not open to students who have taken course 1A.—I, II, III. (I, II, III.) Arnett

(change in existing course—eff. spring 07)

**1A. Accelerated Intensive Elementary German (15)**

Lecture/discussion—15 hours. Special 12 week accelerated, intensive summer session course that combines the work of courses 1, 2, and 3. Introduction to German grammar and development of all language skills in a cultural context with emphasis on communication. Not open to students who have completed courses 1, 2, or 3.—IV. (IV.) Arnett

(new course—eff. summer special session 06)

**2. Elementary German (5)**

Discussion—5 hours; laboratory—1 hour. Prerequisite: course 1. Continuation of course 1 in areas of grammar and basic language skills. Not open for credit to students who have taken course 1A.—I, II. (I, II.) Arnett

(change in existing course—eff. spring 07)

**3. Elementary German (5)**

Discussion—5 hours; laboratory—1 hour. Prerequisite: course 2. Completion of grammar sequence and continuing practice of all language skills through cultural texts. Not open to students who have taken course 1A.—I, II. (I, II.) Arnett

(change in existing course—eff. spring 07)

**Upper Division Courses****114. From Marlene Dietrich to Run, Lola Run: German Women and Film (4)**

Lecture/discussion—3 hours; extensive writing. Knowledge of German not required. Women in German film from the Weimar Republic to present, with special emphasis on conceptualizations of gender, historical and political context, aesthetic and filmic innovations. GE Credit: ArtHum, Wrt.—III. (III.) Krimmer

(new course—eff. spring 06)

**116. Readings in Jewish Writing and Thought in German Culture (4)**

Lecture—3 hours; term paper. Prerequisite: Religious Studies 23 or consent of instructor. Historical tradition of Jewish thought in the German cultural context; unique contributions of Jewish writers to culture of the German-speaking world; what it means to be "other" in the mainstream culture. No credit will be given to those students who have completed Humanities 121. May be repeated two times for credit if topic differs. Offered in alternate years. (Same course as Jewish Studies 116.) GE credit: ArtHum, Div, Wrt.—(I.)

(new course—eff. spring 07)

**134. Topics in German Intellectual History (4)**

Lecture/discussion—3 hours; term paper. Prerequisite: course 22. Topics in German intellectual history with materials from a number of periods, genres, and disciplines. May be repeated two times for credit when topic differs. GE credit: ArtHum.—I, III. (I, III.)

(change in existing course—eff. spring 06)

**142. New German Cinema (4)**

Lecture/discussion—3 hours; extensive writing. German filmmakers of the 1960s-1980s such as Fassbinder, Herzog, Syberberg, Brückner, Schlöndorff, Kluge, Wenders. Knowledge of German not required. May be repeated for credit with consent of instructor. (Same course as Film Studies 142) GE credit: ArtHum, Wrt.—I. (I.) Fisher

(change in existing course—eff. winter 06)

**176A. Classic Weimar Cinema (4)**

Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: Humanities 1. German Weimar (1919-1933) cinema. Fritz Lang, F.W. Murnau, and G.W. Pabst among others. Influence on world-wide (esp. Hollywood) film genres such as film noir, horror, science fiction, and melodrama. Not open for credit to students who have completed Humanities 176.

Offered in alternate years. (Same Course as Film Studies 176A.) GE credit: ArtHum, Wrt.—I. Fisher

(change in existing course—eff. fall 06)

**Graduate Course****291. Foreign Language Learning in the Classroom (4)**

Seminar—3 hours; project. Overview of approaches to university-level foreign language instruction and the theoretical notions underlying current trends in classroom practices across commonly taught foreign languages. (Same course as French 291 and Spanish 291.)—I, II. (I, II.) Anderson, Arnett, Blake, Iwasaki

(new course—eff. fall 06)

## Hebrew

### New and changed courses in Hebrew (HEB)

#### Lower Division Course

##### 1A. Accelerated Intensive Elementary Hebrew (15)

Lecture/discussion—15 hours. Special 12 week accelerated, intensive summer session course that combines the work of courses 1, 2, and 3. Introduction to Hebrew grammar and development of language skills in a cultural context with emphasis on communication. Not open to students who have completed course 1, 2, or 3.—IV. (IV.)

(new course—eff. spring 08)

## History

### New and changed courses in History (HIS)

#### Upper Division Courses

##### 102A-S, X. Undergraduate Proseminar in History (5)

Seminar—3 hours; term paper. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. (A) Ancient; (B) Medieval; (D) Modern Europe to 1815; (E) Europe since 1815; (F) Russia; (G) China to 1800; (H) China since 1800; (I) Britain; (J) Latin America since 1810; (K) American History to 1787; (L) United States, 1787-1896; (M) United States since 1896; (N) Japan; (O) Africa; (P) Christianity and Culture in Europe, 50-1850; (Q) India; (R) Muslim Societies; (S) Education Abroad Program; (X) Comparative History, selected topics in cultural, political, economic, and social history that deal comparatively with more than one geographic field. May be repeated for credit. Limited enrollment.—I, II, III. (I, II, III.)

(new course (S)—eff. spring 06)

##### 115F. History of North, Horn, Sudan and Nile Valley (North and North-East Africa) (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 15 or course 6 recommended. History of the northeast region of continental Africa, encompassing the Horn of Africa the Nile Valley and the Sudan, covering the ancient period to the present. May be repeated for credit up to four units. GE Credit: ArtHum, Div, SocSci, Wrt.—III. (III.) Brantley, Lawrence, Shakry

(new course—eff. spring 07)

#### Graduate Courses

##### 201A-L, N, P-Q, S-T, W, X. Sources and General Literature of History (4)

Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. (A) Ancient; (B) Medieval; (C) Renaissance and Reformation; (D) Early Modern Europe; (E) Europe since 1815; (F) China to 1880; (G) China since 1880; (H) Britain; (I) Latin America since 1810; (J) American History to 1787; (K) United States, 1787-1896 (L) United States since 1896; (N) Modern Japan; (P) African Historiography; (Q) Cross-Cultural Women's History; (S) History of Science and Medicine; (T) Jewish History; (W) Sources and General Literature of History; (X) World History. May be repeated for credit when different subject area is studied.

(new course—eff. spring 07)

##### 291C. Methods and Issues in Chinese History (4)

Seminar—2 hours; tutorial—1 hour. Prerequisite: reading knowledge of Chinese; consent of instructor. Readings in Chinese historical materials. Training in the use of Chinese reference works (including on-line resources). May be repeated for credit.—I. (I.) Bossler, Mann, Price

(change in existing course—eff. fall 07)

## Horticulture

### New and changed courses in Horticulture (HRT)

#### Graduate Course

##### 298. Group Study (1-5)

(new course—eff. fall 07)

## Human Development

### New and changed courses in Human Development (HDE)

#### Lower Division Courses

##### 13. Parenting (4)

(cancelled course—eff. spring 06)

##### 92. Internship (1-12)

Internship—3-36 hours. Prerequisite: field work experience or at least one course (e.g., course 100A, 100B, 140 or 140L) related to fieldwork assignment; consent of instructor. Supervised internship, off campus and on campus, in community and institutional setting. May be repeated for credit for a total of 12 units or if involves progressively greater (supervised) participation in program delivery or assessment. (P/NP grading only.)—I, II, III. (I, II, III.)

(change in existing course—eff. fall 06)

#### Upper Division Courses

##### 132. Individual Differences in Cognition (4)

Lecture—4 hours. Individual differences in cognition, including learning disabilities and giftedness. Education implications and neurodevelopmental substrates of individual differences in cognition.—II, III. (II, III.) Kraft

(change in existing course—eff. winter 07)

##### 141. Field Study With Children and Adolescents (4-6)

Lecture—2 hours, fieldwork—6-12 hours. Prerequisite: course 100A or 100B; consent of instructor. Study of children's affective cognitive and social development within the context of family/school environments, hospitals and foster group homes. May be repeated for credit for a total of 12 units.—I, II, III. (I, II, III.) Kraft, Ponzio

(change in existing course—eff. spring 06)

##### 142. Field Study with Emotionally Distressed Children and Adolescents (4-6)

Discussion—1.5 hours; fieldwork—6-12 hours. Prerequisite: course 130 (may be taken concurrently); consent of instructor. Field study with children who are identified as emotionally distressed, including those with internalizing and externalizing behavioral problems. May be repeated for credit for a total of 12 units following consultation with and consent of instructor.—II. (II.) Bryant

(change in existing course—eff. fall 06)

##### 180. Aging and Health (3)

(cancelled course—eff. spring 06)

#### Graduate Courses

##### 201. Social-Emotional Development in Infancy (4)

(cancelled course—eff. spring 08)

##### 212. Adaptation and Aging (3)

(cancelled course—eff. winter 07)

##### 213. Cross-Cultural Study of Children (3)

(cancelled course—eff. spring 08)

##### 221. Psychological Assessment of Children (4)

(cancelled course—eff. winter 08)

##### 222. Applied Research and Program Evaluation (3)

(cancelled course—eff. winter 07)

##### 237. Parent-Child Interaction (3)

(cancelled course—eff. spring 08)

##### 240. Peer Relationships During Adolescence (4)

Lecture/discussion—4 hours. Prerequisite: graduate standing in Human Development, Psychology, Education, or consent of instructor. Course examines the role of peer relationships in adolescent development including forms and functions at the individual, dyadic and group levels. Ethnicity and cross cultural research will be discussed. Emphasis on methodology, including surveys, peer nominations/sociometrics, experimental, and observational designs. Nishina

(new course—eff. spring 07)

##### 242. Adolescent Health Behavior: Theory and Programs (2)

(cancelled course—eff. spring 08)

##### 250. Current Research on Family Relationships (4)

Lecture/discussion—6 hours; term paper. Prerequisite: graduate standing in Human Development Graduate Group, Psychology, Sociology, a related social science, or permission of the instructor. Discussion of theories, methods, and current research on the nature and development of sibling, romantic, and parent-child relationships across the lifespan. Emphasis on interpersonal and family processes examined in ethnic/cultural contexts. Implications for individual development will be addressed.—III. Conger

(new course—eff. fall 06)

##### 252. Family Research, Programs and Policy (4)

Seminar—3 hours; term paper. Prerequisite: graduate standing in Human Development, Psychology, Sociology, related social sciences, or consent of instructor. Course examines the competing interests of research, policy, and service on current issues of family functioning and individual well being. The course considers communication barriers between researchers, practitioners, and policy makers. Offered in alternate years.—(III.) Conger

(new course—eff. spring 06)

##### 292. Graduate Internship (1-12)

Internship—3-36 hours. Prerequisite: consent of faculty (internship sponsor) and satisfactory completion of placement-relevant course work, for example: Education 213, 216; course 222, 242; Law 272, 273. Individually designed supervised internship, off campus, in community or institutional setting. Developed with advice of faculty mentor. May be repeated for credit up to 12 units if justified skill acquisition and promise of informing evaluation research. (S/U grading only.)—I, II, III. (I, II, III.)

(change in existing course—eff. fall 06)



## Human Physiology

### New and changed courses in Human Physiology (HPH)

#### Professional Courses

##### 400. Human Physiology (6)

Lecture—3 hours; laboratory—2 hours. Prerequisite: consent of Committee on Student Progress. Medical student only. General and cellular physiology of neurons, muscle, and epithelial cells and systemic physiology of cardiovascular, respiratory, gastrointestinal, and renal systems. (Deferred grading only, pending completion of sequence.) (P/F grading only.)—I, IV. (I, IV.) O'Donnell, Payne

(change in existing course—eff. summer 06)

##### 403. Medical Neuroanatomy (5)

Lecture—3 hours; laboratory—1 hour; discussion/laboratory—1 hour. Prerequisite: Successful completion of course 400, block 1; restricted to medical students only. Anatomy of the normal human nervous system, to include gross external and internal morphology of brain and spinal cord, and function neuroanatomy of motor, sensory and cognitive systems. Incorporates application of neuroanatomy to clinical problem solving. (Same course as Cell Biology and Human Anatomy 403.) (P/F grading only.)—IV. (IV.) Kumari

(change in existing course—eff. summer 07)

##### 405. Metabolism, Endocrinology, Reproduction and Nutrition (9.5)

Lecture—3.8 hours; discussion/laboratory—2.8 hours. Prerequisite: consent of instructor; medical students only. Basic and pathophysiological processes involved in human metabolic and nutritional regulation and in reproductive and endocrine control systems across the lifespan. Integrate information across these systems and use clinical reasoning process to identify and understand relevant perturbations and diseases. (Same course as Biological Chemistry 405, Internal Medicine 405, Obstetrics and Gynecology 405) (Deferred grading only, pending completion of sequence. P/F grading only.)—II, III. (II, III.) Kulkarni-Date, Sweeney, Towner, Turgeon  
(new course—eff. winter 07)

##### 493. Physiological Principles in SICU SSM (6)

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; restricted to UC Davis School of Medicine students only. Special Study Module, a four week course on the topic: Care of the Critically Ill Surgical Patient: Use of Physiological Principles to Guide Treatment of Patients with Common Surgical Problems. (Same course as Surgery 493C.) (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Cala, Holcroft

(new course—eff. winter 08)

## Humanities

### New and changed courses in Humanities (HUM)

#### Lower Division Course

##### 18. Performance and the 21st Century (4)

Lecture/discussion—3 hours; extensive writing. Live performance and globalization in the twenty-first century. Consideration of the cultural context of performing arts and artists including their methods of creativity. GE credit: ArtHum, Div, SocSci, Wrt.

(new course—eff. fall 07)

## Hydrologic Science

### New and changed courses in Hydrologic Science (HYD)

#### Lower Division Course

##### 10. Water, Power, Society (3)

Lecture—2 hours; discussion—1 hour. Water resources issues. How water has been used to gain and wield socio-political power. Water resources development in California as related to current and future sustainability of water quantity and quality. Roles of science and policy in solving water problems. (Same course as Science and Society 10.) GE credit: SciEng, SocSci, Wrt.—III. (III.) Fogg  
(change in existing course—eff. spring 05)

#### Upper Division Courses

##### 110. Irrigation Principles and Practices (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: Physics 5A; Soil Science 100 recommended. General course for agricultural and engineering students dealing with soil and plant aspects of irrigation and drainage. Soil-water movement and storage, plant responses to irrigation regimes, water use by crops; procedures for determining frequency and depth of irrigation, drainage. Not open for credit to students who have completed Water Science 110.—II. Schawankl, Grattan, Goldhamer

(change in existing course—eff. fall 07)

##### 110A. Irrigation Principles and Practices (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: Physics 7A; Soil Science 100 recommended. General course for agricultural and engineering students dealing with soil and plant aspects of irrigation and drainage. Course covers soil-water principles including water movement, plant responses to irrigation regimes, water use by crops; also irrigation systems and water quality. Not open for credit to students who have completed Water Science 110. Offered in alternate years.—III. Goldhamer, Grattan  
(change in existing course—eff. spring 08)

##### 115. Irrigation and Drainage Systems (4)

(cancelled course—eff. spring 08)

##### 122. Biology of Running Waters (3)

(cancelled course—eff. fall 07)

##### 122L. Biology of Running Waters Laboratory (2)

(cancelled course—eff. fall 07)

##### 124. Plant-Water-Soil Relationships (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: one upper division course in soil science, such as Soil Science 100; and one upper division course in plant science or plant biology, such as Plant Biology 111; or consent of instructor. Principles of plant interactions with soil and atmospheric water environments and practical applications to crop management (e.g., irrigation) and plant eco-physiology (e.g., drought). Not open for credit to students who have completed Water Science 104.—III. (III.) Shackel

(change in existing course—eff. spring 08)

##### 143. Hydrological Processes in Ecosystems (3)

Lecture—3 hours. Prerequisite: course 141 or Environmental and Resource Science 100. Movement and storage of water are integral parts of landscape and ecosystem functioning. Hydrological processes in individual ecosystems and the role of water linking the myriad components of the landscape.—(II.) Pasternack

(change in existing course—eff. fall 07)

##### 151. Field Methods in Hydrology (4)

Lecture—2 hours; laboratory—3 hours; fieldwork—3 hours. Prerequisite: Environmental and Resource Sciences 100 or course 141. Measurement methods and data analysis for evaluation of water storage, movement and contamination in the field. Equipment such as data loggers, water and sediment samplers, pressure transducers, weather stations, surveying equipment, and flow meters will be used.—II. Pasternack

(change in existing course—eff. fall 07)

#### Graduate Course

##### 286. Selected Topics in Environmental Remote Sensing (3)

Discussion—2 hours; lecture—1 hour; project. Prerequisite: consent on instructor; Environmental and Resource Sciences 186 or equivalent required; Environmental and Resource Sciences 186L recommended. In depth investigation of advanced topics in remote sensing applications, measurements, and theory. May be repeated for credit. Not offered every year.—Ustin

(change in existing course—eff. winter 07)

## Immunology

### New and changed courses in Immunology (IMM)

#### Lower Division Course

##### 94. Introduction to Undergraduate Research (1)

Seminar—1 hour. Prerequisite: course 9, consent of instructor and completion of 45 units with a minimum GPA of 3.500; limited to sophomores who participated in the Integrated Studies Honors Program during their freshman year and other students by consent of instructor. The nature of research at the undergraduate level. Limited enrollment. (P/NP grading only.)—II. (II.)

(new course—eff. winter 08)

#### Graduate Courses

##### 201L. Advanced Immunology Laboratory Rotations (5)

Lecture/discussion—15 hours. Two five-week assignments in immunology research laboratories. Individual research problems with emphasis on methodological/procedural experience and experimental design. May be repeated two times for credit. (S/U grading only.)—I, II. (I, II.) Baumlner  
(new course—eff. fall 07)

##### 297. Mucosal Immunology (2)

Lecture—1 hour; discussion—1 hour; term paper. Prerequisite: course 201 or equivalent. Basic concepts and current research topics in the field of mucosal immunology, with an emphasis on human immunology. Major emphases include innate and adaptive mucosal immunity, the gastrointestinal tract, the lung, lymphocyte trafficking, and mucosal vaccination. Not offered every year.—II. Shacklett

(new course—eff. summer session 1 06)

## Integrated Studies

### New and changed courses in Integrated Studies (IST)

#### Lower Division Course

##### 90. Seminar (1)

Seminar—1 hour. Prerequisite: course 9; consent of instructor; completion of 45 units with a minimum GPA of 3.250. Interrelation between the arts and sciences, focusing on a special topic. Limited to sophomores who participated in the Integrated Studies Honors Program during their freshman year and transfer students by consent of instructor. (P/NP grading only).—I. (I.)

(new course—eff. fall 07)

## International Agricultural Development

### New and changed courses in International Agricultural Development (IAD)

#### Upper Division Courses

##### 104. Gender and Environment in the Developing World (4)

(cancelled course—eff. spring 08)

##### 160. Agroforestry: Global and Local Perspectives (3)

Lecture/discussion—3 hours. Prerequisite: Plant Sciences 2 or Biological Sciences 1C; Plant Biology 142 or a general ecology course (Environmental Science and Policy 100). Traditional and evolving use of trees in agricultural ecosystems; their multiple roles in environmental stabilization and production of food, fuel, and fiber; and socioeconomic barriers to the adoption and implementation of agroforestry practices. Not open for credit to students who have taken Agricultural Management and Rangeland Resources 160. (Same course as Plant Sciences 160.) Offered in alternate years.—I. Gradziel

(change in existing course—eff. winter 07)

##### 162. Field Course in Tropical Ecology and Sustainable Agricultural Development (8)

Lecture—20 hours; discussion—10 hours; field work—30 hours. Prerequisite: consent of the instructor; Biological Sciences 1C required; Biological Sciences 1A or 1B or course 10 recommended; limited enrollment, acceptance based on academic merit, personal experience, and academic discipline in order to provide a multidisciplinary atmosphere. International Field Course. Tropical Ecology of various ecosystems; Agricultural systems in the tropics; Sustainable agriculture uniting ecology and agriculture, language and culture, trips to field research stations and ecotourism field trips required. No credit given to students who have taken Pomology 162. GE credit: Div, SciEng, Wrt.—IV. (IV.)

(change in existing course—eff. spring 07)

##### 195B. Field Study in Agricultural Development—Mexico (3)

(cancelled course—eff. spring 08)

## Italian

### New and changed courses in Italian (ITA)

#### Lower Division Course

##### 1A. Accelerated Intensive Elementary Italian (15)

Lecture/discussion—15 hours. Special 12-week accelerated, intensive summer session course that combines the work of courses 1, 2, and 3. Introduction to Italian grammar and development of all language skills in a cultural context with emphasis on communicative ability. Not open for credit to students who have completed courses 1, 2, or 3.—IV. (IV.) Bassi, Grossi

(new course—eff. summer special session 06)

## Japanese

### New and changed courses in Japanese (JPN)

#### Upper Division Courses

##### 151. Japanese Linguistics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1, 2, and 3 or equivalent. Introduction to Japanese linguistics, featuring key aspects of the Japanese language. Analysis of Japanese from the perspectives of phonology, syntax, discourse analysis, sociolinguistics and psycholinguistics. GE Credit: ArtHum, Div, Wrt.—I. (I.) Iwasaki

(new course—eff. fall 06)

##### 152. Traditional Japanese Drama (4)

Lecture—3 hours; discussion—1 hour. Survey in English of Japanese drama, focusing on traditional forms: noh, kyōgen, bunraku puppet theater, and kabuki, with some attention to modern theater. Texts of plays and secondary works on performance techniques and the composition of plays. GE Credit: ArtHum, Div, Wrt.—(III.) Sorensen

(new course—eff. fall 07)

##### 156. Japanese Literature on Film (4)

Lecture—3 hours; discussion—1 hour. Survey of films based on works of Japanese literature, emphasis on pre-modern and early modern texts. Introduction to major directors of Japan, with a focus on cinematic adaptation. Lectures and readings in English. Films in Japanese with English subtitles. Offered in alternate years. GE Credit: ArtHum, Div, Wrt.—(III.) Sorensen

(new course—eff. fall 07)

## Jewish Studies

### New and changed courses in Jewish Studies (JST)

#### Upper Division Course

##### 116. Readings in Jewish Writing and Thought in German Culture (4)

Lecture—3 hours; term paper. Prerequisite: Religious Studies 23 or consent of instructor. Historical tradition of Jewish thought in the German cultural context; unique contributions of Jewish writers to culture of the German-speaking world; what it means to be "other" in the mainstream culture. No credit will be given to those students who have completed Humanities 121. May be repeated two times for credit if topic differs. Offered in alternate years. (Same course as German 116.) GE credit: ArtHum, Div, Wrt.—(I.)

(new course—eff. spring 07)

## Landscape Architecture

### New and changed courses in Landscape Architecture (LDA)

#### Lower Division Courses

##### 1. Sustainable Development: Theory and Practice (4)

Lecture—2 hours; discussion—2 hour. Origins, theoretical perspectives, and practical applications of the concept of sustainable development at a number of scales (site, building, neighborhood, city, region, and nation) through lectures, sketch exercises, student projects, walking tours. GE credit: SocSci, Wrt.—II. (II.) Wheeler

(new course—eff. winter 08)

##### 50. Site Ecology (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: Biological Sciences 1A, 2A or 10 or an introductory course in biology, botany, or plant science; priority given to Landscape Architecture majors. Introduction to ecological concepts, including nutrient dynamics, population regulation, community structure, ecosystem function. Principles will be applied to human activities such as biological conservation, ecological restoration, landscape planning, and management. Weekly laboratory devoted to field exercises in local ecosystems. GE credit: SciEng.—III. (III.) Greco

(change in existing course—eff. fall 08)

##### 61. AutoCAD for Landscape Architects (4)

Lecture—2 hours; laboratory—4 hours. Prerequisite: Agricultural Management and Range Resources 21 or equivalent with consent of instructor. Priority given to Landscape Architecture majors. Introduction of computer-aided drafting (CAD) techniques and their application to landscape design. Drawing set-up, layer control, basic drawing and editing commands, dimensioning and text styles, symbol libraries, and display commands used in the creation of landscape architectural drawings.—I, II, III, IV. (I, II, III, IV.)

(new course—eff. summer session 1 06)

##### 98. Directed Group Study in Landscape Architecture (1-5)

Prerequisite: consent of instructor. Directed group study. (P/NP grading only.)

(new course—eff. fall 08)

##### 99. Special Study for Undergraduates in Landscape Architecture (1-5)

Prerequisite: consent of instructor. (P/NP grading only.)

(new course—eff. fall 08)

#### Upper Division Courses

##### 150. Geographic Information Systems for Land Planners (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: Agricultural Management and Range Resources 21 or equivalent with consent of instructor. Priority given to Landscape Architecture majors. Basic concepts, principles, and methods of GIS in relation to land planning applications. Data structures, database design, GIS data creation, and spatial analysis techniques are emphasized. Lab topics include: online data sources, aerial photography, cartographic design, and graphic communication. Not open to credit for students who have completed Applied Biological Systems Technology 180 or 185 or course 50 or 185 (in spring 2004 or 2005).—III. (III.) Greco

(new course—eff. fall 06)

**180K. Special Topics in Landscape Architecture: Social Factors in Landscape Architecture (2)**

Lecture—2 hours. Prerequisite: Psychology 155 and upper division standing. Concepts in environmental psychology as they relate to landscape architecture. Discussion of needs of various user groups of a land area. Introduction to post occupancy evaluations. Offered in alternate years.—I. Owens  
(change in existing course—eff. fall 08)

**180P. Special Topics in Landscape Architecture: Water in Community Planning and Design (2)**

Lecture—2 hours. Prerequisite: course 50 or equivalent with consent of instructor. Upper division standing or above. Priority given to Landscape Architecture majors. Theories, policies, methods, and resources related to the integration of water resources management with urban/community planning and landscape design including water use/demand, quality, treatment, conservation, and storm water/drainage. Offered in alternate years.—(I.) Loux  
(new course—eff. fall 06)

**181K. Special Topics in Landscape Architecture: Social Factors in Landscape Architecture (3)**

Studio—6 hours. Prerequisite: Psychology 155, course 170, 180K concurrently; upper division standing. Application of design theory and methods to real-world projects. Familiarize students with the major concepts in environmental psychology as they relate to landscape architecture; to discuss the needs of various user groups; and post occupancy evaluations. Open to Landscape Architecture majors only. Offered in alternate years.—I. Owens  
(change in existing course—eff. fall 08)

**181P. Special Topics in Landscape Architecture: Water in Community Planning and Design Studio (3)**

Studio—6 hours. Prerequisite: courses 50 and 61 (or equivalent courses with consent of instructor); course 170; course 180 concurrently. Priority given to Landscape Architecture majors. Application of design theory and methods to community and site scale projects associated with course 180P. Offered in alternate years.—(I.) Loux  
(new course—eff. fall 06)

**185. Concepts and Methods in Geographic Information Systems (4)**

(cancelled course—eff. fall 08)

**Graduate Course**

**205. Physical Planning and Design (4)**

Lecture—2 hours; discussion—2 hours. Regulation, design, and development of the built landscape, planning and land development processes, zoning and subdivision regulation, site planning, urban design goals and methods, public participation strategies, creatively designing landscapes to meet community and ecological goals. Limited to graduate students. Not offered every year.—Wheeler  
(new course—eff. fall 07)

**Law**

**New and changed courses in Law (LAW)**

**Graduate Courses**

**201. Property (4)**

Discussion—4 hours. A study of doctrines and concepts of property law with primary emphasis on real property. Course coverage includes: the estates in land system; the landlord-tenant relationship, conveying, and private and public land use control.  
(change in existing course—eff. fall 06)

**207. Legal Research and Writing I (2)**

Discussion/laboratory—2 hours. This fall semester course taught by Wydick Fellowship Program faculty is an integrated legal research and writing skills course. Basic legal research resources and strategies are introduced and practiced.  
(change in existing course—eff. fall 07)

**207A. Legal Research (LLM) (1)**

Discussion—1 hour. A description of the evolution and use of sources of law and secondary authority. LL.M. students only.  
(new course—eff. fall 07)

**208. Legal Research and Writing II (2)**

Discussion—2 hours. Focuses on persuasive writing and oral advocacy. Students will complete integrated research and writing assignments, including a complaint, a strategic defense office memorandum, a motion to dismiss in federal court, and an appellate brief, with oral arguments by all students.  
(change in existing course—eff. fall 07)

**209A. Patent Law (3)**

Discussion—30 hours. Prerequisite: course 274 or consent of instructor. This course covers all essential aspects of patent law: prosecution, patentable subject matter, utility, disclosure and enablement, novelty, statutory bars, nonobviousness, infringement, and remedies.  
(change in existing course—eff. fall 06)

**212A. Medical Liability Law and Policy (2)**

Discussion—2 hours. This course will consider the many ways in which society seeks to establish and maintain quality in patient care.  
(new course—eff. fall 07)

**214. Estate and Gift Tax (3)**

Discussion—3 hours. Prerequisite: course 220; course 221 recommended. Fundamentals of federal transfer taxation, including the estate tax, the gift tax, and the generation-skipping transfer tax.  
(change in existing course—eff. fall 06)

**222. Critical Race Theory Seminar (2)**

Discussion—2 hours. Examines race relations and racial discrimination in America through the perspectives of proponents of the Critical Race Theory movement ("CRT"), a collection of legal scholars who challenge both conservative and liberal political orthodoxies.  
(change in existing course—eff. spring 08)

**227B. Advanced Criminal Procedure (3)**

Discussion—3 hours. Examines a range of issues, including bail, charging decisions, preliminary hearings, discovery, statute of limitations, venue, joinder and severance, pleas, plea bargaining, assistance of counsel, trial, double jeopardy, sentencing, appeal and collateral remedies.  
(change in existing course—eff. fall 07)

**228. Business Planning and Drafting (3)**

Discussion—3 hours. Prerequisite: course 215 or consent of instructor; course 220 or consent of instructor; prerequisites for this class are rarely waived, do not register for the course unless you have satisfied them or received advance approval from the professor waiving them with respect to you. Acquaints students with a range of business transactions frequently encountered by lawyers representing business clients and/or individuals of moderate or large wealth. Limited enrollment.  
(change in existing course—eff. fall 07)

**228A. Mergers and Acquisitions Law (3)**

Discussion—3 hours. Practical approach to mergers and acquisitions, with an in-depth look at the planning, negotiation and completion of mergers and acquisitions. Areas explored will include principal acquisition methods, transaction structures, corporate and securities laws, fiduciary duties and legal and regulatory concerns.  
(change in existing course—eff. fall 07)

**229. Scientific Evidence (3)**

Discussion—3 hours. Prerequisite: course 219. In addition to examining the evidence law governing the admission of scientific testimony, this course considers trial advocacy in presenting and attacking such testimony. Limited enrollment.  
(change in existing course—eff. fall 07)

**230. International Environmental Law (3)**

Discussion—3 hours. Prerequisite: prior course work in environmental law and/or international law helpful. Provides an overview of the structure and basic principles of international environmental law and policy.  
(new course—eff. fall 07)

**231A. Sexual Orientation, Gender Identity, and the Law (2)**

Discussion—2 hours. Examines legal and social regulation of sexual orientation and gender identity.  
(change in existing course—eff. fall 07)

**235. Administrative Law (3)**

Discussion—3 hours. Examines how the U.S. Constitution and the federal Administrative Procedure Act constrain and regulate decision making by government agencies and officials.  
(change in existing course—eff. fall 07)

**235T. Public Regulatory Law (3)**

Discussion—3 hours. Provides an introduction to techniques of government regulation, principles of statutory interpretation, and judicial review of administrative agency rulemaking.  
(new course—eff. fall 07)

**242. Conflict of Laws (3)**

Discussion—3 hours. A study of how law operates across state and national borders. The topics covered include choice of applicable law in transactions involving multiple jurisdictions, recognition of judgments, and the exercise of jurisdiction.  
(change in existing course—eff. fall 07)

**245. White Collar Crime (2)**

Discussion—2 hours. The law of conspiracy, corporate criminal liability, mail and wire fraud, RICO, money laundering, and other business and environmental crimes and associated defenses.  
(change in existing course—eff. spring 08)

**247. Taxation of Partnerships and LLCs (3)**

Discussion—3 hours. Prerequisite: course 220. The federal income taxation of business entities whose owners are taxed on the income, deductions and losses of the entity on a pass-through basis.  
(change in existing course—eff. fall 07)

**247B. Corporate Tax (3)**

Discussion/laboratory—3 hours. Federal income tax relationship between corporations and federal income tax relationship between corporations' owners.  
(change in existing course—eff. spring 08)

**248. Public International Law (3)**

Discussion—3 hours. Introductory course covers basic international law concepts and the law-making process.  
(change in existing course—eff. fall 07)

**248B. International Human Rights (2)**

Discussion—2 hours. Prerequisite: course 205. This course examines laws, theories, and institutions relating to international human rights.  
(change in existing course—eff. fall 07)

**250T. Asian American Jurisprudence (3)**

Discussion—3 hours. Legal, social, and political discourse on race relations has traditionally been framed in Black-White terms. This course disrupts the traditional view by taking Asian Americans seriously.  
(new course—eff. fall 07)

**254T. Law and Rural Livelihoods Seminar (2)**

Seminar—2 hours. Provides a broad overview of law as it relates and applies to rural people and places.

*(new course—eff. fall 07)*

**259. Feminist Legal Theory (2)**

Discussion—2 hours. Provides an overview of feminist legal theory and considers how its various strands inform legislative and judicial law making. Satisfies Advanced Writing Requirement.

*(change in existing course—eff. spring 08)*

**259A. Women, Islam and the Law (2)**

Seminar—2 hours. This course will study legal and religious reform movements for women's rights within Muslim communities in the context of current scholarly and political debates about fundamentalism, democracy, equality, secularism, universalism, and multiculturalism. This is a limited enrollment seminar.

*(change in existing course—eff. fall 07)*

**259P. Women and the Law Practicum (1)**

Discussion/lecture. Prerequisite: prior or concurrent enrollment in course 259. Complements the content of the feminist legal theory course by providing students the opportunity to consider how feminist theory may be used to inform law-making.

*(new course—eff. fall 07)*

**259T. Women, Islam and the Law (2)**

Seminar—2 hours. This course will study legal and religious reform movements for women's rights within Muslim communities in the context of current scholarly and political debates about fundamentalism, democracy, equality, secularism, universalism, and multiculturalism. This is a limited enrollment seminar.

*(new course—eff. fall 06)*

**260. Employment Discrimination (3)**

Discussion—3 hours. Examination of federal and California laws prohibiting employment discrimination, including Title VII of the Civil Rights Act of 1964, Equal Pay Act, Age Discrimination in Employment Act, the ADA, the Rehabilitation Act, and the California Fair Employment and Housing Act.

*(change in existing course—eff. fall 07)*

**261. Judicial Process (2)**

Discussion—2 hours. Examines a variety of issues concerning the judicial process. Focus is on judge's role in the legal process, the administration of justice, ethical issues, decision making, bias, and critical examination of the strengths and weaknesses in our current judicial system.

*(change in existing course—eff. fall 08)*

**262. Antitrust (3)**

Discussion—3 hours. A study of the federal antitrust laws, including the rules against price fixing, market division, limits on distribution, tying arrangements, monopolization and exclusive dealing.

*(change in existing course—eff. fall 07)*

**263A. Trial Practice I (3)**

Discussion—2 hours; laboratory—1 hour. Prerequisite: course 219, may be taken concurrently. Introduction to the preparation and trial of cases, featuring lectures, videotapes, demonstrations, assigned readings and forensic drills. Laboratory held on Tuesday, Wednesday, and Thursday evening. Limited enrollment.

*(change in existing course—eff. fall 07)*

**264A. Ocean and Coastal Law (2)**

Discussion—2 hours. An introduction to the goals and challenges of coastal and ocean policy.

*(change in existing course—eff. fall 07)*

**266A. Law of E-Commerce (2)**

Discussion—2 hours. The legal issues that are emerging as crucial to the conduct of business in cyberspace. Discussion of the evolution and current administration of the Internet and the World Wide Web.

*(change in existing course—eff. fall 07)*

**272. Family Law (3)**

Discussion—3 hours. An introduction to the legal regulation of the family.

*(change in existing course—eff. fall 07)*

**274. Intellectual Property (3)**

Discussion—3 hours. Provides a broad survey of intellectual property law.

*(change in existing course—eff. fall 07)*

**275. Complex Litigation (2)**

Discussion—2 hours. Issues that frequently arise in large complex litigation involving multiple parties and multiple claims.

*(new course—eff. spring 07)*

**277T. Indian Gaming Law Seminar (2)**

Seminar—2 hours. Examines unique historical, political and legal context in which Indian tribes operate casinos, including impacts on tribal sovereignty, relations between tribes, states and local governments and changing relationships among the tribes themselves members, with particular reference to experience of California.

*(new course—eff. fall 07)*

**283. Remedies (3)**

Discussion—2 hours. Survey of modern American civil remedies law in both private and public law contexts. Topics addressed include equitable remedies, equitable defenses, contempt power, injunctive relief, restitution, and money damages in torts and contracts.

*(change in existing course—eff. winter 08)*

**285A. Environmental Justice Seminar (2)**

*(cancelled course—eff. fall 06)*

**285D. Farmworkers and the Law (2)**

Discussion—2 hours. Provides an overview of California and federal laws impacting farmworkers and how such laws have been applied to regulate working conditions in agriculture.

*(change in existing course—eff. fall 06)*

**286A. Topical Issues in Health Law (2)**

Seminar—2 hours. The course focuses on four-six issues at the interface of law, medicine, bioethics, and health policy that are currently the subject of major litigation, legislation, and/or contentious debate in the domains of bioethics and public policy. Limited enrollment.

*(change in existing course—eff. fall 06)*

**286B. Health Law (3)**

Discussion—3 hours. The course addresses legal issues raised in three general areas access to health care, health care financing, and quality of care.

*(change in existing course—eff. fall 06)*

**286C. Bioethics (3)**

Discussion—3 hours. Course examines the ethical and legal issues that arise from biomedical research and use of medical technologies. Limited enrollment. GE Credit: Wrt.

*(change in existing course—eff. fall 06)*

**286E. Reproductive Health Law and Policy (2)**

Seminar—2 hours. Addresses a variety of laws and practices that affect reproductive health and procreative decision making. Limited enrollment.

*(new course—eff. fall 07)*

**288B. Supreme Court Simulation Seminar (2)**

Seminar—2 hours. Consideration in depth of approximately nine cases involving constitutional law that will be decided during the present term of the U.S. Supreme Court. Limited enrollment.

*(new course—eff. spring 08)*

**290. International Trade Dispute Seminar (2)**

Seminar—2 hours. The WTO and other regional trading agreements, particularly the NAFTA, provide mechanisms for resolution of trade disputes. Students are introduced to economic, political, and legal theories underlying establishment of such bodies.

*(change in existing course—eff. fall 07)*

**295A. Trademark and Unfair Competition Law (2)**

Discussion—2 hours. Prerequisite: course 274 recommended. We will take an intensive look at selected issues in Trademark Law, including the concepts of trademarks and unfair competition, acquisition and loss of trademark rights, infringement, trademarks as speech, and international aspects of trademark protection.

*(change in existing course—eff. fall 07)*

**297. Alternative Dispute Resolution (3)**

Discussion—3 hours. Introduces students to a wide variety of alternative dispute resolution procedures, with an emphasis on negotiation, mediation and arbitration. Limited enrollment.

*(change in existing course—eff. fall 07)*

**Professional Courses****408A. Educational Policy and the Law Seminar (2)**

Seminar—2 hours. Prerequisite: course 235 recommended. Examines the interaction between policy and the law of various educational themes such as the "right" to an education, financial equalization, merit and testing, privatization of education, and educational access. Limited enrollment.

*(change in existing course—eff. fall 07)*

**410C. Appellate Advocacy Seminar (2)**

*(cancelled course—eff. fall 06)*

**411C. UC Davis Business Law Journal (1-2)**

Run by dedicated law students who are committed to providing current and valuable legal and business analysis. The Journal addresses a broad spectrum of issues that fall within the intersection of business and the law. May be repeated two times for credit. (S/U grading only.)

*(new course—eff. spring 07)*

**418. Environmental Law and Policy Journal (1-2)**

Independent study. Each year nearly 100 King Hall students work together to publish *Environs*. Getting involved with the journal will provide you with the chance to develop essential skills that will benefit you throughout school and career. (S/U grading only.)

*(change in existing course—eff. fall 07)*

**420. Civil Rights Clinic (2-6)**

Clinical program. Prerequisite: prior or concurrent enrollment in course 219; priority given to students enrolled in or have taken course 267. Clinic provides practical experience in providing legal services to indigent clients who have filed civil rights actions in state and federal trial and appellate courts. Students work on clinical cases under the supervision of the clinic director. Limited enrollment. May be repeated for credit. Students may receive a maximum of 14 units for the civil rights offerings (substantive course—2 units; clinic—12 units); units may be earned over more than one semester. (S/U grading only.)

*(change in existing course—eff. fall 07)*

**499B. Law Students Study Away (10)**

Independent study. Students studying away from UC Davis, School of Law. (S/U grading only.)  
(new course—eff. fall 07)

## Linguistics

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### New and changed courses in Linguistics (LIN)

#### Lower Division Courses

**4. Linguistics for Students of Literature (4)**  
(cancelled course—eff. fall 08)

#### 6. Language and Society (4)

Lecture—3 hours; discussion—1 hour. Language as a social phenomenon. Topics include linguistic diversity, language policy, language and identity, language and social structure, speech communities and social networks, the effect of social factors on language variation, linguistic consequences of language contact. GE Credit: Div, SocSci, Wri.—I, II. (I, II.) Bayley, Ramanathan  
(new course—eff. fall 08)

#### 24. English Structures and Strategies in Academic Writing (4)

Lecture/discussion—4 hours. Prerequisite: course 23. Practice in academic writing designed to prepare undergraduate students from language backgrounds other than English for successful academic work. Development of academic writing, critical thinking, and reading skills. Development of clear, accurate language for presenting an effective argument. Open to students from language backgrounds other than English.—I, II, III. (I, II, III.) Samsel  
(new course—eff. fall 06)

#### Upper Division Courses

#### 111. Introduction to Phonological Theory (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 103A. Contemporary phonological theory with emphasis on syllable structure, metrical structure, phonology-morphology interaction, and typological variation in these areas, from the perspective of optimality-theoretic approaches.—II. Orgun  
(change in existing course—eff. spring 08)

#### 112. Phonetics (4)

Lecture—3 hours; term paper. Prerequisite: course 1. Detailed examination of articulatory and acoustic phonetics.—I. (I.) Orgun  
(change in existing course—eff. spring 08)

#### 131. Introduction to Syntactic Theory (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 103B. Introduction to syntactic theory, primarily through the examination of a major theory of syntax, emphasizing theoretical reasoning, argumentation, and problems of theory building in syntax.—I. (I.) Aranovich, Farrell  
(change in existing course—eff. spring 08)

#### 173. Language Development (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or consent of instructor; courses 103A, 103B. Theory and research on children's acquisition of their native language, including the sound system, grammatical systems, and basic semantic categories. (Same course as Education 173.)—(III.) Uchikoshi  
(change in existing course—eff. spring 07)

## Graduate Courses

#### 265. Language, Performance, and Power (4)

Seminar—3 hours; term paper. Graduate standing or consent of instructor. Exploration of the intersection between linguistic and social theories in the language-state relation and the performance of identity. Ideological sources of language differentiation; nation-building and linguistic difference. Political economic, sociolinguistic, and ethnographic approaches to understanding linguistic inequality. (Same course as Anthropology 265.) Offered in alternate years.—III. Shibamoto Smith  
(change in existing course—eff. fall 03)

#### Professional Courses

#### 300. Language Pedagogy (4)

Lecture—3 hours; tutorial; project; practice. Prerequisite: graduate standing; admission to MA in Applied Linguistics program or consent of instructor. Methods of teaching second languages to nonnative speakers, stressing particularly recent linguistic methodology and techniques. Teaching and tutoring in the UC Davis ESL program.—I. (I.) Menard-Warwick  
(change in existing course—eff. fall 07)

#### 301. Teaching Academic Literacy (4)

Seminar—3 hours; tutorial—14 hours; project; practice. Prerequisite: graduate standing; course 300 or consent of instructor. Methods of teaching advanced academic literacy in a second language, with a focus on ESL composition. Lesson development, teaching and tutoring in the UC Davis ESL program.—II. (II.) Ramanathan  
(change in existing course—eff. fall 07)

#### 305. Second Language Literacy and Technology (4)

Lecture/discussion—1.5 hours; web electronic discussion—1.5 hours. Prerequisite: course 2, or equivalent coursework/experience in second language pedagogy; consent of instructor; graduate students only. Exploration of literacy theory and critical pedagogy in relation to new instructional and communication technologies. Practicum experience in teaching second language literacy; reflection on connections between theory and practice. Limited enrollment. Offered in alternate years.—(III.) Menard-Warwick  
(new course—eff. fall 07)

#### 310. Language Pedagogy for Teacher Educators (4)

Seminar—3 hours; tutorial; project; fieldwork. Prerequisite: admission to Ph.D. program in Linguistics or Foreign Languages, or permission of instructor; significant language teaching experience. Current issues in second language pedagogy, with a focus on communicative methodology, participatory curriculum design, academic literacy, and the social contexts of teaching. Emphasis on reflective teaching and action research. May be repeated up to 12 units for credit.—I, II, III. (I, II, III.) Menard-Warwick, Ramanathan  
(change in existing course—eff. fall 07)

## Management

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### New and changed courses in Management (MGT/MGP)

#### Professional Courses

#### 498. Directed Group Study Management Practicum (3)

Project—3 hours. Prerequisite: consent of instructor; sponsorship of a Graduate School of Management Academic Senate faculty member, and approval of Graduate Advisor. Provides the opportunity for students to gain experience in applying business methodologies previously acquired in other Graduate School of Management courses. (S/U grading only.)—I, II, III. (I, II, III.)  
(new course—eff. fall 06)

#### 499. Directed Individual Study Management Practicum (3)

Project—3 hours. Prerequisite: consent of instructor; sponsorship of a Graduate School of Management Academic Senate faculty member and approval of graduate advisor. Provides the opportunity for students to gain experience in applying business methodologies previously acquired in other Graduate School of Management courses. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)  
(new course—eff. fall 06)

## Mathematics

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### New and changed courses in Mathematics (MAT)

#### Lower Division Courses

#### 22A. Linear Algebra (3)

Lecture—3 hours. Prerequisite: nine units of college mathematics and Engineering 6 or knowledge of Matlab or course 22AL (to be taken concurrently). Matrices and linear transformations, determinants, eigenvalues, eigenvectors, diagonalization, factorization. Not open for credit to students who have completed course 67.—I, II, III. (I, II, III.)  
(change in existing course—eff. spring 08)

#### 67. Modern Linear Algebra (4)

Lecture/discussion—4 hours. Prerequisite: satisfaction of Math Placement Requirement or course 21A. Rigorous treatment of linear algebra; topics include vector spaces, bases and dimensions, orthogonal projections, eigenvalues and eigenvectors, similarity transformations, singular value decomposition and positive definiteness. Only one unit of credit to students who have completed course 22A.—I, II. (I, II.)  
(change in existing course—eff. spring 08)

#### Upper Division Courses

#### 108. Introduction to Abstract Mathematics (4)

Lecture/discussion—4 hours. Prerequisite: course 21B. A rigorous treatment of mathematical concepts with emphasis on developing the ability to understand abstract mathematical ideas, to read and write mathematical concepts, and to prove theorems. Designed to serve as preparation for the more rigorous upper division courses. GE Credit: Wri.—I, II. (I, II.)  
(change in existing course—eff. spring 08)

#### 114. Convex Geometry (4)

Lecture/discussion—4 hours. Prerequisite: courses 21C; 22A or 67. Topics selected from the theory of convex bodies, convex functions, geometric inequalities, combinatorial geometry, and integral geometry. Designed to serve as preparation for the more rigorous upper-division courses. Offered in alternate years.—(II.)  
(change in existing course—eff. winter 07)

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2007-2008 offering in parentheses

General Education (GE) credit: ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Social-Cultural Diversity; Wrt=Writing Experience

**189. Advanced Problem Solving (3)**

Lecture—3 hours. Prerequisite: courses 21D; 22A or 67; 25. Solution and presentation of advanced problem solving techniques. Solve and present interesting and challenging problems of all areas of mathematics. Not offered every year. GE Credit: Wri.—II.

*(change in existing course—eff. spring 08)*

**Graduate Courses****206. Measure Theory (4)**

Lecture—3 hours; extensive problem solving. Prerequisite: course 125B. Introduction to measure theory. Introduction to measure theory. The study of lengths, surface areas, and volumes in general spaces, as related to integration theory. Offered in alternate years.—III.

*(change in existing course—eff. spring 07)*

**218A. Partial Differential Equations (4)**

Lecture/discussion—3 hours; term paper or discussion. Prerequisite: courses 22A or 67; 125B. Initial and boundary value problems for elliptic, parabolic and hyperbolic partial differential equations; existence, uniqueness and regularity for linear and nonlinear equations; maximum principles; weak solutions, Holder and Sobolev spaces, energy methods; Euler-Lagrange equations. Offered in alternate years.—II. (II.)

*(change in existing course—eff. fall 07)*

**218B. Partial Differential Equations (4)**

Lecture—3 hours; term paper or discussion. Prerequisite: courses 22A, 127C. Initial and boundary value problems for elliptic, parabolic and hyperbolic partial differential equations; existence, uniqueness and regularity for linear and nonlinear equations; maximum principles; weak solutions, Holder and Sobolev spaces, energy methods; Euler-Lagrange equations. Offered in alternate years.—III. (III.)

*(change in existing course—eff. spring 07)*

**219. Ordinary Differential Equations (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 22A or 67, 22B, 125B or consent of instructor. Theory of ordinary differential equations. Dynamical systems. Geometric theory. Normal forms. Bifurcation theory. Chaotic systems. Offered in alternate years.—I.

*(change in existing course—eff. fall 07)*

**226A. Numerical Methods: Fundamentals (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 128AB or equivalent, or consent of instructor; familiarity with some programming language. Fundamental principles and methods in numerical analysis, including the concepts of stability of algorithms and conditioning of numerical problems, numerical methods for interpolation and integration, eigenvalue problems, singular value decomposition and its applications. Offered in alternate years.—(I.)

*(new course—eff. fall 09)*

**226B. Numerical Methods: Large-Scale Matrix Computations (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 167 or equivalent, or consent of instructor; familiarity with some programming language. Numerical methods for large-scale matrix computations, including direct and iterative methods for the solution of linear systems, the computation of eigenvalues and singular values, the solution of least-squares problems, matrix compression, methods for the solution of linear programs. Offered in alternate years.—(II.)

*(new course—eff. winter 10)*

**226C. Numerical Methods: Ordinary Differential Equations (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 22B or equivalent, or consent of instructor; familiarity with some programming language. Numerical methods for the solution of ordinary differential equations, including methods for initial-value problems and two-point boundary-value problems, theory of and methods for differential algebraic equations, dimension reduction of large-scale dynamical systems. Offered in alternate years.—(III.)

*(new course—eff. spring 10)*

**229A. Numerical Methods in Linear Algebra (4)**

*(cancelled course—eff. fall 09)*

**229B. Numerical Methods in Linear Algebra (4)**

*(cancelled course—eff. winter 10)*

**235A-235B-235C. Probability Theory (4-4-4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: 235A—courses 125B and 135A or Statistics 131A or consent of instructor; 235B—course 235A/Statistics 235A or consent of instructor; 235C—course 235B/Statistics 235B or consent of instructor. Measure-theoretic foundations, abstract integration, independence, laws of large numbers, characteristic functions, central limit theorems. Weak convergence in metric spaces, Brownian motion, invariance principle. Conditional expectation. Topics selected from martingales, Markov chains, ergodic theory. (Same course as Statistics 235A-235B-235C.)—I-II-III. (I-II-III.)

*(change in existing course—eff. spring 08)*

**239. Differential Topology (4)**

Lecture—3 hours; extensive problem solving. Prerequisite: vector calculus, point-set topology, course 201A, or consent of instructor; course 250AB highly recommended. Topics include: differentiable manifolds, vector fields, transversality, Sard's theorem, examples of differentiable manifolds; orientation, intersection theory, index of vector fields; differential forms, integration, Stokes' theorem, deRham cohomology; Morse functions, Morse lemma, index of critical points.—III. (III.)

*(new course—eff. spring 07)*

**240A. Differential Geometry (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 116 or consent of instructor. Manifolds. Differentiable structures. Vector fields and tangent spaces. Bundles, tensors, forms, Grassman algebras. DeRham cohomology. Riemannian geometry. Connections, curvature, geodesics, submanifolds. Curves and surfaces. Positive and negative curvature; Morse Theory; homogeneous spaces; Hodge theory; applications.—I. (I.)

**240B. Differential Geometry (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 116 or consent of instructor. Manifolds. Differentiable structures. Vector fields and tangent spaces. Bundles, tensors, forms, Grassman algebras. DeRham cohomology. Riemannian geometry. Connections, curvature, geodesics, submanifolds. Curves and surfaces. Positive and negative curvature; Morse Theory; homogeneous spaces; Hodge theory; applications.—II. (II.)

**240C. Differential Geometry (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 116 or consent of instructor. Manifolds. Differentiable structures. Vector fields and tangent spaces. Bundles, tensors, forms, Grassman algebras. DeRham cohomology. Riemannian geometry. Connections, curvature, geodesics, submanifolds. Curves and surfaces. Positive and negative curvature; Morse Theory; homogeneous spaces; Hodge theory; applications. Offered in alternate years.—(III.)

**258A. Numerical Optimization (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: courses 25, 167. Numerical methods for infinite dimensional optimization problems. Newton and Quasi-Newton methods, linear and sequential quadratic programming, barrier methods; large-scale optimization; theory of approximations; infinite and semi-infinite programming; applications to optimal control, stochastic optimization and distributed systems. Offered in alternate years.—(I.)

*(change in existing course—eff. fall 07)*

**258B. Variational Analysis (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: courses 25 and 167, or consent of the instructor. Foundations of optimization theory. The design of solution procedures for optimization problems. Modeling issues, and stability analysis. Offered in alternate years.—(II.)

*(change in existing course—eff. fall 07)*

**271. Applied and Computational Harmonic Analysis (4)**

Lecture—3 hours; extensive problem solving. Prerequisite: courses 125B or 201C; and 128B or 167; and 129 or equivalent, or consent of instructor. Introduction to mathematical basic building blocks (wavelets, local Fourier basis, and their relatives) useful for diverse fields (signal and image processing, numerical analysis, and statistics). Emphasis on the connection between the continuum and the discrete worlds. Offered in alternate years.—(II.)

*(change in existing course—eff. fall 07)*

## Medicine, School of

### New and changed courses in Medical Sciences (MDS)

#### Professional Courses

**411A-411B-411C. Doctoring 1 (4-5-3)**

Discussion—1, 1.5, 3 hours; clinical activity—1, 1.5, 1 hour; lecture/discussion—1.0, 1.8, 2.0 hours. Prerequisite: approval of committee on student progress; medical students only. Small, case-based learning groups with training in patient communication and interviewing techniques, clinical identification and problem solving, applications of social, psychological, cultural, bioethical, and basic science concepts to patient case scenarios, outpatient clinical experiences and didactic presentations. (Deferred grading only, pending completion of sequence. P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Callahan, Eidson-Ton, Jerant, Johl, Servis

*(change in existing course—eff. winter 07)*

**421A. Doctoring 2 (6)**

Discussion—1 hour; lecture/discussion—1 hour; internship—.5 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Application of multidisciplinary basic, social and clinical science to clinical cases in small groups. History, physical examination with preceptors. Didactics in epidemiology, ethics, sexuality and clinical reasoning. Evaluation of professional competencies, attitudes and skills needed in the practice of medicine. (Deferred grading only, pending completion of sequence. P/F grading only.)—IV. (IV.) Stevensen

*(change in existing course—eff. summer 07)*



**421B. Doctoring 2 (6)**

Discussion—1 hour; lecture/discussion—1 hour; internship—5 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Application of multidisciplinary basic, social & clinical science concepts to cases in small groups. History, physical examination with preceptors. Didactics in epidemiology, ethics, sexuality, and clinical reasoning. Evaluation of professional competencies, attitudes and skills needed in the practice of medicine. (Deferred grading only, pending completion of sequence. P/F grading only.)—I. (I.) Stevenson

*(change in existing course—eff. summer 07)*

**421C. Doctoring 2 (6)**

Discussion—1 hour; lecture/discussion—1 hour; internship—5 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Application of multidisciplinary basic, social and clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. (P/F grading only.)—II. (II.) Stevenson

*(change in existing course—eff. summer 07)*

**421D. Doctoring 2 (12.5)**

*(cancelled course—eff. summer 07)*

**430A. Doctoring 3 (8)**

Discussion—3 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical student only. Application of multidisciplinary basic, social and clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—IV. (IV.) Wilkes

*(change in existing course—eff. summer 06)*

**430B. Doctoring 3 (8)**

Discussion—2 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical student only. Application of multidisciplinary basic, social & clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—I. (I.) Wilkes

*(change in existing course—eff. fall 06)*

**430C. Doctoring 3 (8)**

Discussion—2 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical student only. Application of multidisciplinary basic, social & clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—II. (II.) Wilkes

*(change in existing course—eff. winter 07)*

**430D. Doctoring 3 (8)**

Discussion—2 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical student only. Application of multidisciplinary basic, social & clinical science concepts to clinical cases in small group discussions facilitated by medical school faculty. Evaluation of professional competencies, attitudes and skills needed in the practice of clinical medicine. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—III. (III.) Wilkes

*(change in existing course—eff. spring 07)*

**440A-440B-440C. Doctoring 4 Teaching Fellowship (9)**

Discussion—0.5 hours; seminar—0.25 hours. Prerequisite: courses 430A, B, C, and D; consent of instructor; medical students only. Instruction on teaching methodology and pedagogy. Mentored teaching of junior medical students in seminar, lecture, and bedside. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—440B-I, 440C-II, 440A-IV. (440B-I, 440C-II, 440A-IV.) Stevenson

*(change in existing course—eff. fall 07)*

**440D. Doctoring 4 Teaching Fellowship (3)**

Discussion—1.5 hours; seminar—0.5 hours. Prerequisite: courses 430A, B, C, and D; consent of instructor; medical students only. Instruction on teaching methodology and pedagogy. Mentored teaching of junior medical students in seminar, lecture, and bedside. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—III. (III.) Stevenson

*(new course—eff. fall 07)*

**444. Medical Education for Senior Students (3)**

*(cancelled course—eff. spring 05)*

**460CR. Introduction to Clinical Research (2)**

Lecture—2 hours; independent study—3 hours. Prerequisite: consent of instructor; completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, Ph.D. or DNS in nursing. Application and acceptance into the Clinical Research Graduate Group, K30 program. Introduction to the CRGG program and overview of major clinical research topics. Overview of basic clinical skills needed to accomplish CRGG mentored research project. (S/U grading only.)—IV. (IV.) Frederick

*(change in existing course—eff. summer special session 06)*

**461CR. Strategies for Grant Writing (2)**

Lecture/discussion—2 hours. Prerequisite: consent of instructor; completed M.D., D.D.S, D.M.D., O.D., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing; application and acceptance into the Clinical Research Graduate Group, K30 program. Practical skills and strategies to create successful grant proposals in the NIH style and format. Generating ideas, identifying and accessing research resources, grant components, specific aims, background and significance, preliminary studies, budgets, and bios. Matriculation through UC system, and resubmissions. (S/U grading only.)—IV. (IV.) Rutledge

*(change in existing course—eff. spring 07)*

**462CR. Introduction to Clinical Epidemiology and Study Design (3)**

Lecture—25 hours; discussion—10 hours. Prerequisite: completed M.D., D.D.S, D.M.D., O.D., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing; application and acceptance into Clinical Research Graduate Group, K30 program. Anatomy and physiology of conducting clinical epidemiologic research. Familiarity with three basic study designs (cross-sectional, case-control, and cohort). Discussion of principles of measurements in clinical epidemiological studies, basic methods for analyzing data, and ethical issues involved in conducting research. (S/U grading only.)—IV. (IV.) McCurdy, Romano

*(change in existing course—eff. summer special session 04)*

**463CR. Methods in Clinical Research (5)**

Lecture—3 hours; discussion—2 hours. Prerequisite: consent of instructor; completed M.D., D.D.S, D.M.D., O.D., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing; application and acceptance into Clinical Research Graduate Group, K30 program. Overview of major approaches to clinical research, including health services research techniques, informatics, the GCRC, and preclinical methodologies to enhance clinical projects. Overview of UC Davis clinical research support infrastructure. Methodologies applicable to clinical research and its multidisciplinary perspective. (S/U grading only.)—IV. (IV.) Berglund, Lloyd, Kravitz

*(change in existing course—eff. spring 07)*

**464CR. Responsible Conduct of Research (3)**

Lecture—3 hours. Prerequisite: completed M.D., D.D.S, D.M.D., O.D., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing; application and acceptance into Clinical Research Graduate Group, K30 program. The nine NIH-mandated modules: Data Acquisition and Reporting, Mentor Training, Publication Practices and Authorship, Peer Review/Grant Process, Collaborative Science, Human Subjects, Research with Animals, Conflict of Interest, Research Misconduct, and Entrepreneurship/Industry Collaborations/Intellectual Property/Technology Transfer. (S/U grading only.)—IV. (IV.) Wun

*(change in existing course—eff. summer special session 04)*

**465CR. Introduction to Medical Statistics (4)**

Lecture—3 hours; laboratory—2 hours. Prerequisite: completed M.D., D.D.S, D.M.D., O.D., N.D., Pharm.D., D.V.M., Ph.D., or D.N.S. in nursing; application and acceptance into Clinical Research Graduate Group, K30 program. Biomedical applications of statistical methods in clinical, laboratory and population medicine. Graphical/tabular data presentation, probability, binomial, Poisson, normal, t, F-, and Chi-square distributions, elementary non-parametric methods, simple linear regression/correlation, life tables. Microcomputer applications of statistical procedures in population medicine. (S/U grading only.)—IV. (IV.) Becket, Wegelin

*(change in existing course—eff. summer special session 05)*

**481. Insights into Clinical Specialties (1)**

Lecture/discussion—1 hour. Prerequisite: medical student in good standing. Exposure to various medical specialties, their residency programs and ways in which medical students can prepare for and improve their candidacy for such programs. (H/P/F grading only.)—IV. (IV.) Kumari

*(change in existing course—eff. spring 07)*

**493. International Health and Comparative Health Care (6-18)**

Prerequisite: consent on instructor; UC Davis School of Medicine students only. Through a series of lectures, seminars and clinical experiences, all occurring in other nations, students will research how health care systems address critical health issues. In 2007, Chronic Disease is the focal issue. (H/P/F grading only.)—II, III. (II, III.) Wilkes

*(new course—eff. winter 07)*

**497. Scholarly Project (6)**

Seminar—.25 hours; independent study—.50 hours. Prerequisite: consent of instructor; project proposal must be accepted by the Scholarly Project Executive Committee (SPEC); fourth-year medical school students only. Student develops a research project on a focused topic area, implements the research, writes a publishable paper, and presents an oral summary of the project. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—I, II, IV. (I, II, IV.) Schaefer

*(new course—eff. summer 06)*

## Medicine: Anesthesiology and Pain Medicine

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### New and changed courses in Anesthesiology and Pain Medicine (ANE)

#### Upper Division Course

##### 199. Special Study for Advanced Undergraduates (1-5)

Prerequisite: consent of instructor. (P/NP grading only.)

(new course—eff. fall 07)

#### Professional Courses

##### 493A. Applied Physiology and Pharmacology (6)

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. This course will review and demonstrate the application of basic physiology and pharmacology to patient care. There will be an in-depth analysis of the physiology and pharmacology of the cardiovascular, pulmonary, nervous, renal and endocrine systems. Limited enrollment. (H/P/F grading only.)—II. (II.) Antogini  
(new—eff. winter 07)

##### 493B. Interdisciplinary Medicine in Pain Care (6)

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. This course will integrate applied and practical neuroanatomy, physiology, pharmacology, psychology/psychiatry and social medicine in the care of patients who are receiving care for pain caused by acute or chronic medical disease or trauma. Limited enrollment. (H/P/F grading only.)—III. (III.) Fishman  
(new course—eff. spring 07)

## Medicine: Biological Chemistry

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### New and changed courses in Biological Chemistry (BCM)

#### Professional Courses

##### 410A. Biochemistry and Molecular Biology (3.5)

Lecture—3 hours. Prerequisite: consent of instructor. Medical Students only. Biochemistry of proteins and nucleic acids, followed by molecular genetics, regulation of gene expression, biomembranes and structural proteins. Applications to clinically relevant systems are emphasized, particularly cystic fibrosis, synaptic conductance, muscular dystrophy, and oncogenes and cell proliferation control. (Deferred grading only, pending completion of sequence.)(P/F grading only.)—I, IV. (I, IV.) Hagerman, Voss  
(change in existing course—eff. spring 06)

##### 418. Mammalian Endocrinology and Homeostasis (3)

(cancelled course—eff. winter 09)

## Medicine: Cardiology

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### New and changed courses in Cardiology (CAR)

#### Professional Course

##### 493. Gender Specific Medicine 55M (6)

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; restricted to UC Davis School of Medicine students only. Special Studies Module, a four week course on the topic: Basic Science Principles Relating to Gender Specific Medicine. (Same course as Obstetrics & Gynecology 493.) (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Sweet, Villablanca  
(new course—eff. spring 07)

## Medicine: Clinical Research

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### New and changed courses in Clinical Research (CLH)

#### Graduate Courses

##### 220. Basics of Stem and Progenitor Cells (1)

Lecture—1 hour. Prerequisite: Molecular, Cellular, and Integrative Physiology 200, 200L; consent of instructor; graduate standing. This is a lecture course designed for graduate students who have experience in cell culture techniques. It is designed to give a broad overview of the field and current cells of interest to the greater research community. (S/U grading only.)—III. (III.) Tarantal  
(new course—eff. spring 07)

##### 222. Ethical Issues in Stem Cell Biology (1)

Lecture/discussion—1 hour. Prerequisite: consent of instructor; graduate standing. Critical presentation and analysis of recent articles in stem cell biology and small group discussions of the ethical issues surrounding this area of research. (S/U grading only.)—II. (II.) Ikemoto, Rich  
(new course—eff. winter 07)

##### 230. Congestive Heart Failure, Mechanism of Disease (3)

Lecture/discussion—2 hours; project. Prerequisite: consent of instructor; graduate standing. Underlying mechanisms of cardiomyopathy and heart failure. Presentation of fundamental knowledge of and recent basic research on heart failure. Student team projects: investigation and presentation of a research topic and bench research project to advance research in the same area. (S/U grading only.)—II. (II.) Knowlton  
(new course—eff. winter 07)

##### 240. Predoctoral Clinical Research Training Program Research Integration (1)

Seminar—0.5 hours; discussion—0.5 hours. Prerequisite: consent of instructor and enrollment in the Predoctoral Clinical Research Training Program in the CTSC, School of Medicine. Alternating sessions: journal club, seminar/discussion, and research integration sessions. May be repeated three times for credit (S/U grading only.)—I, II, III. (I, II, III.) Berglund  
(new course—eff. fall 07)

### 250. Integrating Medicine Into Basic Science (6)

Lecture—3.75 hours; discussion—6 hours; seminar—2.5 hours; clinical—8 hours. Prerequisite: consent of instructor; graduate standing; acceptance into HHMI Integrating Medicine into Basic Science program. Four-week summer institute consisting of didactic lectures, reading assignments, group discussions, and clinical rotations to acculturate students to the human medical environment; integrate medical principles, physiology and pathophysiology into basic research; introduce high-impact clinical studies related to medicine and health. (S/U grading only.)—IV. (IV.) Knowlton, Robbins, Stevenson  
(new course—eff. fall 06)

#### 290A. Hot Topics in Clinical Research (1)

Seminar—1 hour. Prerequisite: graduate standing or consent of instructor. Seminars presented by guest lecturers on subjects of their own research activities. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)  
(new course—eff. fall 06)

#### 290B. Hot Topics in Stem Cell Biology (1)

Seminar—1 hour. Prerequisite: graduate standing. Seminars presented by guest lecturers on subjects of their own research. (S/U grading only.)—I, II, III. (I, II, III.)  
(new course—eff. fall 06)

#### 290C. Literature in Stem Cell Biology (1)

Discussion—1 hour. Prerequisite: graduate standing and consent of instructor. Critical presentation and analysis of recent journal articles in stem cell biology by students. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.) Tarantal  
(new course—eff. fall 06)

#### 298. Group Study in Clinical Research (1-5)

Prerequisite: consent of instructor. Special topics in Clinical Research appropriate for group study at the graduate level. Restricted to students enrolled in the Mentored Clinical Research Training Program. (S/U grading only.)  
(new course—eff. winter 06)

#### 299. Clinical Research (1-5)

Prerequisite: consent of instructor. Independent research and special topics in clinical research appropriate for graduate level. Restricted to students enrolled in the Mentored Clinical Research Training Program. (S/U grading only.)  
(new course—eff. fall 06)

## Medicine: Internal Medicine

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### New and changed courses in Internal Medicine (IMD)

#### Graduate Course

##### 290C. Controversies in Clinical Research (1)

Seminar—3 hours. Clinical Research Study design and data analysis related to controversial research areas. Presentations assigned to and given by faculty/student teams. May be repeated for credit. (S/U grading only.)—III. (III.) Lane, Meyers  
(new course—eff. spring 07)

## Professional Courses

### 405. Metabolism, Endocrinology, Reproduction and Nutrition (9.5)

Lecture—3.8 hours; discussion/laboratory—2.8 hours. Prerequisite: consent of instructor; medical students only. Basic and pathophysiologic processes involved in human metabolic and nutritional regulation and in reproductive and endocrine control systems across the lifespan. Integrate information across these systems and use clinical reasoning process to identify and understand relevant perturbations and diseases. (Same course as Biological Chemistry 405, Human Physiology 405, Obstetrics and Gynecology 405) (Deferred grading only, pending completion of sequence. P/F grading only.)—II, III. (II, III.) Kulkarni-Date, Sweeney, Towner, Turgeon (new course—eff. winter 07)

### 420B. Gastrointestinal System (2.5)

Lecture—2 hours; discussion—2 hours. Prerequisite: approval of Committee on Student Progress; medical student only. Basic pathophysiologic principles of digestive diseases on which clinical concepts and judgments can be developed. Emphasis on pathophysiologic basis of gastroenterological and hepatic disorders with discussion of major disorders and their diagnosis and management. (P/F grading only.)—II. (II.) Terrado (change in existing course—eff. winter 08)

### 465. Medicos-Global Health Sciences (9)

Lecture—5 hours; clinical activity—25 hours; fieldwork—5 hours; project—5 hours. Prerequisite: consent of instructor; medical students only. Travel to foreign country for four weeks to collaborate with faculty from local universities and work in urban and rural environments, including hands-on experience with clinic patients. Cultural exchange and awareness of global health care. (P/F grading only.)—IV. (IV.) Wilkes (change in existing course—eff. spring 07)

### 480. Person Centered Assessment (1)

Lecture—1 hour. Prerequisite: open to all medical students. Person-centered assessment modalities and diagnostic approaches with regards to Internal Medicine and its different subspecialties. (P/F grading only.)—I. Fitzgerald (change in existing course—eff. fall 06)

### 499. General Medicine Research (1-18)

Independent study—20 hours. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Meyers (change in existing course—eff. winter 06)

## Medicine: Internal Medicine—Emergency Medicine

### New and changed courses in Internal Medicine—Emergency Medicine (EMR)

#### Lower Division Course

### 192. Emergency Medicine Clinical Research Internship (1-4)

Prerequisite: Undergraduate student in good academic standing at UC Davis; consent of instructor. This course is intended to give the undergraduate student an opportunity to conduct “hands-on” clinical research in the Emergency Department. Through the lecture/discussion, students will learn the basics of conducting and developing clinical research studies, using examples from ongoing studies. May be repeated for credit up to four units. Units awarded will depend on hours worked.—I, II, III, IV. (I, II, III, IV.) Panacek (new course—eff. summer session 07)

## Upper Division Courses

### 192. Emergency Medicine Clinical Research Internship (1-4)

Prerequisite: Undergraduate student in good academic standing at UC Davis; consent of instructor. This course is intended to give the upper division undergraduate student an opportunity to conduct “hands-on” clinical research in the Emergency Department. Through the lecture/discussion, students learn the basics of conducting and developing clinical research studies. May be repeated for credit up to four units. Units awarded will depend on hours worked.—I, II, III, IV. (I, II, III, IV.) Panacek (new course—eff. summer 07)

### 199A. Special Study for Advanced Undergraduates (4-12)

Prerequisite: open to experienced RA's who have successfully performed in the EMRAP program for a minimum of three quarters; consent of instructor. This course is for those are interested in working on specific EM projects in a more extensive way. Must commit at least 4 hours per week for two quarters. Must have database skills. Deferred grading only, pending completion of sequence.—I, II, III, IV. (I, II, III, IV.) Panacek (new course—eff. fall 07)

## Professional Courses

### 445. Emergency Medicine Ultrasound for 4th Year Medical Student (3)

Lecture—5 hours; clinical activity—30 hours; discussion—5 hours; performance instruction—5 hours. Prerequisite: fourth-year Medical Student in good standing; interest in Emergency Medicine or Critical Care is recommended; course 440 or equivalent is recommended prior to the rotation. The Emergency Ultrasound elective is intended for students interested in learning both the technical and cognitive skills of bedside ultrasound. Emphasis will be on the use of ultrasound in emergency medicine as a diagnostic tool and in procedural guidance. Limited enrollment.—IV. (IV.) Cusick (new course—eff. summer 08)

### 493. Cardiac Arrest, Resuscitation and Reperfusion SSM (6)

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor.; UC Davis School of Medicine students only. Special Studies Module, a four week course specific to the topics of cardiac arrest, resuscitation and reperfusion. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Laurin, Rose (new course—eff. spring 07)

## Medicine: Internal Medicine—General Medicine

### New and changed courses in Internal Medicine—General Medicine (GMD)

#### Professional Courses

### 493. Ethical, Legal and Social Issues in Clinical Genetics (6)

Seminar—12 hours; clinical activity—18 hours; autotutorial—8 hours; independent study—2 hours. Prerequisite: consent on instructor; UC Davis School of Medicine students only. Students will develop advanced knowledge, communication skills and attitudes necessary to provide compassionate, knowledgeable, and expert care to patients who may be at increased genetic risk for disease. Seminars will cover ethical and legal principles, epidemiology, and genetics. (H/P/F grading only.)—II. (II.) Rich, Wilkes (new course—eff. winter 07)

### 493A. Teaching and Designing Curriculum SSM (6)

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent on instructor; concurrent registration in Medical Sciences 440. Special Studies Module, A four week course on the topic: Teaching and Designing the Preclinical/Basic Science Curriculum. Open to UC Davis School of Medicine students only. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Gandour-Edwards, Mudryj, Stevenson, Turgeon (new course—eff. winter 08)

## Medicine: Internal Medicine—Hematology-Oncology

### New and changed courses in Internal Medicine—Hematology-Oncology (HON)

#### Professional Courses

### 420. Oncology (1)

Lecture—2 hours; discussion—3 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; medical student only. Cancer epidemiology, cancer genetics, and cancer pharmacology; the pathophysiologic principles of oncology as they relate to specific common cancers using both lectures and case discussions. (P/NP grading only.)—II. (II.) Welborn (change in existing course—eff. winter 08)

### 493. Ethical, Legal and Social Issues in Clinical Genetics (6)

Seminar—10 hours; clinical activity—14 hours; autotutorial—6 hours; independent study—10 hours. Prerequisite: consent on instructor; UC Davis School of Medicine students only. This module will cover cancer as a process, beginning with risks and prevention, preneoplasia, microinvasion, treatment options, metastases and systemic therapy, pain medicine and palliative care, and cancer communication. The format includes traditional lectures, student-led case discussions, and problem-based learning. (H/P/F grading only.)—III. (III.) Meyer, von Friederichs Fitzwater (new course—eff. winter 07)

## Medicine: Internal Medicine—Nephrology

### New and changed courses in Internal Medicine—Nephrology (NEP)

#### Professional Course

##### 444. Curriculum Design for Doctoring (1)

Project—2 hours; seminar—1 hour. Prerequisite: consent of instructor; second year standing in medical school. Design of Doctoring curriculum for medical students in focused topic areas to be announced annually. Students will design sessions, consider resource needs, and work with IORs to initiate the curriculum. (P/F grading only.)—IV. (IV.) Stevenson (new course—eff. summer 07)

## Medicine: Internal Medicine—Rheumatology-Allergy (RAL)

### New and changed courses in Internal Medicine—Rheumatology-Allergy (RAL)

#### Professional Course

##### 209. Current Topics in Immunology: From Presentations to Grants (3)

Lecture—1 hour; term paper or discussion—1 hour; project—1 hour. Prerequisite: Immunology 201. Current developments in various aspects of immunology and their interrelationships. Focus on areas of immunology not currently covered in the basic and advanced immunology courses. Oral presentation, written review and grant preparation.—II. (II.) Van de Water

(change in existing course—eff. winter 08)

## Medicine—Family and Community Medicine

### New and changed courses in Medicine—Family and Community Medicine (FAP)

#### Professional Courses

##### 400A. Introduction to Patient Evaluation (2) (cancelled course—eff. winter 09)

##### 400B. Introduction to Patient Evaluation (2) (cancelled course—eff. winter 09)

##### 400C. Introduction to Patient Evaluation (2) (cancelled course—eff. winter 09)

##### 498. Directed Group Study (1-5)

Variable—3-15 hours. Explore in-depth various topics in primary care. Extensive contact with and oversight by instructor. May be repeated for credit. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Jerant, Garcia

(change in existing course—eff. spring 08)

## Medicine: Otolaryngology

### New and changed courses in Otolaryngology (OTO)

#### Upper Division Course

##### 199. Special Study in Otolaryngology for Advanced Undergraduates (1-5)

Prerequisite: advanced undergraduate with consent of instructor. (P/NP grading only.)—I, II, III, IV. Albala

(change in existing course—eff. fall 07)

#### Professional Courses

##### 401. Clinical Examinations in Otolaryngology (1)

(cancelled course—eff. winter 09)

##### 402. Otolaryngology in Family Practice (3)

(cancelled course—eff. winter 09)

##### 480. Insights in Otolaryngology (1-3)

(cancelled course—eff. winter 09)

## Medicine: Medical Microbiology

### New and changed courses in Medical Microbiology (MMI)

#### Graduate Courses

##### 210. Animal Models of Infectious Disease Journal Club (1)

Lecture/discussion—1 hour. Prerequisite: students funded by the Animal Models of Infectious Diseases Training Grant; others by consent of instructor. Research articles in current literature. Topics/articles to include a broad range of frontiers in animal models of human infectious diseases. Limited enrollment. May be repeated for credit. (S/U grading only.)—II. (II.) Solnick

(change in existing course—eff. winter 07)

##### 280. Molecular Pathobiology for Diagnosis and Therapy of Human and Animal Diseases (3)

Lecture—3 hours. Prerequisite: graduate standing. Molecular pathobiology of phenotypes caused by human hereditary diseases and viruses. Emphasis on molecular diagnostics at cellular/tissue level, and therapy including vaccines and gene transfer using recombinant DNA technology. Not open for credit to students who have completed Internal Medicine: Infectious Diseases 280. Offered in alternate years.—III. (III.) Dandekar

(change in existing course—eff. spring 07)

##### 291. Seminar in Microbiology and Immunology (1)

Seminar—1 hour. Restricted to students with upper division or graduate standing. Research seminars on current topics in microbiology and immunology. May be repeated for credit if topic differs. (S/U grading only.)—I, II, III. (I, II, III.) Dandekar, Torres

(new course—eff. spring 07)

## Professional Courses

### 480A. Medical Immunology (2.5)

Lecture—2 hours; laboratory/discussion—.5 hours. Prerequisite: approval of Committee on Student Progress; medical students only. This course helps students understand the immune system, the nomenclature and functional significance of the tissues, cells, proteins and genes of the immune system, as well as the normal regulatory mechanisms and pathologic outcomes related to the immune response. (Deferred grading only, pending completion of sequence. P/F grading only.)—II, III. (II, III.) Shacklett, Torres

(change in existing course—eff. winter 07)

### 480B. Pathogenic Microbiology (5.5)

Lecture—2.75 hours; laboratory/discussion—1 hour. Prerequisite: approval of the School of Medicine Committee on Student Progress; medical students only. Discussion of the diseases caused by infectious agents includes their pathogenesis, clinical manifestations, diagnosis, treatment epidemiology and prevention. The course will cover the general properties of and diagnostic techniques for bacteria, fungi and viruses. (Deferred grading only, pending completion of sequence. P/F grading only.)—II, III. (II, III.) Luckhart, Mudryj, Tsolis

(change in existing course—eff. winter 07)

### 480C. Pathogenic Microbiology (2)

(cancelled course—eff. winter 08)

## Medicine: Obstetrics and Gynecology

### New and changed courses in Medicine: Obstetrics and Gynecology (OBG)

#### Professional Courses

##### 405. Metabolism, Endocrinology, Reproduction and Nutrition (9.5)

Lecture—3.8 hours; discussion/laboratory—2.8 hours. Prerequisite: consent of instructor; medical students only. Basic and pathophysiologic processes involved in human metabolic and nutritional regulation and in reproductive and endocrine control systems across the lifespan. Integrate information across these systems and use clinical reasoning process to identify and understand relevant perturbations and diseases. (Same course as Biological Chemistry 405, Internal Medicine 405, Human Physiology 405) (Deferred grading only, pending completion of sequence. P/F grading only.)—II, III. (II, III.) Kulkarni-Date, Sweeney, Towner, Turgeon

(new course—eff. winter 07)

##### 420. Genetics and Reproduction (2)

Lecture—3 hours; conference—2 hours. Prerequisite: approval of Committee on Student Progress; medical students only. Introduction to medical genetics and the clinical consequences of genetic abnormalities. Aspects of reproduction, gametogenesis, development of the conceptus, maternal adaptation to pregnancy, labor and delivery and menopause. (P/F grading only.)—I. (I.) Towner

(change in existing course—eff. fall 07)

##### 470. Acting Internship in Obstetrics and Gynecology (3-8)

Prerequisite: third- and fourth-year medical students who have completed course 430; consent of instructor. Student will perform as intern and expect the following experience: Obstetrics and Gynecology, two weeks each; perform inpatient care; be on call every third night; attend scheduled conferences one half-day per week. Round daily with attending. May be repeated up to 99 units for credit. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Dalrymple

(change in existing course—eff. winter 08)

**493. Gender Specific Medicine 55M (6)**

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; restricted to UC Davis School of Medicine students only. Special Studies Module, a four week course on the topic: Basic Science Principles Relating to Gender Specific Medicine. (Same course as Cardiology 493.) (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Sweet, Villablanca

(new course—eff. spring 07)

**494. Shifa Clinic (6)**

Clinical activity—8 hours. Prerequisite: medical student in good standing; restricted to medical student only. Interaction with patients from multiple ethnic and cultural backgrounds under the direct supervision of a physician/preceptor. Women's health issues and primary care issues in a diversely mixed population. May be repeated up to three times for credit. (P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Yasmeen

(change in existing course—eff. fall 08)

**499. Research in Obstetrics and Gynecology (2-12)**

Clinical activity. Prerequisite: consent of instructor; fourth-year medical student. Research in Obstetrics and Gynecology arranged with instructor. May be repeated eight times for credit. (H/P/F grading only.)

(change in existing course—eff. fall 06)

## Medicine: Orthopaedic Surgery

### New and changed courses in Orthopaedic Surgery (OSU)

#### Professional Course

**428. Ambulatory and Emergency Room Orthopaedics (3-6)**

Clinical activity—full time (2-4 weeks). Prerequisite: 4th-year medical student in good academic standing and consent of instructor. Introduction to general orthopaedic problems and trauma and their management in an outpatient environment, including the emergency room. Student will conduct orthopaedic examinations, present patients to staff rotating through trauma, hand, pediatrics, adult and foot clinics. Orthopaedic physical examination and interpretation of x-rays. Limited enrollment. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Marder

(change in existing course—eff. fall 06)

## Medicine: Pathology

### New and changed courses in Medicine: Pathology (PMD)

#### Upper Division Course

**210. Introduction to Human Pathology (4.5)**

(cancelled course—eff. fall 07)

#### Professional Courses

**404. Forensic Pathology (2)**

(cancelled course—eff. winter 07)

**410A. General Pathology (2.5)**

Lecture—4 hours; laboratory/discussion—4.5 hours. Prerequisite: approval of Committee on Student Progress; medical students only. Pathologic mechanisms of human disease. Emphasis on integration of clinical practice with gross and histologic images. (P/F grading only.)—III. (III.) Gandour-Edwards, Jensen

(change in existing course—eff. spring 07)

**410B. Systemic Pathology (1)**

Lecture—1 hours; laboratory/discussion—.5 hours. Prerequisite: Approval by SOM Committee on Student Progress; medical student only. Concepts of general pathologic processes, i.e., cell death, inflammation and neoplasia in the context of specific organ systems and human diseases in a clinical context. (Deferred grading only, pending completion of sequence. P/F grading only.)—IV. (IV.) Gandour-Edwards, Jensen

(change in existing course—eff. summer 07)

**410D. Systemic Pathology (2.5)**

Lecture—1 hour; discussion—2 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Anatomic and clinical pathology of organ system human disease with an emphasis on integration with clinical medicine. Course content will closely parallel concurrent clinical courses with integration of lectures and discussions sections. Topics include gastrointestinal pathology, hepatopathology, nutritional pathology. (Deferred grading only, pending completion of sequence. P/F grading only.)—II. (II.) Gandour-Edwards, Jensen

(change in existing course—eff. winter 08)

**410E. Systemic Pathology (1)**

(cancelled course—eff. winter 08)

**464. Anatomic Pathology (3-6)**

Clinical activity—40 hours. Prerequisite: third- or fourth-year medical student or consent of instructor; medical students only. Anatomic pathology with an emphasis in surgical pathology and application to clinical practice. Specimen grossing, frozen sections, microscopic sign-out and conferences. Exposure to autopsy, cytopathology, hematopathology, and clinical pathology are available. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Gandour-Edwards

(change in existing course—eff. fall 06)

**465. Applied Clinical Laboratory Medicine (6-9)**

Prerequisite: consent of instructor. Emphasis upon laboratory techniques, procedures, and interpretation of laboratory results. Students will be expected to participate fully and in all laboratory operations including bench techniques, laboratory management, and quality control. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Kost

(change in existing course—eff. fall 07)

## Medicine: Pharmacology and Toxicology

### New and changed courses in Medicine: Pharmacology and Toxicology (PHA)

#### Upper Division Courses

**206. Pharmacokinetics (2)**

(cancelled course—eff. fall 07)

**250. Functional Genomics: From Bench to Bedside (2)**

Lecture/discussion—2 hours. Prerequisite: consent of instructor. Functional genomics (gene regulation, microarrays, proteomics), with an emphasis on clinical relevance and applications. Topics include cancer therapeutics, gene therapy, and biomarker discovery.—III. (III.) Farnham

(new course—eff. spring 07)

**291. Pharmacology Research Seminar Series (1)**

Seminar—1 hour; discussion—1 hour. Prerequisite: consent of instructor; upper division or graduate standing. Research seminars on current topics in Pharmacology. May be repeated for credit when topic differs. (S/U grading only.)—I, II, III. (I, II, III.) Wulff

(new course—eff. fall 07)

### Professional Courses

**400A. Pharmacology (2)**

Lecture—1 hour; discussion/laboratory—.3 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; medical students only. Principles in pharmacology, including pharmacokinetics, drug metabolism and the actions, uses and toxicities of the major classes of drugs. (Deferred grading only, pending completion of sequence. P/F grading only.)—II, III. (II, III.) Fischer

(change in existing course—eff. winter 07)

**400B. Pharmacology (1.5)**

Lecture—1 hour; discussion—.25 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical students only. Principles in pharmacology, including autonomic pharmacology, general anesthetics, neuropharmacology and sedative/hypnotics. (Deferred grading only, pending completion of sequence. P/F grading only.)—IV. (IV.) Fischer

(change in existing course—eff. summer 07)

**400C. Pharmacology (1.5)**

Lecture—1 hour; discussion—.25 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical student only. Topics taught include the treatment of respiratory and cardiovascular disease. Specific topics include: asthma, chronic obstructive pulmonary disease, hypertension, congestive heart failure, and the treatment of arrhythmias. (Deferred grading only, pending completion of sequence. P/F grading only.)—I. (I.) Fischer

(change in existing course—eff. fall 07)

**400D. Pharmacology (2.0)**

Lecture—3 hours. Prerequisite: approval by the School of Medicine Committee on Student Progress; medical student only. Pharmacology topics covered include central nervous system drugs, GI drugs, toxicology/poisoning and cancer chemotherapy. Specific topics are: cancer chemotherapy, pain management, the treatment of depression and psychosis, acid reflux disease, irritable bowel syndrome, and general toxicology. (P/F grading only.)—II. (II.) Fischer

(change in existing course—eff. fall 07)

## Medicine: Physical Medicine and Rehabilitation

### New and changed courses in Medicine: Physical Medicine and Rehabilitation (PMR)

#### Professional Courses

##### 440. Rehabilitation Medicine Clerkship (3)

Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: consent of instructor; completion of Internal Medicine 430, Surgery 430. Rehabilitation and comprehensive care of physically disabled and physical medicine management of neurological, neuromuscular and musculoskeletal disorders.

Emphasis on evaluation and conservative treatment of spinal disorders, sports injuries and neuromuscular disease. Emphasis on inpatient rehabilitation, pediatrics, spine or sports possible. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Davis

*(change in existing course—eff. spring 08)*

##### 461. Rehabilitation Medicine (6)

Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: consent of instructor; completion of Internal Medicine 430, Surgery 430. Four-week rotation designed as broad overview of PM&R practice for students interested in residency training in the specialty. Emphasis on evaluation and conservative treatment of spinal disorders, sports injuries, neuromuscular disease, neurological and non-operative orthopedic problems requiring rehabilitative management. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Davis

*(change in existing course—eff. winter 08)*

##### 465. Introduction to Sports Medicine (1)

Lecture—1 hour; clinical activity—4 hours; fieldwork. Prerequisite: consent of instructor. Introduction to basic concepts of Sports Medicine in Physical Medicine and Rehabilitation. Students attend afternoon clinic with Sports Medicine attending; attend lectures focusing on Sports Medicine topics. Students also eligible to cover sporting events with attending physicians where available. (P/F grading only.)—IV. (IV.) Davis

*(new course—eff. summer 08)*

##### 493. Applied Musculoskeletal Anatomy: Sports & Spine SSM (6)

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; restricted to UC Davis School of Medicine students only. This four week module will review the anatomy and biomechanics of the musculoskeletal system as well as its associated pathology. The students will be instructed on appropriate musculoskeletal exam techniques and logical approach to the patient in the clinical setting. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Shin

*(new course—eff. winter 08)*

## Medicine: Psychiatry

### New and changed courses in Medicine: Psychiatry (PSY)

#### Professional Courses

##### 414. Psychosomatic Medicine Clerkship (3-12)

Clinical activity—32 hours; discussion—8 hours. Prerequisite: Psychiatry Clerkship or consent of instructor; medical students only. A large university hospital service in which the student functions as a member of the team in evaluation, management and psychiatric liaison with other medical specialties. Intensive supervision from senior staff and psychiatric residents. May be repeated two times for credit. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Ton

*(change in existing course—eff. winter 07)*

##### 403. Fundamentals of Clinical Psychiatry (3)

Clinical activity—1 hour; lecture—3 hours. Prerequisite: approval of SOM Committee on Student Progress; restricted to medical students only. Psychiatric interviewing, Mental Status Exam and diagnosis.

Major child and adult disorders, including substance abuse and dependence. Weekly student interviews of psychiatric patients in small group format. (P/F grading only.)—II. (II.) Leamon

*(change in existing course—eff. winter 08)*

##### 415. Substance Abuse: Diagnosis and Treatment (3)

*(cancelled course—eff. winter 09)*

##### 493. Culture, Medicine and Society (6)

Seminar—12 hours; clinical activity—16 hours; independent study—8 hours; discussion—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. Students will learn about the epidemiological significance of health disparities and barriers to access to health care. The course will cover (1) Epidemiology/Health Disparities; (2) Society and Medicine; (3) Cinemedication; (4) Reflection/Integration. (H/P/F grading only.)—III. (III.) Ton, Wilkes

*(new course—eff. spring 07)*

## Medicine: Public Health Sciences

### New and changed courses in Medicine: Public Health Sciences (SPH)

#### Lower Division Course

##### 92. Internship in Community Health (1-12)

Internship—3-36 hours. Prerequisite: lower division standing; consent of instructor. Students apply theory and concepts learned in the classroom through field work in a community health agency. (P/NP grading only.)

*(change in existing course—eff. summer session 2 08)*

#### Upper Division Courses

##### 101. Perspectives in Community Health (3)

Lecture—3 hours. Prerequisite: undergraduate standing. Covers comprehensively the responsibilities, obligations, roles and professional activities of various health care disciplines in the community; provides students with perspectives on preventive medicine in society.—III. (III.) Chen

*(change in existing course—eff. summer session 2 08)*

### 160. General Health Education and Prevention (5)

Lecture—4 hours; discussion—1 hour. Restricted to students in the internship program for the Health Education Program only. Topics include addiction, substance abuse/prevention, nutrition, stress management, physical fitness, body image, reproductive anatomy and physiology, contraceptive options, safer sex, sexual health, healthy relationships, and other general wellness/health promotion topics. Practice in peer counseling and outreach presentations. Limited enrollment. (P/NP grading only.)—IV. (IV.) Lake, Ferguson

*(change in existing course—eff. summer session 2 08)*

### 161. Campus Alcohol/Drug Abuse Prevention Program Peer Educator Training (4)

Lecture/discussion—3 hours; practice—1 hour. Prerequisite: course 160 (may be taken concurrently); consent of instructor. Preparation for internship in campus and community substance abuse prevention and educational intervention. Addiction and other physiological responses to alcohol and other drugs. Harm-reduction strategies for individuals and target populations. High risk behaviors. Practice in peer counseling skills and outreach presentations to small and large groups. (P/NP grading only.)—III. (III.) Lake

*(change in existing course—eff. summer session 2 08)*

### 162. Health Advocates Peer Educator Training (4)

Lecture/discussion—3 hours; practice—1 hour. Prerequisite: course 160 (may be taken concurrently); consent of instructor. Preparation for internship in campus and community health promotion and risk reduction. Nutrition, stress management, physical fitness, body image and disordered eating, skin cancer prevention, and other general wellness/health promotion topics. (P/NP grading only.)—III. (III.) Belden, Gruhn

*(change in existing course—eff. summer session 2 08)*

### 190C. Research Conference in Community and International Health (1)

Discussion—1 hour. Prerequisite: consent of instructor. Weekly conference on research problems, progress, and techniques in Community and International Health. Critical discussion of recent journal articles. May be repeated for credit. (P/NP grading only.)—I, II, III. (I, II, III.) Gold

*(change in existing course—eff. summer session 2 08)*

### 192. Internship in Community Health Practice (1-12)

Internship—3-36 hours. Prerequisite: upper division and graduate students; consent of instructor. The student, through fieldwork in a community health agency, learns to apply theory and concepts learned in the classroom. (P/NP grading only.)

*(change in existing course—eff. summer session 2 08)*

### 198. Study in Community and International Health (1-5)

Prerequisite: undergraduate standing and consent of instructor. Study and experience for undergraduate students in any number of areas in community and international health. (P/NP grading only.)

*(change in existing course—eff. summer session 2 08)*



**199. Research in Community and International Health (1-5)**

Prerequisite: undergraduate standing; consent of instructor. Student will work with faculty member in areas of research interest, including but not limited to injury control, international health, health policy, occupational and environmental health, health promotion and wellness, women's health, and health demographics. (P/NP grading only.)

*(change in existing course—eff. summer session 2 08)*

**Professional Courses****402. Introductory Medical Spanish (2)**

Lecture—2 hours. Prerequisite: medical student or consent of instructor. The vocabulary needed to conduct a basic history and physical examination in Spanish. (H/P/F grading only.)—III. (III.)

*(change in existing course—eff. summer session 2 08)*

**455. Multidisciplinary Clinical Preceptorship (4.5)**

Clinical activity—full time (3 weeks). Prerequisite: second-year student in good academic standing. Students will be introduced to basic principals of geriatric health care and provided with opportunities for clinical observation and experience in a variety of facilities that serve older adults. Multidisciplinary nature of geriatrics will be emphasized. (S/U grading only.)—IV. (IV.)

*(change in existing course—eff. summer session 2 08)*

**461. Clerkship in Community Health Group Practice (3-9)**

Clinical activity—full time (2-6 weeks). Prerequisite: third- or fourth-year medical student. Overview of local community health in group practice situations. Students participate in treatment at several clinic sites in Yolo County. Topics include primary care, environmental health, maternal and child health, jail health, and preventive health care for the aged. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.)

*(change in existing course—eff. summer session 2 08)*

**465. Community Health Preceptorship (3-18)**

Clinical activity—full time (2-12 weeks). Prerequisite: fourth-year medical student; consent of instructor. Students participate at the California Department of Health Services in ongoing investigations into current public health problems, e.g., birth defects, cancer control, diabetes, hypertension, injury control, infectious diseases, aging, Alzheimer's disease, and smoking and tobacco use control. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.)

*(change in existing course—eff. summer session 2 08)*

**466. Occupational and Environmental Medicine Elective (6-12)**

Clinical activity; laboratory—full time (4 to 8 weeks). Prerequisite: fourth-year medical student and consent of instructor. Participate in activities of Occupational and Environmental Health Unit. Major activity is involvement in an epidemiologic research project of the University. Also participate in Ambulatory Occupational and Environmental Medicine Clinic at UC Davis Medical Center. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Schenker

*(change in existing course—eff. summer session 2 08)*

**470. Clinical Selective in Occupational and Environmental Medicine (3-6)**

Clinical activity—9-18 hours. Prerequisite: fourth-year medical students in good academic standing; consent of instructor. Outpatient clinical experience in Occupational and Environmental Medicine at UCDCM and in local industries. Participants will gain experience in evaluating occ/env medical conditions, use of medical literature resources, the worker's compensation system, and toxicological principles. Students may take up to four weeks for six units. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) McCurdy

*(change in existing course—eff. summer session 2 08)*

**471. Health Issues Confronting Asian Americans and Pacific Islanders (4)**

Lecture/discussion—4 hours. Exploration of health issues confronting Asian Americans and Pacific Islanders. A framework for understanding health issues facing Asian Americans and Pacific Islanders. (H/P/F grading only.)—II. (II.) Chen

*(change in existing course—eff. summer session 2 08)*

**480. Insights in Occupational and Environmental Medicine (1-3)**

Clinical activity—3-9 hours. Prerequisite: first- or second-year medical student in good academic standing; consent of instructor. Students will observe and participate in research and clinical activities in occupational and environmental medicine which include conferences, occupational and environmental medicine clinical activities and field visits. Students develop and present small individual research projects. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Schenker

*(change in existing course—eff. summer session 2 08)*

**495. International Health (1)**

Lecture/discussion—1 hour. Prerequisite: medical student in good standing. Forum for learning health issues and health care systems in other countries. Topics include health care for refugees, the impact of political strife on health, the health care professional in international settings. (P/F grading only.)—III. (III.) Schenker

*(change in existing course—eff. summer session 2 08)*

**496. Current Issues in Public Health (1)**

Lecture/discussion—1 hour. Topical issues in public health. Speakers from the local public health community address issues such as disease control programs, access to care. May be repeated up to three times for credit. (P/F grading only.)—III. (III.) McCurdy

*(change in existing course—eff. summer session 2 08)*

**498. Study in Community and International Health (1-6)**

Prerequisite: medical student in good standing and consent of instructor. Study and experience for medical students in areas in community and international health. May be repeated for credit. (H/P/F grading only.)

*(change in existing course—eff. summer session 2 08)*

**499. Research in Community and International Health (1-9)**

Prerequisite: medical students with consent of instructor. Student will work with faculty member in areas of research interest, including but not limited to injury control, international health, health policy, occupational and environmental health, health promotion and wellness, women's health, and health demographics. (S/U grading only.)

*(change in existing course—eff. summer session 2 08)*

## Medicine: Radiation Oncology

**New and changed courses in Medicine: Radiation Oncology (RON)****Upper Division Course****190. Molecular and Cellular Radiation Biology Seminar (1)**

*(cancelled course—eff. fall 04)*

## Medicine: Surgery

**New and changed courses in Medicine: Surgery (SUR)****Professional Courses****480. Insights in Surgery (1-3)**

Clinical activity—3-9 hours. Prerequisite: medical student in good academic standing and consent of instructor. Individualized activities, including ward rounds, subspecialty clinics and conferences, grand rounds, and observation of a variety of surgical procedures. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.)

*(change in existing course—eff. fall 07)*

**481. Interactive Clinical Case Presentation (ICCP) (3)**

Clinical activity—1 hour. Prerequisite: fourth year medical students; open for third and fourth year student observers; maximum of 10-15 students in good standing. Case presentation of common clinical scenarios (i.e. chestpain/MI; fever/pneumonia; abdo pain/cholecystitis, etc.) from various discipline held in an auditorium with real patients exposure. Interactive session to review history, physical findings and case management. Students will be asked to perform H&P. Course taught as one session (4 hours) per month for three quarters (July to March). The students who enroll can earn up to three credits and the minimum requirements will be to attend at least six sessions. Students can do all nine sessions and work toward an honor. For the written part students will have to pick two of the nine case presentations and write a detailed paper with a literature review on "The Current management" of that disease-this can in fact be a manuscript submitted for publication with a faculty member as an advisor. (H/P/F grading only.)—I, II, IV. (I, II, IV.) Khatri

*(new course—eff. summer 07)*

**493. Clinically-Oriented Anatomy (6)**

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. This course will review aspects of the anatomy of the head and neck, thoracic cavity, abdomen, pelvis, extremities, vascular system, peripheral nervous system and central nervous system. The focus will be the understanding of anatomy related to common surgical procedures. Limited enrollment. (Same course as Cell Biology & Human Anatomy 493) (H/P/F grading only.)—III. (III.) Khatri, Kumari

*(new course—eff. spring 07)*

**493B. Critically Ill Surgical Patients SSM (6)**

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; UC Davis School of Medicine students only. Special Study Module, a four week course on the topic: Application of Basic Cardiopulmonary Physiology to Problems Encountered in Critically Ill Surgical Patients. (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Holcroft

*(new course—eff. spring 07)*

**493C. Physiological Principles in SICU SSM (6)**

Lecture—5 hours; lecture/laboratory—10 hours; laboratory—16 hours; clinical activity—4 hours. Prerequisite: consent of instructor; restricted to UC Davis School of Medicine students only. Special Study Module, a four week course on the topic: Care of the Critically Ill Surgical Patient: Use of Physiological Principles to Guide Treatment of Patients with Common Surgical Problems. (Same course as Human Physiology 493C.) (H/P/F grading only.)—I, II, III, IV. (I, II, III, IV.) Cala, Holcroft  
(change in existing course—eff. spring 07)

## Microbiology

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### New and changed courses in Microbiology (MIC)

#### Lower Division Courses

**10. Natural History of Infectious Diseases (3)**

Lecture—3 hours. Topics in the natural history of infectious diseases principally affecting humans. Introduction to infectious microbial agents, ecology, epidemiology, and induction of disease. Focus on diseases of a contemporary nature. For students not majoring in the biological sciences. Not open for credit to students who have completed course 102. GE credit: SciEng.—III. (III.) Manning  
(change in existing course—eff. spring 05)

**91. Introduction to Research (1)**

Seminar—1 hour. Prerequisite: Biological Sciences 1A or 2A or consent of instructor. Discussion of faculty research focusing on the biochemistry, genetics, and cell biology of microorganisms, along with ways undergraduates can participate in research projects of faculty members. May be repeated three times for credit. (P/NP grading only.)—III. (III.)  
(new course—eff. spring 09)

#### Upper Division Courses

**101. Introductory Microbiology (5)**

Lecture—4 hours; laboratory—3 hours. Prerequisite: Biological Sciences 1A, or 2A and Chemistry 2B (Chemistry 2B may be taken concurrently). Survey of microorganisms emphasizing their interactions with humans and diseases. Topics include microscopy, survey of various microbes, the immune system, food microbiology, microbial pathogens, and mechanisms of disease transmission. Designed for students requiring microbiology for professional schools. Not open for credit to students who have completed course 102 or 102L.—II, III. (II, III.) Singer  
(new course—eff. winter 09)

**102. General Microbiology (4)**

Lecture—4 hours. Prerequisite: Biological Sciences 1A or 2A, and Chemistry 8B or 118B (may be taken concurrently). Survey of the biology of microorganisms. Topics include microbial structure, physiology, genetics, and evolution; virology; environmental microbiology; the immune system; and microbial pathogens and disease transmission. In combination with course 102L, fulfills the Microbiology requirement for professional schools. Not open for credit to students who have completed course 101.—I, III. (I, III.)  
(change in existing course—eff. fall 08)

**102L. General Microbiology Laboratory (3)**

Lecture/laboratory—7 hours. Prerequisite: course 102 (may be taken concurrently); consent of instructor. Restrictions on Enrollment: Introduction to principles and laboratory methods in microbiology. Designed for students continuing in microbiology or using microorganisms as tools for the study of genetics and biochemistry. In combination with course 102, fulfills the microbiology requirement for professional schools. Due to the heavy demand for this class, students must fill out a petition in order to be considered for enrollment. The petition will be available on the Section of Microbiology Web site. Only two units of credit allowed to students who have completed course 101.—I, III. (I, III.)  
(change in existing course—eff. fall 08)

**105. Microbial Diversity (3)**

Lecture—3 hours. Prerequisite: course 102, Biological Sciences 102; Biological Sciences 103 recommended. Survey of the major groups of microorganisms emphasizing diversity of energy metabolism, morphology, evolution, and natural history. Survey of the major groups of microorganisms emphasizing diversity of energy metabolism, morphology, evolution, and natural history. Students who completed course 105 in 2005 or earlier received five units of credits for this lecture/laboratory course. If these students wish to repeat the class, they must enroll in both course 105 (lecture) and course 105L (laboratory) for a total of six units of credit.—II. (II.) Dawson, Parales  
(change in existing course—eff. winter 09)

**105L. Microbial Diversity Laboratory (3)**

Laboratory—9 hours (8 hours scheduled lab periods; 1 hour during open laboratory). Prerequisite: courses 102, 102L, 105 (may be taken concurrently), Biological Sciences 102; Biological Sciences 103 recommended. Isolation and characterization of microbial strains from various habitats. Includes methods for determination of evolutionary relationships among groups. Due to the heavy demand for this class, students must fill out a petition in order to be considered for enrollment. The petition will be available on the Section of Microbiology Web site. Not open for credit to students who completed course 105 in 2005 or earlier.—II. (II.) Dawson, Parales  
(change in existing course—eff. winter 09)

**115. Recombinant DNA Cloning and Analysis (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 101 or equivalent. Cloning and analysis of recombinant DNA, with emphasis on *Escherichia coli* host-vector systems. DNA-modifying enzymes; vectors and their use; manipulation and expression of insert DNA; polymerase chain reaction; and sequence annotation. Graduate students see course 215.—I. (I.) Stewart  
(new course—eff. fall 06)

**120. Microbial Ecology (3)**

Lecture—3 hours. Prerequisite: course 105, Biological Sciences 102 or 105. Interactions between non-pathogenic microorganisms and their environment, emphasizing physiological and metabolic characteristics of various groups and their adaptation to and modification of specific habitats.—III. (III.) Wheelis  
(change in existing course—eff. fall 08)

**120L. Microbial Ecology Laboratory (2)**

(cancelled course—eff. spring 08)

**140. Bacterial Physiology (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 101, 102, 103 (103 may be taken concurrently), or Biological Sciences 101, 105; Microbiology 102 recommended. Fundamentals of bacterial growth and bacterial responses to environmental stresses. Topics will include carbon and nitrogen regulation, growth rate control, post-exponential growth, and motility and chemotaxis. Not open for credit to students who have completed course 130A.—I. (I.) Meeks, Singer  
(change in existing course—eff. fall 08)

**150. Bacterial Genetics (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 101; 102 or 105; Microbiology 102 recommended. Molecular genetics of enterobacteria and their viruses. Isolation of mutants; genetic exchange and mapping; complementation; suppression; transposons; gene expression and regulation; and genomics. Examples will illustrate applications to molecular cloning of recombinant DNA, and to the study of bacterial pathogenesis.—II. (II.) Stewart  
(change in existing course—eff. fall 08)

**160. Bacterial Regulatory Mechanisms (3)**

(cancelled course—eff. spring 08)

**162. General Virology (4)**

Lecture—4 hours. Prerequisite: Biological Sciences 102 or 105. Integrated presentation of the nature of animal, bacterial, and plant viruses, including their structure, replication and genetics. Only three units to students who have completed Pathology, Microbiology, and Immunology 128.—II. (II.) Falk, Manning  
(change in existing course—eff. fall 08)

**170. Yeast Molecular Genetics (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 101; 102 or 105; Microbiology 102 or 140 strongly recommended. Survey of the genetics, cell biology and technologies in yeasts and related lower eukaryotes. Topics include diversity of yeasts; cell structure; metabolism; cell cycle; genetic approaches and genomics; gene expression; yeasts as models to study higher eukaryotes; and contemporary techniques.—III. (III.) Shiozaki  
(change in existing course—eff. fall 08)

**191. Introduction to Research for Advanced Undergraduates (1)**

Seminar—1 hour. Prerequisite: Biological Sciences 1A or 2A or consent of instructor. Discussion of faculty research focusing on the biochemistry, genetics, and cell biology of microorganisms, along with ways undergraduates can participate in research projects of faculty members. May be repeated three times for credit. (P/NP grading only.)—III. (III.)  
(new course—eff. spring 08)

#### Graduate Courses

**276. Advanced Concepts in DNA Metabolism (3)**

Lecture—3 hours. Prerequisite: Molecular and Cellular Biology 221C or Genetics 201C or equivalent course recommended. DNA damage checkpoints, homologous recombination, and meiotic recombination. An advanced treatment of the clinical and current literature to discuss emerging principles and current models in these research areas. Offered in alternate years.—II. Heyer  
(new course—eff. fall 08)

**296. Seminar in Animal Virology (1)**

Seminar—1 hour. Prerequisite: graduate-level standing or consent of instructor. A discussion of the current topics in animal virology. (Same course as Pathology, Microbiology, and Immunology 292A.) May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.) Marthas, Miller  
(change in existing course—eff. summer session 2 06)

## Middle East/South Asian Studies

### New and changed courses in Arabic (ARB)

#### Lower Division Course

##### 1A. Intensive Elem Arabic (15)

Lecture/discussion—15 hours. Special 12-week accelerated, intensive summer session course that combines the work of courses 1, 2, and 3. Introduction to Modern Standard Arabic through development of all language skills in a cultural context with emphasis on communicative proficiency. Not open for credit to students who have completed course 1, 2, or 3. Not offered every year.—IV. (IV.) Sharlet  
(new course—eff. summer session 1 07)

### New and changed courses in Middle East and South Asian Studies (MSA)

#### Lower Division Courses

##### 92. Internship in Middle East/South Asia Studies (3-15)

Internship. Prerequisite: consent of instructor. Work experience on and off campus in all subject areas offered as part of the ME/SA Studies program. Internship supervised by a member of the ME/SA faculty. May be repeated for credit up to 15 units. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)  
(new course—eff. fall 07)

##### 98. Directed Group Study (1-5)

Prerequisite: consent of instructor (P/NP grading only.)  
(new course—eff. fall 06)

##### 99. Special Study for Undergraduates (1-5)

Prerequisite: consent of instructor (P/NP grading only.)  
(new course—eff. fall 06)

#### Upper Division Courses

##### 100. Middle East and South Asia: Comparative Perspectives (4)

Lecture—3 hours; extensive writing. Ethnographic and historical points of intersection and divergence in various aspects of the Middle East and South Asia in precolonial, colonial, and postcolonial societies. Anthropological, historical, and theoretical debates surrounding the region. GE credit: ArtHum, Div, Wrt.

##### 112. History of South Asian Islam (4)

Lecture—3 hours; discussion—1 hour. Comparative study of Muslim communities of South Asia. Commonalities in cultural identity and historical experience. Rise and spread of Islam, comparative history of Islamic Empires, colonial rule, and post-colonial nationalism. Not offered every year.—II. Sen  
(new course—eff. fall 07)

## Molecular and Cellular Biology

### New and changed courses in Molecular and Cellular Biology (MCB)

#### Upper Division Courses

##### 122. Structure and Function of Proteins (3)

(cancelled course—eff. winter 07)

##### 124. Macromolecular Structure and Function (4)

Lecture—4 hours. Prerequisite: Biological Sciences 103, Chemistry 107B, 118C. An in-depth investigation into protein and nucleic acid structure and thermodynamics and how these properties influence their biological functions. Key examples of important functional classes of these molecules will be examined. Not open for credit to students who have completed course 122 or Chemistry 108.—I, III. (I, III.) Baldwin, Stahlberg

(new course—eff. fall 06)

##### 126. Plant Biochemistry (3)

Lecture—3 hours. Prerequisite: Biological Sciences 103 or 105. The biochemistry of important plant processes and metabolic pathways. Discussion of methods used to understand plant processes, including use of transgenic plants. (Same course as Plant Biology 126.)—II. (II.) Abel, Callis

(change in existing course—eff. spring 08)

##### 140L. Cell Biology Laboratory (5)

Lecture—2 hours; laboratory—6 hours; discussion—1 hour. Prerequisite: Biological Sciences 104 (may be taken concurrently). Exercises illustrating the principles of cell biology with emphasis on light microscopy.—II. (II.) Nunnari

(change in existing course—eff. winter 09)

##### 150. Developmental Biology (4)

Lecture—4 hours. Prerequisite: Biological Sciences 101 and concurrent enrollment in course 150L. Analysis of the mechanistic basis for animal development with a focus on experimental evidence and the relevant fundamental experimental strategies. Fertilization and early development, morphogenesis and patterning, cell differentiation, regulation of cell proliferation and tissue growth.—I. (I.) Armstrong, Edwards

(change in existing course—eff. fall 08)

##### 150L. Laboratory in Developmental Biology (1)

Laboratory—3 hours. Prerequisite: concurrent enrollment in course 150. Experiments using live embryos and histological slide preparations of developing embryos will be used to investigate and illustrate the basic mechanisms of animal development. (P/NP grading only.)—I. (I.) Edwards

(change in existing course—eff. fall 08)

#### Graduate Courses

##### 242. Muscle Biophysics (4)

(cancelled course—eff. winter 08)

##### 251. Molecular Mechanisms in Early Development (3)

Lecture—3 hours. Prerequisite: graduate standing or consent of instructor; introductory background in developmental biology and/or cell biology recommended. Analysis of the early events of development including: germ cells and other stem cells, gametogenesis, meiosis, imprinting, fertilization, genetically-engineered organisms, egg activation and establishment of embryonic polarity with focus on cellular events including gene regulation and cell signaling. Offered in alternate years.—(I.) Myles

(change in existing course—eff. spring 07)

##### 255. Molecular Mechanisms in Pattern Formation and Development (3)

Lecture—3 hours. Prerequisite: graduate standing or consent of instructor; introductory background in developmental biology and/or genetics recommended. Genetic and molecular analysis of mechanisms that control animal development after fertilization. Establishment of embryonic axes, cell fate and embryonic pattern; induction, apoptosis, tissue patterning. Critical reading of current literature in *C.elegans*, *Drosophila*, and mouse genetic model systems. Offered in alternate years.—III. Natzle, Rose

(change in existing course—eff. spring 07)

##### 262. Transgenic Expression Systems (3)

(cancelled course—eff. winter 08)

## Molecular, Cellular, and Integrative Physiology

### New and changed courses in Molecular, Cellular, and Integrative Physiology (MCP)

#### Upper Division Courses

##### 210A. Advanced Physiology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Physiology Ph.D. program, or consent of instructor. Advanced course in general principles of physiology, surveying homeostasis, cellular and selected topics, and neurophysiology. (Same course as Human Physiology 210A.)—I. (I.) Adams  
(change in existing course—eff. spring 06)

##### 210B. Advanced Physiology (6)

Lecture—5 hours; discussion—1 hour. Prerequisite: Physiology 210A; Physiology Ph.D. program, or consent of instructor. Advanced course on general principles of physiology, surveying homeostasis, cellular and selected topics, and neurophysiology.—II. (II.) Adams  
(change in existing course—eff. spring 06)

##### 210C. Advanced Physiology (5)

Lecture—5 hours. Prerequisite: doctoral student in the Molecular, Integrative and Comparative Physiology Graduate Group, or consent of instructor. Graduate level instruction in the general principles of physiology and the neural and humoral control of the cardiovascular, renal, respiratory, gastrointestinal, sensory, musculoskeletal, and reproductive systems.—III. (III.) Adams  
(change in existing course—eff. spring 08)

##### 220. General and Comparative Physiology of Reproduction (3)

Lecture—3 hours. Prerequisite: Neurobiology, Physiology, and Behavior 110, 110L; Biological Sciences 101, 103. Basic phenomena of sexual and asexual reproduction and comparisons of processes in a wide variety of animals; gamete formation, structure, and metabolism; fertilization; neuroendocrine mechanisms in maturation and reproductive cycles; behavioral aspects.—III. (III.) Adams, Berger, Conley  
(change in existing course—eff. spring 07)

##### 255. Physiology of the Stress Response (2)

Lecture/discussion—2 hours. Prerequisite: graduate student status. Definition of Stress; Physiological mechanisms of adaptation to stress; Hormonal control of the systemic stress response; Mechanisms of the cellular stress response; Discussion of current trends in stress physiology and current methods for studying the stress response. (Same course as Animal Biology 255.)—III. (III.) Kueltz

(new course—eff. summer session 2 06)

## Music

### New and changed courses in Music (MUS)

#### Lower Division Courses

##### 6A. Elementary Theory, Part 1 (3)

Lecture—3 hours. Prerequisite: Admission by examination given during first class meeting; concurrent enrollment in course 16A and 2A or demonstration of required proficiency level on diagnostic exam. Development of music writing and listening skills through the study of music fundamentals, species counterpoint, harmony, analysis of repertory. Intended primarily for music majors.—I. (I.) Nichols  
(change in existing course—eff. fall 06)

##### 6B. Elementary Theory, Part 2 (3)

Lecture—3 hours. Prerequisite: course 6A; concurrent enrollment in course 16B and 2B or demonstration of required proficiency level on diagnostic exam. Continuation of course 6A.—II. (II.) Chang  
(change in existing course—eff. fall 06)

##### 6C. Elementary Theory, Part 3 (3)

Lecture—3 hours. Prerequisite: course 6B; concurrent enrollment in course 16C and 2C or demonstration of required proficiency level on diagnostic exam. Continuation of courses 6A-B.—III. (III.) Nichols  
(change in existing course—eff. fall 06)

##### 7B. Intermediate Theory, Part 2 (3)

Lecture—3 hours. Prerequisite: course 7A; course 17B concurrently. Nineteenth-century harmony and voice leading through the music of the Romantic era. Focus on analysis of music by Chopin, Schumann, Brahms, Wagner, and Wolf. Composition of character pieces and songs. Intended for Music majors.—II. (II.) Frank  
(change in existing course—eff. fall 06)

##### 7C. Intermediate Theory, Part 3 (3)

Lecture—3 hours. Prerequisite: course 7B; course 17C concurrently. The music of the first thirty years of the twentieth century and various analytical tools pertaining to it. Works of Debussy, Stravinsky, Schoenberg, Berg, and others. Composition of small pieces for solo instruments, voice and piano. Intended for Music majors.—III. (III.) Bauer  
(change in existing course—eff. fall 06)

##### 16A. Elementary Musicianship, Part 1 (2)

Lecture/laboratory—2 hours. Prerequisite: concurrent enrollment in course 6A is required; students must pass a short diagnostic exam, at the beginning of the quarter, in order to be admitted into the course. The melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis.—I. (I.) Triest  
(change in existing course—eff. fall 06)

##### 16B. Elementary Musicianship, Part 2 (2)

Lecture/laboratory—2 hours. Prerequisite: concurrent enrollment in course 6B is required; course 16A or demonstration of required proficiency level on diagnostic exam. The melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis.—II. (II.) Triest  
(change in existing course—eff. fall 06)

##### 16C. Elementary Musicianship, Part 3 (2)

Lecture/laboratory—2 hours. Prerequisite: concurrent enrollment in course 6C is required; course 16B or demonstration of required proficiency level on diagnostic exam. The melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis.—III. (III.) Triest  
(change in existing course—eff. fall 06)

##### 17A. Intermediate Musicianship, Part 1 (2)

Lecture/laboratory—2 hours. Prerequisite: course 7A concurrently; successful completion of course 16C or demonstrate required proficiency level on diagnostic exam. The melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis.—I. (I.) Craig  
(change in existing course—eff. fall 06)

##### 17B. Intermediate Musicianship, Part 2 (2)

Lecture/laboratory—2 hours. Prerequisite: course 7B concurrently; successful completion of course 17A or demonstrate required proficiency level on diagnostic exam. The melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis.—II. (II.) Craig  
(change in existing course—eff. fall 06)

##### 17C. Intermediate Musicianship, Part 3 (2)

Lecture/laboratory—2 hours. Prerequisite: course 7C concurrently; successful completion of course 17B or demonstrate required proficiency level on diagnostic exam. The melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis.—III. (III.) Craig  
(change in existing course—eff. fall 06)

##### 30A-U. Applied Study of Music: Intermediate (1)

(cancelled course—eff. fall 06)

##### 31A-U. Applied Study of Music: Intermediate (Individual) Performance Instruction (2)

(cancelled course—eff. fall 06)

##### 47. University Wind Ensemble (2)

(cancelled course—eff. fall 06)

#### Upper Division Courses

##### 101A. Advanced Theory, Part 1 (4)

Lecture—3 hours; lecture/laboratory—1 hour. Prerequisite: course 7C. Twentieth-century music from 1930 through 1950 and the various analytical tools pertaining to it. Works of Copland, Sessions, Schoenberg, Bartók, and Stravinsky. Composition of small pieces for piano and voice.—I. (I.) Bauer  
(change in existing course—eff. fall 06)

##### 101B. Advanced Theory, Part 2 (4)

Lecture—3 hours; lecture/laboratory—1 hour. Prerequisite: course 101A. Music from 1950 to the present and the analytical tools pertaining to it. Works of Babbitt, Carter, Dallapiccola, Ligeti, Messiaen, Reich and others. Composition of small pieces for ensemble.—II. (II.) Bauer  
(change in existing course—eff. fall 06)

##### 102. Tonal Counterpoint (4)

Lecture—3 hours; practice—1 hour. Prerequisite: course 7C. Imitative tonal counterpoint with an analytical focus on the Two-Part Inventions and fugues from the The Well-Tempered Klavier by J. S. Bach. Composition of exercises and short pieces using contrapuntal techniques. Intended for music majors.—III. (III.) Ortiz  
(change in existing course—eff. fall 06)

##### 109. Masterworks in Performance (2)

(cancelled course—eff. fall 06)

##### 113. Introduction to Conducting (2)

Lecture—1 hour; performance—1 hour. Prerequisite: consent of instructor; course 7C. Principles and techniques of conducting as they apply to both choral and instrumental ensembles. Not offered every year. Holoman, Thomas  
(change in existing course—eff. fall 06)

##### 130S. Applied Study of Music: Advanced (1)

(cancelled course—eff. fall 06)

##### 130T. Applied Study of Music: Advanced (1)

(cancelled course—eff. fall 06)

##### 131S. Applied Study of Music: Advanced (Individual) (2)

(cancelled course—eff. fall 06)

##### 131T. Applied Study of Music: Advanced (Individual) (2)

(cancelled course—eff. fall 06)

##### 131U. Applied Study of Music: Advanced (Individual) (2)

(cancelled course—eff. fall 06)

##### 192. Internship in Music (1-4)

Internship—3-12 hours. Prerequisite: consent of instructor and academic advisor or department chairperson. For Music majors. Internship outside the university related to music. Student must submit a written proposal to an appropriate Music Department instructor. May be repeated up to eight units of credit. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)  
(change in existing course—eff. fall 06)

#### Graduate Course

##### 200. Music Research (4)

(cancelled course—eff. fall 06)

## Native American Studies

### New and changed courses in Native American Studies (NAS)

#### Lower Division Course

##### 98. Directed Group Study (1-5)

Prerequisite: consent of instructor. (P/NP grading only.)  
(new course—eff. winter 07)

#### Upper Division Courses

##### 108. Indigenous Languages of California (4)

Lecture/discussion—4 hours. Survey of the indigenous languages of the California region: linguistic prehistory, languages at first European contact, subsequent language loss, current efforts at language and cultural revitalization, indigenous languages of recent immigrants to California. GE credit: Div, Wri.—III. (III.) Macri  
(new course—eff. spring 07)

##### 192. Internship (1-12)

Internship. Prerequisite: consent of instructor; upper division standing; dependent on availability of intern position in Native American Studies or the CN Gorman Museum; priority to Native American Studies minors/major. Supervised internship in the CN Gorman Museum, community, and institutional settings related to Native American concerns. May be repeated three times for a maximum of 12 units including 192 and other internships taken in other departments and institutions. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.) Tsinhnahjinnie  
(change in existing course—eff. winter 06)

#### Graduate Course

##### 213. Public Law 83-280: Colonial Termination (4)

Seminar—4 hours. Prerequisite: graduate standing, including school of law students. Examination of the signature law of the Termination Era, Public Law 83-280. Discussions to include termination, societal conformity, political consent, jurisdiction, self-determination & decolonization, and colonial relationship between Native Peoples and the United States.—I, II, III. (I, II, III.) Valandra  
(new course—eff. spring 07)

## Nature and Culture

### New and changed courses in Nature and Culture (NAC)

#### Upper Division Courses

##### 194H. Special Study for Honors Students (3)

Seminar—3 hours; term paper. Prerequisite: consent of instructor; admission to the Nature and Culture Honors program. Students must contact the department before enrolling. Supervised reading, research and writing to prepare for developing a project proposal under the direction of faculty sponsor. Not offered every year.—I, II.

(new course—eff. fall 06)

##### 195H. Honors Project (3)

Independent study; project. Prerequisite: consent of instructor; admission to the Nature and Culture Honors program. Students must contact the department before enrolling. Second of a two-course sequence comprising the senior honors program. It is an individual-study course in which a student produces an honors project under the supervision of a faculty member. Not offered every year.—II, III.

(new course—eff. spring 06)

## Neurobiology, Physiology, and Behavior

### New and changed courses in Neurobiology, Physiology, and Behavior (NPB)

#### Lower Division Courses

##### 10. Elementary Human Physiology (4)

Lecture/discussion—4 hours. Introduction to physiology for non-science majors. Includes basic cell physiology and survey of major organ systems and how they function in homeostasis and human health. Not open for credit to students who have completed course 101. GE credit: SciEng.—II. (II.) Antognini, Bautista

(change in existing course—eff. winter 08)

##### 68. Biology of Drug Addiction and Abuse (3)

Lecture—3 hours. Broad examination of addictive substances and their use/abuse. Topics include historical perspective, physiological effects, etiology, neurobiology of addiction and the impact of drugs on contemporary society. Intended for non-science majors. Not open for credit to students having completed course 168. GE Credit: SciEng.—III. (III.) Bautista

(new course—eff. spring 08)

##### 90B. Human Color Perception (2)

Seminar—2 hours; term paper. Prerequisite: lower division standing. The neural determinants of color appearance, and why we see the world in the way we do. Discussions center around demonstrations of color phenomena and what they tell us about the human brain. Limited enrollment.—II. (II.) Werner

(change in existing course—eff. spring 08)

##### 90F. Visual Impairment and Blindness: A World Wide Problem (2)

Seminar—2 hours. Prerequisite: lower division standing. Examination of various abnormalities of the eye and the important geographic and cultural factors that influence the epidemiology of those abnormalities.—II. (II.) Choi

(new course—eff. winter 07)

#### Upper Division Courses

##### 100. Neurobiology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 1A, 1B, or 2A, 2B, 2C and Chemistry 2B; Physics 5C or 7C recommended. Brains and nervous systems, neurons and neural circuits. Vision, hearing, and feature extraction by the central nervous system. Development of nervous systems. Coordination of movement. The cell biology of learning and memory. Perception, cognition, and disorders of the brain. Not open for credit to students who have completed course 112, 160, 161 or 162, or Neuroscience 221 or 222.—I, II, III. (I, II, III.) Chapman, Mulloney, Sutter

(change in existing course—eff. fall 08)

##### 100Q. Quantitative Foundations of Neurobiology (1)

Autotutorial—1.5 hours; extensive problem solving—1.5 hours. Prerequisite: course 100 (may be taken concurrently). Computational methods and mathematical models used to study phenomena in neurobiology.—I, II, III. (I, II, III.) Chapman, Cheng, Mulloney, Sutter

(change in existing course—eff. spring 08)

##### 101. Systemic Physiology (5)

Lecture—5 hours. Prerequisite: Biological Sciences 1A, or 2A and Chemistry 2B; Physics 1B or 7C strongly recommended. Systemic physiology with emphasis on aspects of human physiology. Functions of major organ systems, with the structure of those systems described as a basis for understanding the functions. Only three units of credit awarded for students having taken Biomedical Engineering 116.—I, II, III. (I, II, III.) DeBello, Furlow, Ishida, Goldberg, Sillman, Usrey, Weidner

(change in existing course—eff. fall 08)

##### 101L. Systemic Physiology Laboratory (3)

Laboratory—3 hours; discussion—2 hours; term paper. Prerequisite: course 101. Selected experiments to illustrate functional characteristics of organ systems discussed in course 101.—I, II, III. (I, II, III.) Bautista, Goldberg, Liets

(change in existing course—eff. summer 06)

##### 102. Animal Behavior (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C. Basic principles of behavioral organization in vertebrate and invertebrate animals. Underlying physiological and ethological mechanisms. The evolution of behavior, with special emphasis on behavior under natural conditions. Not open for credit to students who have completed course 155. (Former course 155.)—II, III. (II, III.) Hahn, Nevitt

(change in existing course—eff. fall 08)

##### 103. Cellular Physiology/Neurobiology (3)

Lecture—3 hours. Prerequisite: Biological Sciences 103 or 105, and 104; Physics 7C recommended. Cellular physiology with emphasis on membrane transport processes and neuronal physiology. Fundamental physical-chemical and biological mechanisms of membrane transport will be considered in relation to cytoplasmic homeostasis, communication between cells, and the cellular mechanisms of sensory and motor transduction. Not open for credit to students who have completed course 100B (Former course 100B.)—II. (II.) Pappone

##### 104L. Cellular Physiology/Neurobiology Laboratory (4)

Lecture—1 hour; laboratory—3 hours; discussion—1 hour; term paper or discussion. Prerequisite: courses 101 and 101L; Biological Sciences 103 or 105. Experiments in the physical and chemical processes of cells and tissues. GE Credit: Wrt.—II. (II.) Liets

(change in existing course—eff. spring 08)

##### 111L. Advanced Systemic Physiology Laboratory (4)

Lecture—1 hour; discussion—1 hour; laboratory—3 hours; term paper. Prerequisite: courses 101 and 101L. Selected comprehensive experiments in the autonomic nervous system and the cardiovascular, respiratory, and neuromuscular systems. Emphasis on conceptual and methodological approaches in demonstrating the physiology of organ systems. GE credit: Wrt.—I, III. (I, III.) Liets

(change in existing course—eff. summer session 1 06)

##### 114. Gastrointestinal Physiology (3)

Lecture—3 hours. Prerequisite: course 101; Biological Sciences 105 or 103 recommended, 105 preferred. Gastrointestinal anatomy and physiology. Digestion, secretion, absorption, motility, comparative physiology and pathology. Strong emphasis on neural and hormonal regulation and on cellular mechanisms of secretion and absorption.—I. (I.) Bautista

(change in existing course—eff. fall 08)

##### 117. Avian Physiology (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1B, or 2A and 2B and Chemistry 2B; course 101 strongly recommended. Physiology of the various systems of birds with emphasis on digestion, respiration, excretion, and endocrine systems.—III. (III.) Millam

(change in existing course—eff. fall 08)

##### 121. Physiology of Reproduction (4)

Lecture—4 hours. Prerequisite: course 101. Physiological mechanisms related to reproduction, breeding efficiency and fertility, with special reference to domestic animals.—II. (II.) Berger

(change in existing course—eff. winter 08)

##### 123. Comparative Vertebrate Organology (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: Biological Science 1A and 1B or 2A and 2B. Functional anatomy of major organ systems in vertebrates. Each system examined from cellular to gross level in fish, birds, and mammals. Emphasis on how differentiated cell types are integrated into tissues and organs to perform diverse physiological functions. (Same course as Anatomy, Physiology and Cell Biology 100.)—II. (II.) Bautista

(change in existing course—eff. winter 08)

##### 132. Nature vs. Nurture: Physiological Interactions Among Genes, Nutrients and Health (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1A or 2A or consent of the instructor. Biochemical, physiological, genetic, and nutritional causes of important medical problems such as obesity, anorexia, heart disease and diabetes. One unit of credit allowed to students who have completed course 131. GE Credit: SciEng.—I. (I.) Warden

(new course—eff. fall 08)

##### 141. Physiological Adaptation of Marine Organisms (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: upper division standing; consent of the instructor; residence at Bodega Marine Laboratory required. Students must submit application available at <http://www.bml.ucdavis.edu>. Physiological adaptation to the environment among organisms in marine and estuarine habitats.—III. (III.) Chang, Cherr

(change in existing course—eff. summer session 1 06)

**141P. Physiological Adaptation of Marine Organisms/Advanced Laboratory Topics (5)**

Laboratory—12 hours; discussion—1 hour. Prerequisite: course 141 concurrently; residence at Bodega Marine Laboratory required. Students must submit application available at <http://www.bml.ucdavis.edu>. Training in scientific research from hypothesis to publication, including methods of library research. Research related to a topic covered in course 141.—III. (III.) Chang, Cherr  
(change in existing course—eff. spring 06)

**Graduate Course****211. Advanced Topics in Neuroimaging (2)**

Seminar—2 hours. Prerequisite: Psychology 210 or consent of instructor. Critical presentation and discussion of the most influential advanced issues in neuroimaging, emphasizing fMRI design/analysis and the integration of fMRI with EEG/MEG. Limited enrollment. (Same course as Neuroscience 211 and Psychology 211.) (S/U grading only.)—II. (II.) Miller  
(new course—eff. winter 07)

**Neurology****New and changed courses in Neurology (NEU)****Professional Course****420. Clinical Neurosciences (2)**

Lecture/discussion—1 hour; lecture—1.5 hours. Prerequisite: medical students only. Pathophysiology underlying neurological disorders, including disorders of development, muscle, nerve, cerebral circulation, metabolism, myelin, cortical function, movement, cerebrospinal fluid, autonomic function and special senses. Anatomical basis of clinical testing, nervous system infection, neoplasia and trauma. (P/F grading only.)—IV. (IV.) Wheelock  
(change in existing course—eff. summer 07)

**Neuroscience****New and changed courses in Neuroscience (NSC)****Graduate Courses****211. Advanced Topics in Neuroimaging (2)**

Seminar—2 hours. Prerequisite: Psychology 210 or consent of instructor. Critical presentation and discussion of the most influential advanced issues in neuroimaging, emphasizing fMRI design/analysis and the integration of fMRI with EEG/MEG. Limited enrollment. (Same course as Neurobiology, Physiology and Behavior 211 and Psychology 211.) (S/U grading only.)—II. (II.) Miller  
(new course—eff. fall 07)

**225. Translational Research in the Neurobiology of Disease (2)**

Lecture—1 hour; discussion—1 hour. Prerequisite: Past or concurrent enrollment in Neuroscience courses 221, 222, 223, or permission of instructor; restricted to current graduate student enrollment or permission of instructor. This course will provide an overview of major neuropsychiatric and neurological disorders from both the clinical and fundamental science perspectives. Offered in alternate years.—III. Carter, Jones, Schwartzkroin  
(new course—eff. spring 08)

**289. Topics in Molecular and Developmental Neurobiology (1)**

Seminar—2 hours. Analysis and discussion of seminal and current research papers in molecular and developmental neurobiology. Different topics will be covered each quarter. In the past topics have included, "Synaptic vesicle dynamics," "Neuronal polarity," and "Glutamate receptors." May be repeated ten times for credit when topic differs. (S/U grading only.)—II, III. (II, III.) McAllister, Diaz, Zito  
(new course—eff. winter 08)

**Nutrition****New and changed courses in Nutrition (NUT)****Lower Division Course****11. Current Topics and Controversies in Nutrition (2)**

Discussion—1.5 hours; term paper. Exploration of current applications and controversies in nutrition. Students read scientific journal articles and write summaries, as well as give brief oral presentations. Topics change to reflect current interests and issues. GE credit: Wrt.—I, II, III. (I, II, III.) Applegate  
(change in existing course—eff. summer session 1 06)

**Graduate Courses****263. Applied Research Methods in Maternal and Child Nutrition (4)**

Lecture—3 hours; term paper. Prerequisite: graduate standing; restricted to students enrolled in the MAS program and graduate students by consent of instructor. Application of epidemiological principles to the study of maternal and child nutrition. Topics include quantitative and qualitative study procedures, including study design, data collection, and related analytical techniques.—I. (I.) Dewey, Heinig, Kaiser  
(new course—eff. fall 07)

**264A. Current Topics in Maternal and Child Nutrition: Principles of Adult Education (2)**

Seminar—2 hours. Prerequisite: graduate standing; restricted to students enrolled in the MAS program and graduate students by consent of instructor. Current scientific literature related to Maternal and Child Nutrition in adult education settings. Topics include methods and theories of adult education and critical thinking skills related to research evaluation.—II. (II.) Dewey, Heinig, Kaiser  
(new course—eff. fall 07)

**264B. Current Topics in Maternal and Child Nutrition: Epidemiology and Evidence-Based Practice (2)**

Seminar—2 hours. Prerequisite: graduate standing; restricted to students enrolled in the MAS program and graduate students by consent of instructor. Current scientific literature related to Maternal and Child Nutrition. Topics include epidemiology, evidence-based practice, breast feeding promotion, and nutritional assessment of populations.—II. (II.) Dewey, Heinig, Kaiser  
(new course—eff. fall 07)

**264C. Current Topics in Maternal and Child Nutrition: Public Policy Development and Implementation (2)**

Seminar—2 hours. Prerequisite: graduate standing; restricted to students enrolled in the MAS program and graduate students by consent of instructor. Current scientific literature related to Maternal and Child Nutrition. Topics include nutrition surveillance and monitoring, as well as public policy development and implementation.—III. (III.) Dewey, Heinig, Kaiser  
(new course—eff. fall 07)

**Pharmacology and Toxicology****New and changed courses in Pharmacology and Toxicology (PTX)****Graduate Course****277. Life and Death Decisions at the Cellular Level (2)**

Lecture—2 hours. Prerequisite: undergraduate or graduate introductory course in cell biology (such as Biological Sciences 104), and general biochemistry (Molecular and Cellular Biology 121 or 122) required; restricted to graduate standing or consent of instructor. Fundamental concepts in cell signaling; signaling pathways as related to cell death and a variety of human diseases including cancer, Alzheimer's, and Parkinson's.—III. (III.) Goldkorn  
(new course—eff. spring 07)

**Philosophy****New and changed courses in Philosophy (PHI)****Lower Division Courses****12. Introduction to Symbolic Logic (4)**

Lecture—3 hours; discussion—1 hour. Syntax and semantics of the symbolic language sentence logic. Symbols of sentence logic. Translation between sentence logic and English. Truth table interpretation of sentence logic. Proof techniques. Application of truth tables and proof techniques to arguments in English. Not open for credit to students who have taken course 112, 113, 131, 134, or 135.—I, IV. (I, IV.) Gilmore  
(change in existing course—eff. fall 08)

**17. Language, Thought, and World (4)**

Lecture—3 hours; discussion—1 hour. Puzzles in the philosophy of language, such as what language is, how language conveys thoughts, whether we each speak our own private language, and what we can learn about the world by studying language. GE credit: SocSci, Wrt.—Jackson  
(new course—eff. fall 07)

**22N. History of Philosophy: Early Modern (4)**

(cancelled course—eff. spring 07)

**Upper Division Courses****113. Metalogic (4)**

Lecture/discussion—4 hours. Prerequisite: course 112, Mathematics 108, or the equivalent. The meta-logic of classical propositional and first-order predicate logic. Consistency, soundness and completeness of both propositional and predicate logic. The Löwenheim-Skolem theorem for predicate logic. Undecidability of predicate logic. Offered in alternate years.—(III.) Glanzberg  
(change in existing course—eff. fall 06)

**127. Film Theory (4)**

(cancelled course—eff. fall 07)

**137A. Philosophy of Language: Theory of Reference (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in philosophy or linguistics. Survey of issues and views concerning reference, or how words refer to things. Topics include names and descriptions, the distinction between sense and reference, the puzzle of non-referring terms, causal theories of reference, and possibility and necessity. Only two units of credit for students who have completed course 137.—Jackson  
(new course—eff. fall 07)



**137B. Philosophy of Language: Truth and Meaning (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in philosophy or linguistics. Comparative treatment of theories about the relationship between truth and meaning. Topics include: the identification of meaning with truth conditions, the nature of propositions, theories of linguistic understanding, the roles of mind and world in determining meaning. Only two units of credit for students who have completed course 137.—Glanzberg  
(new course—eff. fall 07)

**137C. Philosophy of Language: Semantics and Pragmatics (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in philosophy or linguistics. Philosophical issues and positions concerning the meaning and use of language. Topics include the distinction between meaning and implication, the roles of context and convention in language use, speaker meaning versus linguistic meaning and speech act theory. Only two units of credit for students who have completed course 137.—Sennet  
(new course—eff. fall 07)

**Graduate Courses****200A. Proseminar I (4)**

Seminar—3 hours; term paper. Prerequisite: consent of instructor; open only to students in their first quarter of the Philosophy Ph.D. program. Intensive study of core works in a selected area of philosophy. Intensive experience in philosophical writing, discussion, and presentation of written work.—I. (I.)  
(new course—eff. fall 07)

**200B. Proseminar II (4)**

Seminar—3 hours; term paper. Prerequisite: consent of instructor; only for students in their first quarter of Philosophy Ph.D. program. Intensive study of core works in a selected area of philosophy. Intensive experience in philosophical writing, discussion, and presentation of written work. Limited enrollment.—I. (I.)  
(new course—eff. winter 07)

**213. Advanced Logic for Graduate Students (4)**

Lecture/discussion—3 hours; extensive problem solving. Prerequisite: graduate standing in Philosophy; enrollment in the Philosophy Ph.D. program. Intensive study of advanced logic, including set theory, metatheory of predicate logic, and modal logic.—I. (I.) Glanzberg, Matthey  
(new course—eff. fall 06)

**Physics****New and changed courses in Physics (PHY)****Lower Division Course****30. Fractals, Chaos and Complexity (3)**

Lecture/discussion—3 hours. Modern ideas about the unifying ideas of fractal geometry, chaos and complexity. Basic theory and applications with examples from physics, earth sciences, mathematics, population dynamics, ecology, history, economics, biology, computer science, art and architecture. Offered in alternate years. (Same course as Geology 30.) GE Credit: SciEng.—II. Rundle  
(new course—eff. winter 08)

**Upper Division Courses****105C. Continuum Mechanics (4)**

Lecture—3 hours. Prerequisite: 104A and 105A passed with a grade of C- or better, or consent of department. The continuum hypothesis and limitations, tensors, isotropic constitutive equations, and wave propagation. Applications such as elastic solids, heat flow, aerodynamics, and ocean waves.—III. (III.)  
(change in existing course—eff. spring 06)

**115A. Foundation of Quantum Mechanics (4)**

Lecture—3 hours; extensive problem solving. Prerequisite: courses 104A and 105A passed with a grade of C- or better, or consent of department. Introduction to the methods of quantum mechanics with applications to atomic, molecular, solid state, nuclear and elementary particle physics. Extensive problem solving.—III. (III.)  
(change in existing course—eff. winter 07)

**116A. Electronic Instrumentation (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 9C and Math 22B or consent of instructor. Experimental and theoretical study of important analog electronic circuits. Linear circuits, transmission lines, input impedance, feedback, amplifiers, oscillators, noise.—I. (I.) Pellett  
(change in existing course—eff. fall 08)

**116B. Electronic Instrumentation (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 9C or 9HD or consent of instructor. Continuation of course 116A. Introduction to the use of digital electronics and microcomputers in experimental physics. Nonlinear electronics, integrated circuits, analog-to-digital and digital-to-analog converters, transducers, actuators.—II. (II.) Pellett  
(change in existing course—eff. spring 08)

**121. Atomic Physics (4)**

(cancelled course—eff. summer session 1 06)

**122A. Advanced Laboratory in Condensed Matter Physics (4)**

Laboratory—8 hours. Prerequisite: course 115A or consent of the department. Experimental techniques and measurements in solid-state physics. Student performs three to six experiments depending on difficulty. Individual work is stressed. Thorough write-ups of the experiments are required.—II, III. (II, III.)  
(new course—eff. winter 07)

**122B. Advanced Laboratory in Particle Physics (4)**

Laboratory—8 hours. Prerequisite: course 115A or consent of the department. Experimental techniques and measurements in nuclear and particle physics. Students perform three to six experiments depending on difficulty. Individual work is stressed. Thorough write-ups of the experiments are required.—II, III. (II, III.)  
(new course—eff. spring 07)

**123. Signals and Noise in Physics (4)**

Lecture—3 hours; project—1 hour. Prerequisite: courses 9A, B, C, D and 104A, or consent of instructor. Techniques of measurement and analysis designed to avoid systematic error and maximize signal/noise ratio. Illustrative examples of optimal filters ranging from condensed matter to cosmology. Not open to students who have completed this course previously as course 198.—II. (II.) Tyson  
(new course—eff. winter 07)

**137. Weapons of Mass Destruction, the Cold War, and Modern Terrorism (4)**

(cancelled course—eff. spring 07)

**150. Special Topics in Physics (4)**

Lecture—3 hours; project. Prerequisite: courses 9A, B, C, D or 9HA, HB, HC, HD, HE or consent of instructor. Topics vary, covering areas of contemporary research in physics. May be repeated for credit. Not offered every year.—I, II, III. (I, II, III.)  
(new course—eff. fall 07)

**151. Stellar Structure and Evolution (4)**

Lecture—3 hours; project. Prerequisite: courses 9A, B, C, D or consent of instructor. The chemical composition, structure, energy sources and evolutionary history of stars, with equal emphasis on both the observational data and theoretical models, including black holes, neutron stars and white dwarfs and the formation of substellar masses. Offered in alternate years.—(I.) Becker, Boeshaar  
(new course—eff. fall 07)

**152. Galactic Structure and the Interstellar Medium (4)**

Lecture—3 hours; project. Prerequisite: courses 9A, B, C, D and 105A concurrently or consent of instructor. The structure, contents, and formation of our Milky Way galaxy, viz. its shape and size, the nature of the interstellar medium, stellar populations, rotation curves, mass determination and evidence of dark matter. Offered in alternate years.—(III.) Boeshaar, Knox  
(new course—eff. spring 07)

**153. Extragalactic Astrophysics (4)**

Lecture—3 hours; project. Prerequisite: courses 9A, B, C, D, 104A and 105A or consent of instructor. Structure and evolution of galaxies and clusters of galaxies, including distance and mass determination, galaxy types and environments, active galactic nuclei and quasars, gravitational lensing and dark matter, global cosmological properties. Not open to students who have completed course 127. Offered in alternate years.—(II.) Fassnacht  
(new course—eff. winter 07)

**154. Astrophysical Applications of Physics (4)**

Lecture—3 hours; project. Prerequisite: course 105AB, 110A; 110B and 115A concurrently; 112 or consent of instructor. Applications of classical and quantum mechanics, thermodynamics, statistical mechanics, and electricity and magnetism to astrophysical settings such as the Big Bang, degenerate white dwarf and neutron stars, and solar neutrinos. Not open to students who have completed this course previously as course 198. Offered in alternate years.—(III.) Knox  
(new course—eff. spring 07)

**155. General Relativity (4)**

Lecture—3 hours; project. Prerequisite: course 104A and 105A; 105B and 110A or consent of instructor. Definition of the mathematical frame work for the description of the gravitational field, introduction of the dynamical equations of Einstein governing its evolution and review of the key solutions, including black holes and expanding universes. Offered in alternate years.—II. (II.) Kaloper  
(new course—eff. fall 07)

**156. Introduction to Cosmology (4)**

Lecture—3 hours; project. Prerequisite: courses 9A, B, C, D and 105A concurrently or consent of instructor. Contemporary knowledge regarding the origin of the universe, including the Big Bang and nucleosynthesis, microwave background radiation, formation of cosmic structure, cosmic inflation, cosmic acceleration and dark energy. Offered in alternate years. Not open to students who have completed course 126.—(III.) Albrecht  
(new course—eff. fall 07)

**157. Astronomy Instrumentation and Data Analysis Laboratory (4)**

Lecture—2 hours; laboratory—6 hours; project. Prerequisite: courses 9A, B, C, D. Experimental techniques, data acquisition and analysis involving stellar, nebular and galaxy digital imaging, photometry and spectroscopy. Analyzing time resolved changes in the solar atmosphere in the light of hydrogen alpha. Offered in alternate years.—(III.) Boeshaar, Tyson

(new course—eff. fall 07)

**190. Careers in Physics (1)**

Seminar—2 hours. Overview of important research areas in physics, discussions of research opportunities and internships, strategies for graduate school and industrial careers, the fellowship and assistantship selection process, preparation of resumes, personal statements, and letters of recommendation. Physics and Applied Physics majors only. (P/NP grading only.)—I. (I.)

(new course—eff. fall 07)

**Graduate Courses****230C. Quantum Theory of Fields (3)**

Lecture—3 hours. Prerequisite: course 230A and B, or consent of instructor. Renormalization theory and applications, including dimensional regularization, Ward identities, renormalization group equations, coupling constant unification, and precision electroweak calculations. May be repeated for credit with consent of instructor.—II. (II.) Gunion

(change in existing course—eff. winter 07)

**240A. Condensed Matter Physics A (3)**

Lecture—3 hours. Prerequisite: course 215C, 219A; course 140AB or equivalent recommended. Topics in condensed matter physics: Crystal structure; one-electron theory; transport and optical properties of semiconductors; phonons, electron-phonon scattering.—I. (I.)

(change in existing course—eff. fall 07)

**240B. Condensed Matter Physics B (3)**

Lecture—3 hours. Prerequisite: course 240A. Topics in condensed matter physics: transport and optical properties of metals and quantum structures; experimental measurement the Fermi surface and of phonon spectra.—II. (II.)

(change in existing course—eff. spring 08)

**245C. Collider Physics (3)**

Lecture—3 hours. Prerequisite: course 245A; course 252B taken previously or concurrently; or consent of instructor. Collider physics. Topics include quark and gluon distribution functions and the computation of cross sections; Large Hadron Collider and International Linear Collider phenomenology; collider and detector characteristics; extracting models from data; software tools for analyzing experimental data. May be repeated for credit with consent of instructor.—III. (III.) Chertok

**246A. Supersymmetry: Theory and Phenomenology (3)**

Lecture—3 hours. Prerequisite: courses 230AB; 245AB recommended or consent of instructor. Construction of supersymmetric models of particle physics; superfields; supersymmetry breaking the minimal supersymmetric standard model; supergravity. Collider phenomenology of supersymmetry. Dark matter phenomenology.—III. (III.) Gunion

(new course—eff. spring 08)

**270. Current Topics in Physics Research (2)**

Lecture/discussion—2 hours. Prerequisite: graduate standing in physics or consent of instructor. Reading and discussion to help physics graduate students develop and maintain familiarity with the current and past literature in their immediate field of research and related areas. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)

(change in existing course—eff. spring 07)

## Plant Biology

**New and changed courses in Plant Biology (PLB)****Lower Division Courses****1. Plants for Garden, Orchard and Landscape (2)**

(cancelled course—eff. winter 09)

**11. Plants and the Biosphere (3)**

(cancelled course—eff. summer session 1 07)

**12. Plants and People (3)**

(cancelled course—eff. fall 08)

**Upper Division Courses****102. California Floristics (5)**

Lecture—3 hours; laboratory—8 hours. Prerequisite: Plant Sciences 2, Biological Sciences 1C, 2C, or equivalent course in plant science. Survey of the flora of California, emphasizing recognition of important vascular plant families and genera and use of taxonomic keys for species identification. Current understanding of relationships among families. Principles of plant taxonomy and phylogenetic systematics. One Saturday field trip. (Same course as Plant Sciences 102.)—III. (III.) Potter

(change in existing course—eff. fall 07)

**108. Systematics and Evolution of Angiosperms (5)**

Lecture—3 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C. Diversity and classification of angiosperms (flowering plants) on a world scale, and current understanding of the origin of angiosperms and evolutionary relationships and trends within them based on morphological and molecular evidence. (Same course as Evolution and Ecology 108.) GE credit: Sci-Eng.—III. (III.) Doyle

(change in existing course—eff. spring 08)

**111. Plant Physiology (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1C, or 2A, 2B, and 2C; Chemistry 8B and Physics 7C (either may be taken concurrently); Plant Biology 105 recommended. The plant cell as a functional unit. The processes of absorption, movement, and utilization of water and minerals. Water loss, translocation, photosynthesis, respiration.—I. (I.) Dehesh, Lucas

(change in existing course—eff. fall 08)

**112. Plant Growth and Development (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1C, or 2A, 2B and 2C; Chemistry 8B. Introduction to the mechanisms and control systems that govern plant growth and development and the responses of plants to the environment. Strong emphasis on vegetative development of flowering plants. GE credit: SciEng.—II. (II.) Harada, Sundaresan

(change in existing course—eff. fall 08)

**113. Molecular and Cellular Biology of Plants (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1A and 1C, or 2A, 2B, 2C; 101; Biological Sciences 102 or 105 recommended. Molecular and cellular aspects of the growth and development of plants and their response to biological and environmental stresses. Primary focus on processes unique to plants. Experimental approaches will be emphasized.—III. (III.) Harada

(change in existing course—eff. spring 08)

**116. Plant Morphology and Evolution (5)**

Lecture—3 hours; laboratory—6 hours. Prerequisite: introductory plant biology (e.g., Biological Sciences 1C, or 2A, 2B, and 2C); plant anatomy recommended (e.g., Plant Biology 105). Introduction to the form, development and evolution of vascular plants. Emphasis given to the form and development of reproductive structures in ferns and seed-producing plants as a basis for determining evolutionary relationships. GE credit: SciEng.—II. (II.) Jernstedt

(change in existing course—eff. fall 08)

**117. Plant Ecology (4)**

Lecture—3 hours; fieldwork—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; Plant Biology 111 recommended. The study of the interactions between plants, plant populations or vegetation types and their physical and biological environment. Special emphasis on California. Four full-day field trips and brief write-up of class project required. (Same course as Evolution and Ecology 117.)—I. (I.) Pearcy

(change in existing course—eff. fall 08)

**118. Introductory Phycology and Bryology (5)**

Lecture—3 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A and 1C, or 2A, 2B, and 2C. Comparative morphology, physiology, development and reproduction of cyanobacteria, the major algal groups, and the bryophytes. Focus is on structure-function and evolutionary relationships. Ecological factors and commercial uses are considered. Laboratories include study of living organisms and identification exercises.—II. (II.) Canington

(change in existing course—eff. fall 08)

**119. Population Biology of Weeds (3)**

Lecture—2 hours; laboratory—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; introductory statistics recommended. Origin and evolution of weeds, reproduction and dispersal, seed ecology, modeling of population dynamics, interactions of weeds and crops, biological control. Laboratories emphasize design of competition experiments and identification of weedy species. (Same course as Evolution and Ecology 119.) Not open for credit to students who have completed Plant Biology 121.—III. (III.) Rejmanek

(change in existing course—eff. spring 08)

**126. Plant Biochemistry (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 103 or 105. The biochemistry of important plant processes and metabolic pathways. Discussion of methods used to understand plant processes, including use of transgenic plants. (Same course as Molecular and Cellular Biology 126.)—II. (II.) Abel, Callis

(change in existing course—eff. spring 08)

**141. Principles and Methods of Ethnobotany (4)**

(cancelled course—eff. spring 08)

**142. Ecology of Crop Systems (4)**

(cancelled course—eff. spring 08)

**143. Evolution of Crop Plants (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Plant Sciences 2 or Biological Sciences 1C or 2C. Origins of crops and agriculture, including main methodological approaches, centers of crop biodiversity, dispersal of crops, genetic and physiological differences between crops and their wild progenitors, agriculture practiced by other organisms, and role and ownership of crop biodiversity. GE credit: Div, SciEng, Wrt.—III. (III.) Gepts

(change in existing course—eff. spring 09)

**144. Trees and Forests (4)**

(cancelled course—eff. winter 08)

**145. Sierra Nevada Flora (3)**

(cancelled course—eff. fall 07)

**146. Rhizosphere Ecology (3)**

(cancelled course—eff. fall 08)

**150. Plant Natural Product Chemistry (3)***(cancelled course—eff. fall 08)***152. Plant Genetics (4)***(cancelled course—eff. fall 08)***153. Plant, Cell, Tissue and Organ Culture (4)***(cancelled course—eff. fall 07)***154. Introduction to Plant Breeding (4)***(cancelled course—eff. fall 08)***157. Physiology of Environmental Stresses in Plants (4)***(cancelled course—eff. fall 07)***158. Mineral Nutrition of Plants (4)***(cancelled course—eff. fall 07)***160. Principles of Plant Biotechnology (3)***(cancelled course—eff. winter 08)***161A. Plant Genetics and Biotechnology Laboratory (4)***(cancelled course—eff. winter 08)***161B. Plant Genetics and Biotechnology Laboratory (4)***(cancelled course—eff. spring 08)***162. Cellular and Molecular Bases of Ion Transport Processes (4)***(cancelled course—eff. fall 07)***170. Plant Molecular Ecology (4)***(cancelled course—eff. fall 07)***171. Plant Propagation (4)***(cancelled course—eff. fall 08)***172. Postharvest Physiology and Handling of Horticultural Commodities (3)***(cancelled course—eff. winter 09)***172L. Postharvest Physiology and Handling Laboratory (2)***(cancelled course—eff. fall 08)***173. Biological Applications in Fruit Tree Management (2)***(cancelled course—eff. fall 08)***174. Biological Applications in Fruit Production (2)***(cancelled course—eff. fall 07)***176. Introduction to Weed Science (3)***(cancelled course—eff. fall 08)***178. Biology and Management of Freshwater Macrophytes (3)***(cancelled course—eff. fall 08)***189. Experiments in Plant Biology: Design and Execution (3)**

Laboratory/discussion—6 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C, or the equivalent courses in plant sciences, and consent of the instructor. Provides an opportunity for undergraduate students to formulate experimental approaches to current questions in plant biology and to carry out their proposed experiments. May be repeated for credit for a total of 12 units. (P/NP grading only.)—I, II, III. (I, II, III.)

**190C. Research Conference in Plant Biology (1)**

Discussion—1 hour. Prerequisite: upper division standing in Plant Biology or related discipline; consent of instructor. Introduction to research methods in plant biology. Design of field or laboratory research projects, survey of appropriate literature, and discussion of research by faculty and students. May be repeated for credit. (P/NP grading only.)—I, II, III. (I, II, III.)

*(change in existing course—eff. fall 07)***196. Postharvest Technology of Horticultural Crops (3)***(cancelled course—eff. fall 08)*

## Plant Biology (A Graduate Group)

### New and changed courses in Plant Biology (A Graduate Group) (PBI)

#### Graduate Courses

**203N. Biology of the Plant Cell (4)**

Lecture—3 hours; discussion/laboratory—2 hours. Prerequisite: Plant Biology 111 or Biological Sciences 104, or the equivalent. Recent progresses in plant cell biology. Intracellular motility in plant cells. Common techniques associated with the progress of plant cell biology. Open to senior undergraduate students in Plant Biology major. Offered in alternate years. (S/U grading only.)—I, II. (I, II, III.)  
*(change in existing course—eff. fall 06)*

**290A. Faculty Seminar (1)**

Discussion—1 hour. Discussion of research area of seminar speakers in Plant Biology Graduate Group Seminar Series. Restricted to Plant Biology graduate students (PBG). May be repeated six times for credit. (S/U grading only.)—I, II, III. (I, II, III.)  
*(change in existing course—eff. winter 06)*

## Plant Sciences

### New and changed courses in Plant Sciences (PLS)

#### Lower Division Courses

**1. Agriculture, Nature and Society (3)**

Lecture—2 hours; discussion/laboratory—1 hour. Multiple perspectives and connections between natural sciences, social sciences, and agriculture. Emphasizes agriculture's central position between nature and society and its key role in our search for a productive, lasting and hospitable environment. Several full-period field trips provide hands-on learning. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 1. (Former Course Agricultural Management and Rangeland Resources 1.)—I. (I.) Gradziel  
*(change in existing course—eff. fall 07)*

**2. Botany and Physiology of Cultivated Plants (4)**

Lecture—3 hours; discussion/laboratory—3 hours. Prerequisite: high school course in biology and chemistry recommended. A holistic introduction to the underlying botanical and physiological principles of cultivated plants and their response to the environment. Includes concepts behind plant selection, cultivation, and utilization. Laboratories include discussion and interactive demonstrations. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 2. (Former course Agricultural Management and Rangeland Resources 2.)—II. (II.) Saltveit, Marrush  
*(new course—eff. winter 07)*

**5. Plants for Garden, Orchard and Landscape (2)**

Lecture—1 hour; laboratory—3 hours. Prerequisite: for non-majors. Hands-on experience with plants cultivated for food, environmental enhancement and personal satisfaction. Topics include establishing a vegetable garden, pruning and propagation activities, growing flowers and ornamental plants, and the role of plants in human health and well-being. Not open for credit to students who have completed Plant Biology 1 or Plant Sciences 2. (Former course Plant Biology 1.)—I, III. (I, III.) Marrush  
*(new course—eff. fall 08)*

**8. Fruits and Nuts of California and the World (3)**

Lecture—3 hours. Field trip seventh week of quarter. Biological and environmental principles of tree-crop agriculture emphasizing California production. Topics include temperate and subtropical species, biotechnology and genetic improvement, environmental physiology, plant and crop growth, pest and disease control, consumer issues. Not open for credit to students who have completed Plant Sciences 10. (Former course Plant Sciences 10.) GE Credit: SciEng.—II. (II.) Polito  
*(change in existing course—eff. fall 07)*

**10. Fruits and Nuts of California and the World (3)***(cancelled course—eff. fall 07)***12. Plants and Society (4)**

Lecture—3 hours; extensive writing—3 hours. Prerequisite: high school biology. Dependence of human societies on plant and plant products. Plants as resources for food, fiber, health, enjoyment and environmental services. Sustainable uses of plants for food production, raw materials, bioenergy, and environmental conservation. Global population growth and future food supplies. Not open for credit to students who have complete Plant Biology 12. (Former course Plant Biology 12.) [Same course as Science and Society 12.] GE Credit: Div, SciEng, SocSci, Wri.—I, II, III. (I, II, III.) Fischer, Jasieniuk, Nevins  
*(new course—eff. fall 07)*

**14. Introduction to Current Topics in Plant Biology (4)**

Discussion—3 hours; term paper. Introduction to scientific methods and current understanding of genetics, metabolism, and cellular structure in plants, with special emphasis on topics related to societal issues, such as herbal medicines and genetically modified organisms. Designed for students not specializing in biology. Not open for credit to students who have completed Plant Biology 11. GE Credit: SciEng, Wri.—I. (I.) Inoue  
*(new course—eff. fall 07)*

**21. Applications of Microcomputers in Agriculture (3)**

Lecture—1.5 hours; laboratory/discussion—2 hours; autotutorial—2 hours. Prerequisite: high school algebra. Concepts of computing and applications using personal computers, spreadsheets, database management, word processing and communications. Not open for students who have completed Agricultural Management and Rangeland Resources 21, Computer Science Engineering 15, 30, 35, or Engineering 5. (Former course Agricultural Management and Rangeland Resources 21.)—I, II, III. (I, II, III.) Geng, Laca  
*(new course—eff. winter 07)*

**49. Organic Crop Production Practices (3)**

Lecture—1 hour; discussion—1 hour; laboratory—3 hours. Principles and practices of organic production of annual crops. Including organic crops, soil, and pest management, cover cropping, composting, seeding, transplanting, irrigation, harvesting and marketing. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 49. (Former course Agricultural Management and Rangeland Resources 49.) (P/NP grading only.)—I, III. (I, III.) Van Horn  
*(change in existing course—eff. fall 07)*

**92. Internship (1-12)**

Internship—3-36 hours. Prerequisite: consent of instructor. Work experience on or off campus in subject areas pertaining to plant and environmental sciences. Internship supervised by faculty member. May be repeated for credit. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)  
*(new course—eff. winter 07)*

**98. Directed Group Study (1-5)**

Prerequisite: consent of instructor; primarily for lower division students. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)

(new course—eff. winter 07)

**99. Special Study for Undergraduates (1-5)**

Prerequisite: consent of instructor; primarily for lower division students. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)

(new course—eff. winter 07)

**Upper Division Courses****100A. Metabolic Processes of Cultivated Plants (3)**

Lecture—3 hours. Prerequisite: course 2 or Biological Sciences 1C or consent of instructor. Principles of energy capture and photosynthesis, water use, and nutrient cycling. Conversion of these resources into products (carbohydrates, proteins, lipids, and other chemicals) by plants. Emphasis on the relationships between environmental resources, plant metabolism and plant growth.—I. (I.)

(new course—eff. fall 07)

**100AL. Metabolic Processes of Cultivated Plants Laboratory (2)**

Lecture/discussion—3 hours. Prerequisite: course 100A or the equivalent (may be taken concurrently). Techniques and instruments used to study plant metabolic processes, including water relations, respiration, photosynthesis, enzyme kinetics, microscopy, immunochemistry, and nitrogen fixation. Quantitative methods, problem solving, and practical applications are emphasized.—I. (I.)

(new course—eff. fall 07)

**100B. Growth and Yield of Cultivated Plants (3)**

Lecture—3 hours. Prerequisite: course 100A or consent of instructor. Principles of the cellular mechanisms and hormonal regulation underlying plant growth, development, and reproduction. Emphasis on how these processes contribute to the harvestable yield of cultivated plants and can be managed to increase crop productivity and quality.—II. (II.)

(new course—eff. fall 07)

**100BL. Growth and Yield of Cultivated Plants Laboratory (2)**

Lecture/discussion—3 hours. Prerequisite: course 100B or equivalent (may be taken concurrently). Laboratory exercises in plant growth and development and their regulation, including photomorphogenesis, plant growth regulators, plant anatomy, seed germination, fruit ripening and senescence. Includes field trips to illustrate relationships to cropping and marketing systems.—II. (II.)

(new course—eff. fall 07)

**100C. Environmental Interactions of Cultivated Plants (3)**

Lecture—3 hours. Prerequisite: course 100A or consent of instructor. Principles of plant interactions with their physical and biological environments and their acquisition of the resources needed for growth and reproduction. Emphasis on how management practices and environmental conditions affect crop productivity.—III. (III.)

(new course—eff. fall 07)

**100CL. Environmental Interactions of Cultivated Plants Laboratory (2)**

Lecture/discussion—3 hours. Prerequisite: course 100C (may be taken concurrently). Techniques and instruments used to study plant interactions with their physical and biological environments, including light responses, transpiration, microclimatology, nutrient availability and utilization, biomass accumulation. Quantitative methods and modeling are emphasized.—III. (III.)

(new course—eff. fall 07)

**101. Agriculture and the Environment (3)**

Lecture—3 hours. Prerequisite: course 2 or consent of instructor. Interaction between agriculture and the environment. Focus on the interaction between agriculture and the environment to address the principles required to analyze conflict and develop solutions to complex problems facing society. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 101. (Former course Agricultural Management and Rangeland Resources 101.)—II. (II.) Phillips  
(change in existing course—eff. fall 07)

**102. California Floristics (5)**

Lecture—3 hours; laboratory—8 hours. Prerequisite: course 2, Biological Sciences 1C, 2C, or equivalent course in plant science. Survey of the flora of California, emphasizing recognition of important vascular plant families and genera and use of taxonomic keys for species identification. Current understanding of relationships among families. Principles of plant taxonomy and phylogenetic systematics. One Saturday field trip. (Same course as Plant Biology 102.)—III. (III.) Potter

(new course—eff. fall 07)

**105. Concepts in Pest Management (3)**

Lecture—2 hours; laboratory/discussion—3 hours. Prerequisite: Biological Sciences 1C or course 2, Chemistry 8B. Introduction to the ecological principles of integrated pest management, biology of different classes of pests and the types of losses they cause, population assessment, evaluation of advantages and disadvantages of different techniques used for pest management, IPM programs. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 105. (Former course Agricultural Management and Rangeland Resources 105.)—III. (III.)

(new course—eff. winter 07)

**107. Small Fruit Production (2)**

(cancelled course—eff. fall 07)

**110A. Principles of Agronomic Crop Production in Temperate and Tropical Systems (3)**

Lecture—3 hours. Prerequisite: course in general botany or course 2 recommended. Fundamentals of field crop production in temperate and tropical climates. Resource utilization and economic, political and social problems are considered in relation to technological problems and their influences on agricultural development. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 110A. (Former course Agricultural Management and Rangeland Resources 110A.)—II. (II.)

(new course—eff. winter 07)

**110B. Management of Agronomic Crops in Temperate and Tropical Systems (3)**

Lecture—3 hours. Prerequisite: course in general botany or course 2; course 110A recommended. Application of agronomic principles in production of temperate and tropical crops. Specific crops discussed with reference to management and efficient use of physical and biological resources. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 110B. (Former course Agricultural Management and Rangeland Resources 110B.)—III. (III.)

(new course—eff. winter 07)

**110C. Crop Management Systems for Vegetable Production (4)**

Lecture—2 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: course 2; course 110A recommended. Horticultural principles applied to production and management systems for vegetable crops. Laboratory and discussion will illustrate efficient field management and resource use practices. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 110C. (Former course Agricultural Management and Rangeland Resources 110C.)—I. (I.) Bloom, Marrush  
(new course—eff. winter 07)

**110L. Principles of Agronomy Laboratory (1)**

Laboratory—3 hours. Prerequisite: course 110B (may be taken concurrently). Field-oriented introduction to principles of agronomic crop production. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 110L. (Former course Agricultural Management and Rangeland Resources 110L.)—III. (III.)

(new course—eff. winter 07)

**112. Forage Crop Ecology (3)**

Lecture—3 hours. Prerequisite: course 2, Biological Sciences 1C, 2C, or consent of instructor. Forages as a world resource in food production. Ecological principles governing the adaptation, establishment, growth and management of perennial and annual forages, including pastures, rangelands and hay; aspects of forage quality which affect feeding value to livestock. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 112. (Former course Agricultural Management and Rangeland Resources 112.) Offered in alternate years.—III. Teuber  
(change in existing course—eff. spring 08)

**113. Biological Applications in Fruit Tree Management (2)**

Lecture—1 hour; laboratory—3 hours. Prerequisite: course 2, Biological Sciences 1C, 2C or equivalent. Physiology, growth, development and environmental requirements of fruit trees and the cultural practices used to maintain them. Emphasis on the application of biological principles in the culture of commercially important temperate zone fruit tree species. Not open for credit to students that have completed Plant Biology 173. (Former course Plant Biology 173.)—II. (II.) DeJong

(new course—eff. fall 07)

**114. Biological Applications in Fruit Production (2)**

Lecture—1 hour; laboratory—3 hours. Prerequisite: course 2, Biological Sciences 1C or 2C; course 113. Reproductive biology of tree crop species. Biological principles of fruit production, tree nutrition and orchard management for optimizing cropping. Laboratories emphasize hands-on work with orchard tree systems that are done specifically to produce the crop. Not open for credit to students who have completed Plant Biology 174. (Former course Plant Biology 174.)—III. (III.) DeJong

(new course—eff. fall 07)

**118. Seed Production and Quality (4)**

(cancelled course—eff. winter 07)

**120. Applied Statistics in Agricultural Science (4)**

Lecture—3 hours; discussion/laboratory—3 hours. Prerequisite: upper division standing. Application of statistical methods to design and analysis of research trials for plant, animal, behavioral, nutritional, and consumer sciences. Basic concepts and statistical methods are presented in lectures, laboratories emphasize data processing techniques, problem solving, and interpretation in specialized fields. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 120. (Former course Agricultural Management and Rangeland Resources 120.) GE credit: SciEng.—I. (I.) Teuber

(change in existing course—eff. spring 08)

**121. Systems Analysis in Agriculture and Resource Management (4)**

Lecture—2 hours; discussion/laboratory—2 hours. Prerequisite: course 21 or equivalent computer experience; Mathematics 16A. The process of systems analysis and dynamic simulation of biological and environmental systems, use of systems analysis for development of optimal management strategies for agricultural and environmental systems. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 121. (Former course Agricultural Management and Rangeland Resources 121.) GE credit: SciEng, Wrt.—I. (I.) Foin

(new course—eff. winter 07)

**122. Management of Information for the Agricultural and Environmental Sciences (4)**

(cancelled course—eff. fall 07)

**130. Rangelands: Ecology, Conservation and Restoration (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1C; introductory ecology course and junior standing recommended. Introduction to the ecological principles and processes important for an understanding of the dynamics of range ecosystems. Emphasis on ecological and evolutionary concepts underlying management strategies for conserving biological diversity and environmental quality in rangelands. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 130. (Former course Agricultural Management and Rangeland Resources 130.) Offered in alternate years. GE credit: SciEng, Wrt.—II. Rice

(new course—eff. winter 07)

**131. Identification and Ecology of Grasses (2)**

Lecture—7.5 hours; laboratory—20 hours; discussion—5 hours. Prerequisite: Biological Sciences 1C or course 2; Plant Biology 102 and junior standing recommended. Taxonomy and identification of western grasses. Development of skills in using plant identification keys. Ecology and evolution of grasses in grazing ecosystems. Given the week following spring quarter. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 131. (Former course Agricultural Management and Rangeland Resources 131.) Offered in alternate years.—III. Rice

(new course—eff. winter 07)

**134. Comparative Ecology of Major Rangeland Systems (3)**

Lecture—3 hours. Prerequisite: course 130 or the equivalent; Environmental Science and Policy 100 recommended. Study of vegetation structure, composition, and succession in North American rangeland communities. Description and comparison of interactions between vegetation and grazing animals on grassland, desert, forested, and tundra rangelands. Discussion of current rangeland management strategies. One mandatory Saturday field trip. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 134. (Former course Agricultural Management and Rangeland Resources 134.) Offered in alternate years.—II. (II.)

(new course—eff. winter 07)

**135. Ecology and Community Structure of Grassland and Savannah Herbivores (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1A or 1B and course 2, or Biological Sciences 1C; general ecology course (Environmental Science and Policy 100) recommended. Feeding ecology of grassland herbivores and its importance in evolution of herbivore communities and social systems. Optimal foraging, interspecific interactions, and primary productivity are considered as factors structuring natural and managed grassland and savannah systems. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 135. (Former course Agricultural Management and Rangeland Resources 135.) Offered in alternate years.—(I.) Dement

(new course—eff. winter 07)

**137. Field Course in Rangeland Monitoring and Management (2)**

(cancelled course—eff. fall 07)

**141. Ethnobotany (4)**

Lecture—3 hours; laboratory/discussion—2 hours. Prerequisite: course 2, Biological Sciences 1C or 2C. Relationships and interactions between plants and people, including human perceptions, management, and uses of plants, influences of plants on human cultures, and effects of human activity on plant ecology and evolution. Concepts, questions, methods, and ethical considerations in ethnobotanical research. Not open for credit to students who have completed Plant Biology 141. (Former course Plant Biology 141.) Offered in alternate years. GE Credit: SciEng, SocSci, Wri.—(II.) Potter

(new course—eff. winter 08)

**142. Ecology of Crop Systems (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Plant Sciences 2 or Biological Sciences 1C or 2C; Mathematics 16A or Physics 1A, or consent of instructor. Ecological processes governing the structure and behavior of managed ecosystems. Emphasis on mechanistic and systems views of the physical environment, photosynthetic productivity, competition, adaptation, nutrient cycling, energy relations and contemporary issues such as climate change. Not open for credit to students who have completed Plant Biology 142. (Former course Plant Biology 142.) GE Credit: SciEng.—II. (II.) Bloom

(new course—eff. winter 08)

**144. Trees and Forests (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or Biological Sciences 1C or 2C. Biological structure and function of trees as organisms; understanding of forests as communities and as ecosystems; use of forests by humans; tree phenology, photosynthesis, respiration, soil processes, life histories, dormancy, forest biodiversity, and agroforestry. Not open for credit to students who have completed Plant Biology 144 or Environmental Horticulture 144. (Former course Plant Biology/Environmental Horticulture 144.) (Same course as Environmental and Resource Sciences 144.)—I. (I.) Bledsoe, Berry, Dahlgren

(new course—eff. winter 08)

**145. Sierra Nevada Flora (3)**

Lecture/laboratory—3 hours; fieldwork—5 hours. Prerequisite: Plant Biology 102 or 108 or Evolution and Ecology 121 or Environmental Horticulture 105. An introduction to the flora of the Sierra Nevada. Basic plant identification, the principal plant communities and species of the Sierra Nevada. Class offered the first two weeks in July in the Sierra Nevada. Offered in alternate years. Not open for credit to students who have completed Plant Biology 145. (Former course Plant Biology 145.)—(III.) Ronald

(new course—eff. fall 07)

**146. Rhizosphere Ecology (3)**

Lecture—3 hours. Prerequisite: upper division standing and either course 2, Biological Sciences 1C, or 2C or equivalent. Effects of the root-zone ecosystem on plant growth, soil formation, and agricultural sustainability. Evolution and modification of the organismic, biochemical, and genetic bases of rhizosphere ecology. Not open for credit to students who have completed Plant Biology 146 (Former course Plant Biology 146.) Offered in alternate years.—(III.) Phillips

(new course—eff. fall 07)

**150. Sustainability and Agroecosystem Management (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: Soil Science 10, Chemistry 2A, and course 2, Biological Sciences 1C or 2C. Interdisciplinary analysis of agricultural production and food systems with primary emphasis on biophysical processes. General concepts governing the functioning of temperate and tropical agroecosystems in relation to resource availability, ecological sustainability, and socio-economic viability. Comparative ecological analyses of agroecosystems. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 150. (Former course Agricultural Management and Rangeland Resources 150.)—III. (III.) Six

(change in existing course—eff. spring 08)

**151. Plant Natural Product Chemistry (3)**

Lecture—2 hours; discussion—1 hour. Prerequisite: Biological Sciences 101 and 103, or the equivalent. Traditional biochemical and modern genetic approaches for studying plant-derived compounds such as isoprenoids, alkaloids, and phenylpropanoids. The impact of plant-derived compounds on biological processes in ecology, evolution and nutrition. Not open for credit to students who have completed Plant Biology 150. (Former course Plant Biology 150.) GE Credit: SciEng, Wri.—I. (I.) Inoue, Kliebenstein

(new course—eff. fall 07)

**152. Plant Genetics (4)**

Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: Biological Sciences 1A or 2A or consent of instructor. Basic principles of transmission genetics, cytogenetics, population and quantitative genetics, and molecular genetics. Practical aspects of genetic crosses and analysis of segregating populations. Not open to students who have completed Plant Biology 152. (Former course Plant Biology 152.)—I. (I.) Beckles

(new course—eff. fall 07)

**153. Plant, Cell, Tissue and Organ Culture (4)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: course 2 or Biological Sciences 1C or 2C. Basic and applied aspects of plant tissue culture including media preparation, micropropagation, organogenesis, embryogenesis, anther culture, protoplast culture and transformation. Not open for credit to students who have completed Plant Biology 153. (Former course Plant Biology 153.) Offered in alternate years.—(II.)

(new course—eff. fall 07)

**154. Introduction to Plant Breeding (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 152, Biological Sciences 101 or consent of instructor. The principles, methods and applications of plant breeding and genetics to the improvement of crop plants. Illustration of how plant breeding is a dynamic, multidisciplinary, constantly-evolving science. Laboratory emphasizes hands-on experience in the basics of breeding through experiments. Not open for credit to students who have completed Plant Biology 154. (Former course Plant Biology 154.)—II. (II.) St. Clair

(new course—eff. fall 07)

**157. Physiology of Environmental Stresses in Plants (4)**

Lecture—2 hours; discussion—2 hours. Prerequisite: course 100C or Plant Biology 111 or 112 or Environmental Horticulture 102 or Viticulture and Enology 110. Stress concepts and principles; molecular, physiological, developmental and morphological characteristics enabling plants to avoid or tolerate environmental stresses; stress acclimation and adaptation processes; responses of wild and cultivated species to drought, flooding, nutrient deficiencies, salinity, toxic ions, extreme temperatures, etc. Not open for credit to students who have completed Plant Biology 157. (Former course Plant Biology 157.) Offered in alternate years.—(II.) Richards, Silk

(new course—eff. fall 07)

**158. Mineral Nutrition of Plants (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 100A or Plant Biology 111 or Environmental Horticulture 102 or Viticulture and Enology 110. Evolution and scope of plant nutrition; essential elements; mechanisms of absorption and membrane transporters; translocation and allocation processes; mineral metabolism; deficiencies and toxicities; genetic variation in plant nutrition; applications to management and understanding ecological effects of nutrient availability or deficiency. Not open for credit to students who have completed Plant Biology 158. (Former course Plant Biology 158.)—III. (III.) Brown, Richards

(new course—eff. fall 07)

**160. Agroforestry: Global and Local Perspectives (3)**

Lecture/discussion—3 hours. Prerequisite: course 2 or Biological Sciences 1C; Plant Biology 142 or a general ecology course [Environmental Science and Policy 100]. Traditional and evolving use of trees in agricultural ecosystems; their multiple roles in environmental stabilization and production of food, fuel, and fiber; and socioeconomic barriers to the adoption and implementation of agroforestry practices. Not open for credit to students who have taken Agricultural Management and Rangeland Resources 160. (Same course as International Agricultural Development 160.) Offered in alternate years.—I. Gradziel

(change in existing course—eff. winter 07)

**162. Urban Ecology (3)**

Lecture/discussion—3 hours. Prerequisite: a course in general or plant ecology (course 142, Plant Biology 117 Environmental Science and Policy 100, or Evolution and Ecology 101). Application of fundamental concepts and approaches in landscape and ecosystem ecology to urban ecosystems. Ecological and social drivers and responses. Landscape heterogeneity, nutrient dynamics, invasive species, altered hydrology and climate, and pollution. Discussion of primary literature.—II. (II.) Cadenasso

(new course—eff. winter 08)

**170A. Fruit and Nut Cropping Systems (2)**

Lecture—1 hour; laboratory—3 hours. Prerequisite: course 2, Biological Sciences 1C, or consent of instructor. Overview of production and handling systems of major pomological crops, analysis of current cultural and harvesting problems and concerns associated with commercial fruit growing. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 170A. (Former course Agricultural Management and Rangeland Resources 170A.) Offered in alternate years.—(I.) Gradziel

(new course—eff. winter 07)

**170B. Fruit and Nut Cropping Systems (2)**

Lecture—1 hour; laboratory—3 hours. Prerequisite: course 2, Biological Sciences 1C, or consent of instructor. Overview of production and handling systems of major pomological crops, including analysis of current cultural and harvesting problems and concerns associated with commercial fruit growing. Not open for credit to students who have completed Agricultural Management and Rangeland Resources 170B. (Former course Agricultural Management and Rangeland Resources 170B.) Offered in alternate years.—(III.) Gradziel, McGranahan

(new course—eff. winter 07)

**171. Principles and Practices of Plant Propagation (4)**

Lecture—2 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: course 2, Biological Sciences 1C or 2C. Principles and practices of propagating plants covering anatomical, physiological, and practical aspects. Not open for credit to students who have completed Plant Biology 171. (Former course Plant Biology 171.)—III. (III.) Burger

(new course—eff. fall 07)

**172. Postharvest Physiology and Technology (4)**

Lecture—3 hours; laboratory/discussion—2 hours. Prerequisite: general plant science background (e.g., courses 2, 12); course 196 recommended. Overview of physiological processes related to maturation and senescence of plant products and their responses to postharvest stresses. Targeted approaches and technologies to maintain product quality and limit postharvest disorders. Not open for credit to students who have completed Plant Biology 172. (Former course Plant Biology 172.)—I. (I.) Negre-Zakharov, Reid, Saltveit

(new course—eff. fall 08)

**174. Microbiology and Safety of Fresh Fruits and Vegetables (3)**

Lecture—3 hours. Prerequisite: course 2 or Biological Sciences 1C or 2C or equivalent. Overview of microorganisms on fresh produce, pre- and postharvest factors influencing risk of microbial contamination, attachment of microorganisms to produce, multiplication during postharvest handling and storage, and methods of detection. Mock outbreak trial and presentation of science-based forensic discovery.—I. (I.) Mitcham, Saltveit

(new course—eff. fall 08)

**176. Introduction to Weed Science (3)**

Lecture—2 hours; laboratory—3 hours. Prerequisite: course 2 or Biological Sciences 1C or 2C. Principles of weed science including: Weed biology and ecology, methods of weed management, biological control, herbicides and herbicide resistance. Weed control in managed and natural ecosystems; invasive species. Laws and regulations. Application of herbicides. Sight identification of common weeds. Not open for credit to students who have completed Plant Biology 176. (Former course Plant Biology 176.)—II. (II.) Fischer

(new course—eff. fall 07)

**178. Biology and Management of Aquatic Plants (3)**

Lecture—3 hours. Prerequisite: course 2, Biological Sciences 1C or 2C; Chemistry 8B or 118B; course 100C, Plant Biology 111, Environmental Horticulture 102, or Hydrologic Science 122 recommended. Brief survey of common and invasive fresh water plants and macroalgae, their reproductive modes, physiology, growth (photosynthesis, nutrient utilization), development (hormonal interactions), ecology, modes and impacts of invasion, and management. Two Saturday field trips required. Offered in alternate years. Not open for credit to students who have completed former course Plant Biology 178. (Former course Plant Biology 178.)—(I.) Anderson

(new course—eff. fall 07)

**180. Introduction to Geographic Information Systems (4)**

Lecture—3 hours; laboratory/discussion—3 hours. Prerequisite: course 21 or equivalent familiarity with computers, course 120 or the equivalent, Mathematics 16A. Management and analysis of georeferenced data. Spatial database management and modeling. Applications to agriculture, biological resource management and social sciences. Cartographic modeling. Vector and raster-based geographic information systems. Not open for credit to students who have completed Agriculture Systems and Environment 132 or Agricultural Management and Rangeland Resources 132 or 180. (Former course Agricultural Management and Rangeland Resources 180.) (Same course as Applied Biological Systems Technology 180.)—I. (I.) Plant

(new course—eff. winter 07)

**188. Undergraduate Research Proposal (3)**

Lecture/discussion—3 hours. Prerequisite: upper division standing. Preparation and review of a scientific proposal. Problem definition, identification of objectives, literature survey, hypothesis generation, design of experiments, data analysis planning, proposal outline and preparation. (Same course as Biotechnology 188.) GE Credit: Wri.—III. (III.)

(change in existing course—eff. summer 08)

**189L. Laboratory Research in Plant Sciences (2-5)**

Laboratory—3-12 hours; discussion—1 hour. Prerequisite: course 188 and consent of instructor. Formulating experimental approaches to current questions in plant science; performance of proposed experiments. May be repeated up to 12 units for credit. (P/NP grading only.)—I, II, III. (I, II, III.)

(new course—eff. spring 08)

**190. Seminar on Alternatives in Agriculture (2)**

Seminar—2 hours. Prerequisite: upper division standing. Seminar on topics related to alternative theories, practices and systems of agriculture and the relationship of agriculture to the environment and society. Scientific, technological, social, political and economic perspectives. May be repeated for credit. (Former course Agricultural Management and Rangeland Resources 190.) (P/NP grading only.)—I, II. (I, II.) Van Horn

(new course—eff. winter 07)

**190C. Research Group Conference (1)**

Discussion—1 hour. Prerequisite: advanced standing; consent of instructor. Weekly conference on research problems, progress and techniques in the plant sciences. May be repeated for credit. (P/NP grading only.)—I, II, III. (I, II, III.)

(new course—eff. fall 07)

**192. Internship (1-12)**

Internship—3-36 hours. Prerequisite: completion of 84 units and consent of instructor. Work experience on or off campus in subject areas pertaining to plant and environmental sciences. Internship supervised by a faculty member. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)

(new course—eff. winter 07)

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2007-2008 offering in parentheses

General Education (GE) credit: ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Social-Cultural Diversity; Wrt=Writing Experience

**194H. Senior Honors Thesis (2-6)**

Independent study. Prerequisite: senior standing; overall GPA of 3.250 or higher and consent of master adviser. Two or three successive quarters of guided research on a subject of special interest to the student. (P/NP grading only; deferred grading only, pending completion of thesis.)

(new course—eff. winter 07)

**196. Postharvest Technology of Horticultural Crops (3)**

Lecture/discussion—45 hours; fieldwork—45 hours. Prerequisite: upper division or graduate student standing. Intensive study of postharvest considerations and current procedures and challenges in postharvest handling for fruits, nuts, vegetables, and ornamentals in California. Scheduled first two weeks immediately following last day of spring quarter. Not open for credit to students who have completed Plant Biology 196. (Former course Plant Biology 196.) (P/NP grading only.)—III. (III.) Mitcham

(new course—eff. fall 07)

**197T. Tutoring in Plant Sciences (1-5)**

Tutorial—1-5 hours. Prerequisite: upper division standing, completion of course being tutored or the equivalent, consent of instructor. Leading small voluntary discussion or lab groups affiliated with one of the department's regular courses. May be repeated for up to eight units of credit. (P/NP grading only.)

(new course—eff. winter 07)

**198. Directed Group Study (1-5)**

(P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)

(new course—eff. winter 07)

**199. Special Study for Advanced Undergraduates (1-5)**

Prerequisite: consent of instructor. (P/NP grading only.)—I, II, III, IV. (I, II, III, IV.)

(new course—eff. winter 07)

**Graduate Courses****205. Experimental Design and Analysis (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 120 or equivalent. Introduction to the research process and statistical methods to plan, conduct and interpret experiments. Not open for credit to students who have complete Agronomy 205. (Former course Agronomy 205.)—II. (II.) Dubcovsky

(new course—eff. fall 07)

**206. Applied Multivariate Modeling in Agricultural and Environmental Sciences (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: one of course 120, Statistics 106, 108, course 205 or equivalent. Multivariate linear and nonlinear models. Model selection and parameter estimation. Analysis of manipulative and observational agroecological experiments. Discriminant, principal component, and path analyses. Logistic and biased regression. Bootstrapping. Exercises based on actual research by UC Davis students. Not open for credit to students who have complete Agronomy 206. (Former course Agronomy 206.)—I. (I.) Laca

(change in existing course—eff. fall 07)

**211. Principles and Practices of HPLC (2)**

Lecture—1 hour; laboratory—3 hours. Prerequisite: undergraduate physics and chemistry; Biological Sciences 102, 103 recommended. Principles and theory of HPLC involving various modes of separation and detection. Optimization of separation using isocratic and gradient elution. Develop practical knowledge about the use, maintenance and troubleshooting of HPLC equipment, including HPLC columns. Development of new HPLC methods. Not open for credit to students who have completed Agronomy 211. (Former course Agronomy 211.)—III. (III.) Goyal

(new course—eff. winter 07)

**212. Postharvest Biology and Biotechnology of Fruits and Nuts (3)**

Lecture—3 hours. Prerequisite: course 172. Review of postharvest biology of fruits and nuts and biotechnological approaches to address postharvest challenges. Morphology, biology and postharvest handling of fruits and nuts are presented along with current research, including biotechnology, and discussion of future research needs and approaches.

Offered in alternate years. Not open for credit to students who have completed Pomology 212.—(III.) Mitcham, Negre-Zakharov

(change in existing course—eff. spring 08)

**213. Postharvest Physiology of Vegetables (3)**

Lecture—2 hours; discussion—1 hour. Prerequisite: Plant Biology 112 or 172. Comparative physiology of harvest vegetables; emphasis on maturation, senescence, compositional changes, physiological disorders and effects of environmental factors. Concepts and research procedures. Not open for credit to students who have completed Vegetable Crops 212. (Former course Vegetable Crops 212.) Offered in alternate years.—(III.) Saltveit

(new course—eff. winter 07)

**216. Ecology and Agriculture (3)**

(cancelled course—eff. fall 07)

**220. Genomics and Biotechnology of Plant Improvement (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 101 or the equivalent. Integration of modern biotechnology and classical plant breeding including the impact of structural, comparative and functional genomics on gene discovery, characterization and exploitation. Also covers molecular markers, plant transformation, hybrid production, disease resistance, and novel output traits. Not open for credit to students who have completed Vegetable Crops 220. (Former course Vegetable Crops 220.) (Same course as Genetics 220.)—II. (II.) Michelmoro

(new course—eff. winter 07)

**221. Genomics and Breeding of Vegetable Crops (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 101 or equivalent. Preview of genome structure, mapping, gene tagging and development of other genetic resources applied to improvement of major vegetables. For graduate students contemplating a career in modern vegetable breeding and biotechnology. Not open for credit to students who have completed Vegetable Crops 221. (Former course Vegetable Crops 221.)—III. (III.) Quiros

(new course—eff. winter 07)

**222. Advanced Plant Breeding (4)**

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 205; Genetics Graduate Group 201D or Animal Genetics 107; Plant Biology 154. Philosophy, methods, and problems in developing improved plant species. Topics include: inbreeding, heterosis, progeny testing, breeding methodology, index selection, germplasm conservation, and breeding for stress resistance. Laboratories include tours of breeding facilities and calculation and interpretation of quantitative data. Not open for credit to students who have completed Agronomy 221. (Former course Agronomy 221.) Offered in alternate years.—(III.) Teuber

(new course—eff. winter 07)

**290. Seminar (1-2)**

Seminar—1-2 hours. Topics of current interest related to Plant Sciences. (S/U grading only.)—I, II, III. (I, II, III.)

(new course—eff. winter 07)

**290C. Research Conference (1)**

Discussion—1 hour. Prerequisite: consent of instructor. (S/U grading only.)—I, II, III. (I, II, III.)

(new course—eff. winter 07)

**297T. Tutoring in Plant Science (1-5)**

Tutoring—1-5 hours. Prerequisite: graduate standing; consent of instructor; completion of course to be tutored or the equivalent. Designed for graduate students who desire teaching experience but are not teaching assistants. May be repeated for credit for a total of five units. Same course may not be tutored more than once. (S/U grading only.)

(new course—eff. winter 07)

**298. Group Study (1-5)**

(new course—eff. winter 07)

**299. Research (1-12)**

Prerequisite: consent of instructor. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.)

(new course—eff. winter 07)

**Professional Course****396. Teaching Assistant Training Practicum (1-4)**

Prerequisite: consent of instructor; graduate standing. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.)

(new course—eff. winter 07)

## Political Science

**New and changed courses in Political Science (POL)****Lower Division Course****51. Scientific Study of Politics (4)**

Lecture—3 hours; discussion—1 hour. Introduction to the basic principles of the scientific study of politics. Research design and empirical analysis of data with applications to different methodological approaches and different substantive areas in political science. GE credit: SocSci.—I, II, III. (I, II, III.) Jackman

(change in existing course—eff. fall 06)

**Upper Division Courses****135. International Politics of the Middle East (4)**

Lecture—3 hours; term paper. Prerequisite: course 3 or consent of instructor; upper division standing. International politics of the Middle East as a microcosm of world politics. The Middle East as a regional system. Domestic and International Politics in the Middle East. Changing Political Structures in the Middle East. Superpower involvement in the Middle East.—I. (I.) Maoz

(new course—eff. fall 07)

**136. The Arab-Israeli Conflict (4)**

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 or International Relations 1; restricted to upper division standing. Causes, course, and implications of Arab-Israeli conflict. Competing Israeli and Arab narratives, politics of force, diplomacy. Domestic politics and A-I conflict, the superpowers and the A-I conflict, A-I conflict and world politics, potential solutions.—II. (II.) Maoz

(new course—eff. winter 08)

**140. Comparative Political Institutions: Legislatures (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor; upper division standing. Examination of legislatures from a comparative perspective. Offered in alternate years. GE Credit: Wrt.—III. Andrews

(new course—eff. fall 06)



**140A. Comparative Political Institutions: Electoral Systems (4)**

Lecture/discussion—4 hours. Prerequisite: course 2. Upper division standing. Workings of electoral institutions, focusing on systems used to elect presidents and assemblies, pass laws, and generally make decisions. Examples from systems throughout the world, including cases from both the advanced industrial and developing worlds. GE Credit: SocSci, Wrt. Offered in alternate years.—(II.) Scheiner  
(change in existing course—eff. spring 06)

**140B. Comparative Political Institutions: Parties (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor. Upper division standing. The factors shaping political parties and their role in democratic representation. GE Credit: SocSci, Wrt. Offered in alternate years.—Adams, Andrews  
(new course—eff. spring 06)

**142. Politics and Inequality (4)**

(cancelled course—eff. winter 07)

**142A. Comparative Development: Political Development in Modernizing Societies (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor; upper division standing. Nature and sequence of political development; its economic and social concomitants; role of elites, military, bureaucracy, and party systems; social stratification and group politics; social mobilization and political participation; instability, violence, and the politics of integration. Offered in alternate years. GE credit: SocSci, Jackman  
(new course—eff. fall 06)

**142B. Comparative Development: Politics and Inequality (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor; upper division standing. Linkages between politics and the distribution of social and economic goods. Impact of civil rights legislation, the politics of welfare states, and the effects of political participation on the distribution of goods. Offered in alternate years. GE Credit: SocSci.—II. Jackman  
(new course—eff. winter 06)

**143A. Latin American Politics (4)**

Lecture/discussion—4 hours; term paper. Prerequisite: course 2. Issues related to democratic consolidation in Latin America, with a regional focus on South America. Topics include transitions to democracy, the role of the military, political economy, and political behavior. GE Credit: Div, SocSci, Wrt.—Zechmeister  
(new course—eff. winter 07)

**143B. Mexican Politics (4)**

Lecture/discussion—4 hours. Prerequisite: course 2. Introduction to the politics of contemporary Mexico. Focus on rise, fall, and aftermath of Mexico's one-party dominant system. GE Credit: Div, SocSci, Wrt.—Zechmeister  
(new course—eff. winter 07)

**144A. Politics of Post-Communist Countries: East European Politics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor; restricted to upper division standing. Post-war democratization, state-building and economic reform in East European states. GE Credit: SocSci, Wrt.—III. (III.) Andrews  
(new course—eff. spring 06)

**144B. Politics of Post-Communist Countries: Russia (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor; restricted to upper division standing. Democratization, state-building and economic reform; creation of new institutions; impacts of Soviet rule. GE Credit: SocSci, Wrt.—III. (III.) Andrews  
(new course—eff. spring 06)

**145. Government and Politics in Emergent Nations (4)**

(cancelled course—eff. fall 06)

**146A. Politics of Africa: Issues in Contemporary African Politics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor; course 134 recommended; upper division standing. Examination of the main issues in African politics since the end of the Cold War. Topics include: Strategic Security Approach, Democratization, Human Rights, HIV/AIDS, African Peacekeeping, Terrorism, Religious and Ethnic Conflict, Debt and Stalled Development. Offered in alternate years. GE Credit: SocSci, Wrt.—Rothchild  
(new course—eff. winter 06)

**146B. Politics of Africa: Development in Africa (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor; course 134 recommended; upper division standing. Political and economic development within Sub-Saharan Africa. States and institutions, democracy, party systems, military coups/rule, bureaucracy/corruption, race/ethnicity, national/regional integrations, trade unions, economic development strategies, class formation, and women's roles and ideology. Offered in alternate years. GE Credit: SocSci, Wrt.—Rothchild  
(new course—eff. winter 06)

**147. Politics and Policy in Western Europe (4)**

(cancelled course—eff. summer session I 07)

**147A. West European Politics (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor; upper division standing. The evolution, politics, and contemporary problems of selected political systems of Western Europe. Offered in alternate years. GE credit: SocSci, Wrt. Money  
(new course—eff. winter 06)

**147B. West European Politics: British Politics (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor; upper division standing. The evolution, politics, and contemporary problems of Britain's political system. GE credit: SocSci, Wrt.—II. (II.) Adams  
(new course—eff. winter 06)

**147C. West European Politics: French Politics (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor. Upper division standing. The evolution, politics and contemporary problems of France's political system. GE Credit: SocSci, Wrt. Offered in alternate years.—III. (III.) Adams  
(new course—eff. spring 06)

**147D. West European Politics: German Politics (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor; pass 1 restricted to upper division Political Science and International Relations majors. Evolution, politics and contemporary problems of Germany's political system. GE Credit: SocSci, Wrt.—II. (II.) Adams  
(new course—eff. fall 08)

**148A. Government and Politics of East Asia: China (4)**

Lecture—4 hours. Prerequisite: course 2 or consent of instructor. Evolution of political institutions and political culture in China with emphasis on the post-1949 period. Primary attention to nationalism, modernization and political efficacy. Offered in alternate years.—(I.) Montinola  
(change in existing course—eff. fall 07)

**148B. Government and Politics in East Asia: Japan (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor. Upper division standing. Examination of Japanese politics, with an emphasis on the postwar period. Particular emphasis on political parties, elections, political economy, and social problems. Offered in alternate years. GE Credit: Div, SocSci.—Scheiner  
(change in existing course—eff. spring 06)

**148C. Government and Politics in East Asia: Southeast Asia (4)**

Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor. Upper division standing. Evolution of political institutions and economy of selected nations in Southeast Asia. Emphasis on imperialist legacy, nation building in multi-ethnic communities, and contrasts in economic performance. GE Credit: Div, SocSci. Offered in alternate years.—Montinola  
(change in existing course—eff. summer session 1 06)

**178. Political Development in Modernizing Societies (4)**

(cancelled course—eff. fall 07)

**Graduate Course****279. Political Networks: Methods and Applications (4)**

Seminar—3 hours; term paper. Prerequisite: graduate standing. Structure of political networks, socio-matrices and affiliation networks; general network characteristics: density, centralization, polarization, interdependence, dyadic and triadic characteristics: structural and role equivalence; subsets of networks: cliques, blocks and bloc modeling; characteristics of individuals in networks: centrality and prestige.—II. (II.) Maoz  
(new course—eff. fall 07)

**Pomology****New and changed courses in Pomology (POM)****Lower Division Courses****10. Fruits and Nuts of California and the World (3)**

(cancelled course—eff. winter 07)

**92. Internship in Pomology (1-12)**

(cancelled course—eff. winter 07)

**Upper Division Courses****162. Field Course in Tropical Ecology and Sustainable Agricultural Development (13)**

(cancelled course—eff. spring 07)

**192. Internship in Pomology (1-12)**

(cancelled course—eff. winter 07)

**198. Directed Group Study (1-5)**

(cancelled course—eff. winter 07)

**199. Special Study for Advanced Undergraduates (1-5)**

(cancelled course—eff. winter 07)

**Graduate Courses****290. Seminar (1)**

(cancelled course—eff. winter 07)

**298. Group Study (1-5)**

(cancelled course—eff. winter 07)

**299. Research (1-5)**

(cancelled course—eff. winter 07)

## Population Health and Reproduction

### New and changed courses in Population Health and Reproduction (PHR)

#### Upper Division Course

##### 150. Foodborne Infections and Intoxications (4)

(cancelled course—eff. summer session 1 06)

#### Graduate Courses

##### 210A. Analytic Epidemiology I: Case Control Studies (3)

(cancelled course—eff. winter 07)

##### 222. Avian Immunology (3)

Lecture—3 hours. Prerequisite: second-year, third-year, or MPVM standing in the School of Veterinary Medicine; or basic immunology course or consent of instructor. Normal structure of the avian immune system, a quick review of basic immunology, comparison between mammalian and avian immune systems and generation of immune responses, immunodiagnostics and vaccination.—III. (III.) Wakenell  
(change in existing course—eff. spring 07)

##### 241. Advanced Topics in Canine Genetics and Genomics (2)

Discussion—2 hours. Prerequisite: Genetics 201A, 201C (or equivalents, with consent of instructor). In-depth study of topics in canine genomics and genetics. Topics will vary annually, but can include positional cloning, whole genome association, complex traits and linkage disequilibrium. Students will lead discussions on assigned readings. May be repeated for credit when topic differs. Limited enrollment.—I. (I.) Bannasch  
(new course—eff. fall 07)

##### 242. Ecological Genetics: Applied Genetics for Ecology, Health, and Conservation of Natural Populations (3)

Lecture—2 hours; discussion—0.5 hours; laboratory—0.5 hours. Prerequisite: undergraduate genetics and ecology/conservation biology courses recommended. Introduction to the field of applied ecological genetics to include applications in conservation ecology, population genetics, population biology, wildlife health and disease ecology. Limited enrollment. Offered in alternate years. (Same course as Ecology 242.)—II. (II.) Ernest  
(new course—eff. winter 08)

##### 250. Foodborne Infections and Intoxications (4)

Lecture—4 hours. Prerequisite: Food Science and Technology 104 or Pathology, Microbiology, and Immunology 127 or second or third-year standing in the School of Veterinary Medicine. Prevalence and characteristics of those diseases of humans which are derived from food or food sources; access of disease agents to and distribution in food and food sources; exposure of people to these agents; prevention of foodborne diseases. Not open for credit to students who have taken course 150.—III. (III.) Cliver  
(new course—eff. spring 06)

#### Professional Courses

##### 409. Animal Health Policy (1)

Lecture—8.5 hours; laboratory—7 hours; discussion—3 hours. Prerequisite: consent of instructor; MPVM standing in the School of Veterinary Medicine. Focus on the interactions between science, opinion, legislation, and regulation that result in our current animal health policy to include the process, strategies and tactics for affecting the creation of policy. Limited enrollment. (S/U grading only.)—I. (I.) Sischo  
(new course—eff. fall 06)

##### 457. Veterinary Practice Management (2)

Lecture—20 sessions. Prerequisite: first-, second-, and third-year standing in the School of Veterinary Medicine or consent of instructor. Information essential to the successful management of a veterinary practice. Topics include basic accounting, medical recordkeeping, money management, business and personal insurance, client relations and tax law. (S/U grading only.)—III. (III.) Klingborg  
(change in existing course—eff. spring 07)

## Portuguese

### New and changed courses in Portuguese (POR)

#### Upper Division Courses

##### 161. Luso-Brazilian Literature and Culture (4)

Lecture/discussion—3 hours; term paper. Prerequisite: first year Portuguese or the equivalent. Colonial Brazilian literature survey. Readings include 16th-18th centuries manuscripts and books of cultural importance in a society dominated by censorship and with no printing presses. Study of the role literary Academies played in the so called "culture of manuscripts."—III. (III.) Bernucci  
(new course—eff. spring 08)

##### 162. Introduction to Brazilian Literature (4)

Lecture/discussion—3 hours; term paper. Prerequisite: first year Portuguese or the equivalent. Narrative and poetic texts of the 19th and 20th centuries in Brazil. In-depth and comparative study of Romantic and (Neo)Naturalist movements as a forum for discussion about literary tradition and modernity in Latin America.—I. (I.) Bernucci  
(new course—eff. fall 08)

##### 163. 20th C Masters in Brazilian Literature (4)

Lecture/discussion—3 hours; term paper. Prerequisite: first year Portuguese or the equivalent. Overview of modern Brazilian literature from early 20th C to the poetry by João Cabral de Melo Neto and the Concretists (1960s), including European avant-garde movements and literary and cultural manifestos leading to a revolutionary body of literature.—II. (II.) Bernucci  
(new course—eff. winter 08)

## Psychology

### New and changed courses in Psychology (PSC)

#### Lower Division Courses

##### 41. Research Methods in Psychology (4)

Lecture/laboratory—10 hours; web virtual lecture—10 hours. Prerequisite: course 1 or the equivalent. Introduction to experimental design, interviews, questionnaires, observational research, qualitative approaches, case studies, content analysis, sampling, descriptive statistics, and statistical inference. Limited enrollment.—IV. (IV.) Sommer  
(change in existing course—eff. summer 06)

##### 41S. Research Methods in Psychology (4)

Lecture/laboratory—10 hours; web virtual lecture—10 hours. Prerequisite: course 1 or equivalent. Introduction to experimental design, interviews, questionnaires, observational research, qualitative approaches, case studies, content analysis, sampling, descriptive statistics, and statistical inference. Limited enrollment. Not open for credit to students who have taken course 41.—IV. (IV.) Sommer  
(new course—eff. summer session 1 06)

### Upper Division Courses

##### 107. Questionnaire and Survey Research Methods (4)

Lecture/discussion—2 hours; laboratory/discussion—2 hours. Prerequisite: consent of instructor; course 1; course 41 or an equivalent course on social or behavioral research methods. Introduction to survey and questionnaire research methods with emphasis on how to ask questions. Social and psychological factors that influence survey response. Practical aspects of fielding survey and questionnaire research. Limited enrollment. Not offered every year.—Herek  
(new course—eff. fall 07)

##### 120. Agent-Based Modeling (4)

Lecture/laboratory—4 hours. Prerequisite: course 100 or 101. Introduction to agent-based computer simulation and analysis with emphasis on learning how to model animals, including humans, to achieve insight into social and group behavior. Limited enrollment.—Schank  
(new course—eff. fall 06)

##### 136. Psychology of Music (4)

Lecture/discussion—3 hours; term paper. Prerequisite: courses 1, 41, and either 100 or 131 or Music 6C; or consent of instructor. Introduction to the mental and neural representations of musical structures and processes involved in perceiving, remembering, and performing music. Music and emotion.—Janata  
(new course—eff. fall 06)

##### 143. Infant Development (4)

Lecture—3 hours; lecture/discussion—1 hour; extensive writing. Prerequisite: courses 1 and 41, and either course 140 or Human Development 100A. Psychological development in infancy. Topics include physical and motor development, sensory and nervous system development, and memory and cognitive development. Emphasis will be on evaluating theories, empirical research, and experimental methods for understanding infant development.—II. (II.) Oakes  
(new course—eff. fall 07)

##### 148. Developmental Disorders (4)

Lecture/discussion—3 hours; term paper. Prerequisite: courses 1, 41, and either 140 or 141 or Human Development 100A or 100B. Current scientific knowledge of the influences of biological, cognitive, and environmental factors on the emergence of disorders with onset in childhood. Examples include autism spectrum, ADD/ADHD, dyslexia and dyscalculia. Emphasis placed on understanding these disorders, their causes and their treatments.—II, III. (II, III.) Rivera  
(new course—eff. fall 06)

##### 152. Social Cognition (4)

Lecture—4 hours. Prerequisite: courses 1 and 41. Examines how social factors influence how we attend to, encode, and process information and how these mental processes affect subsequent judgments and behavior.—I, II, III. (I, II, III.) Beer, Johnson, Pickett, Sherman  
(new course—eff. winter 07)

##### 156. Organizational Psychology (4)

(cancelled course—eff. spring 08)

##### 157. Stereotyping, Prejudice, and Stigma (4)

Lecture/discussion—3 hours; term paper. Prerequisite: Psychiatry 151. Social psychological underpinnings of stereotyping, prejudice, and stigma from sociocultural, motivational, and cognitive perspectives. Topics include: origins, maintenance, change, effects on person perception and memory, and the automaticity/controllability of stereotyping and prejudice. Offered in alternate years.—(I, II, III.) Sherman  
(new course—eff. fall 07)

**161. Psychology of the Self (4)**

Lecture—4 hours. Prerequisite: courses 1 and 41. Psychological theory and research on the self. Topics include: self-knowledge, self-esteem, self-regulation, self-presentation, cognitive and emotional aspects of the self, and the role of the self in shaping social interaction.—I, II, III. (I, II, III.) Beer, Pickett, Robins  
(new course—eff. fall 06)

**162V. Personality Theory (4)**

(cancelled course—eff. spring 08)

**177. Psychobiography and Life History (4)**

(cancelled course—eff. winter 07)

**Graduate Courses****209A. Introduction to Programming: Matlab (4)**

Lecture/laboratory—3 hours. Prerequisite: graduate standing or consent of instructor. The Matlab programming environment as a means of organizing, analyzing, and visualizing scientific data. Basic programming concepts such as variables, loops, conditional branching, and efficient programming techniques will be emphasized. Not offered every year.—Janata

(new course—eff. fall 06)

**210. Fundamentals of Cognitive Neuroimaging (3)**

Lecture/discussion—3 hours. Prerequisite: basic knowledge of inferential statistics and experimental psychology. Introduction to empirical foundations and methodology of neuroimaging, emphasizing pragmatics of functional magnetic resonance imaging (fMRI) to study cognition. Topics include MR physics, the relationship between neural activity and the BOLD response, experimental design, and analysis of fMRI data. Ranganath

(new course—eff. fall 07)

**211. Advanced Topics in Neuroimaging (2)**

Seminar—2 hours. Prerequisite: Psychology 210 or consent of instructor. Critical presentation and discussion of the most influential advanced issues in neuroimaging, emphasizing fMRI design/analysis and the integration of fMRI with EEG/MEG. Limited enrollment. (Same course as Neurobiology, Physiology and Behavior 211 and Neuroscience 211.) (S/U grading only.)—II. (II.) Miller

(new course—eff. winter 07)

**218A. Fundamentals of Animal Behavior (5)**

Lecture/discussion—4 hours; discussion—1 hour. Prerequisite: consent of instructor; upper-division undergraduate introduction to the biology of behavior, such as course 101, 122, 123, Neurobiology, Physiology, and Behavior 102, 150, 152, Wildlife, Fish, and Conservation Biology 141, Entomology 104, or Animal Science 105. Survey of the phenomena and theory of animal behavior from the perspectives of multiple biological disciplines, including evolution, ecology, psychology, genetics, neurobiology, endocrinology, and animal science. (Same course as Animal Behavior 218A.)—I. (I.) Owings, Sih

(new course—eff. fall 07)

**218B. Fundamentals of Animal Behavior (5)**

Lecture/discussion—4 hours; discussion—1 hour. Prerequisite: consent of instructor; course 209A. Survey of the phenomena and theory of animal behavior from the perspectives of multiple biological disciplines, including evolution, ecology, psychology, genetics, neurobiology, endocrinology, and animal science. (Same course as Animal Behavior 218B.)—II. (II.) Owings, Sih

(new course—eff. fall 07)

**243. Social Cognition (4)**

Lecture/discussion—3 hours, term paper. Prerequisite: consent of instructor. Processes underlying the perception, memory, and judgment of social stimuli, the effects of social and affective factors on cognition, and the interpersonal consequences of those processes. Topics include automaticity/control, motivated cognition, person perception, stereotyping, attitudes, and persuasion. Not offered every year. Beer, Pickett, Sherman

(new course—eff. fall 07)

**244. Stereotyping, Prejudice, and Stigma (4)**

Lecture/discussion—3 hours, term paper. Prerequisite: consent of instructor. This course examines the social psychological underpinnings of stereotyping, prejudice, and stigma, including sociocultural, motivational, and cognitive factors. Not offered every year.—I, II, III. (I, II, III.) Herek, Sherman

(new course—eff. fall 07)

**289A. Current Research in Psychology (2)**

Seminar—2 hours. Prerequisite: graduate standing in Psychology or consent of instructor. Contemporary theory and empirical research in specialized topics in psychology. Topics include developmental attachment, social neuroscience, mental health, emotion, sexual orientation and identity. May be repeated for credit. (Deferred grading only, pending completion of sequence.)—I, II, III. (I, II, III.)

(new course—eff. winter 07)

**289B. Current Research in Psychology (2)**

Discussion—2 hours. Prerequisite: course 289A; graduate standing in Psychology or consent of instructor. Intensive examination of contemporary theory and empirical research on a specialized topic in psychology. Sample topics include developmental attachment, social neuroscience, culture and mental health, electrophysiology and cognitive neuroscience, emotion, implicit cognitive processes, sexual orientation and identity, and attention. May be repeated for credit.—I, II, III. (I, II, III.)

(new course—eff. winter 07)

**Range Science****New and changed courses in Range Science (RMT)****Lower Division Course****92. Internship (1-12)**

(cancelled course—eff. winter 07)

**Upper Division Courses****192. Internship (1-12)**

(cancelled course—eff. winter 07)

**198. Directed Group Study (1-5)**

(cancelled course—eff. winter 07)

**199. Special Study for Advanced Undergraduates (1-5)**

(cancelled course—eff. winter 07)

**Graduate Courses****298. Group Study (1-5)**

(cancelled course—eff. winter 07)

**299. Research (1-5)**

(cancelled course—eff. winter 07)

**Religious Studies****New and changed courses in Religious Studies (RST)****Lower Division Courses****3E. Fundamentalism (4)**

Lecture—3 hours; discussion—1 hour. Introduction to the global and comparative study of fundamentalism. Historical origins, basic texts, cultural context of fundamentalist strains of Christianity, Islam, Judaism, Hinduism. Emphasis on fundamentalism and science, terrorism, politics and gender. GE Credit: ArtHum, Div, Wrt. Offered in alternate years.—I. Sylva

(new course—eff. winter 07)

**10. Contemporary Ethical Issues (2)**

Lecture—2 hours. This course presents challenging, contemporary perspective. Rotating topics will include Ethical Eating, Capital Punishment, Animal Rights. May be repeated for credit. GE Credit: Wrt.—II. (II.) Coudert, Janowitz

(new course—eff. winter 07)

**10A. Contemporary Ethical Issues (2)**

Discussion—1 hour; extensive writing. Prerequisite: concurrent enrollment in course 10 required.

Restricted to students enrolled in course 10. GE topical breadth and diversity credit only with concurrent enrollment in course 10. Discussion of the readings assigned for course 10 and completion of a major research paper. May be repeated for credit. GE Credit: ArtHum, Div, Wrt.—II. (II.) Coudert, Janowitz

(new course—eff. winter 07)

**70. Religion and Language (4)**

Lecture/discussion—3 hours; term paper. Provides students with a basic toolkit for studying religious discourse in a variety of traditions. Concentrates on the sacred and profane, the wondrous and ordinary, the mystical and reasonable.—I, II, III. (I, II, III.) Miller

(new course—eff. fall 08)

**90. Human Rights (4)**

Lecture/discussion—3 hours; term paper. Introduction to the interdisciplinary study of the origins, evolution, denial and protection of Human Rights. GE Credit: ArtHum, Div.—I, II. (I, II.) Watenpaugh

(new course—eff. fall 08)

**Upper Division Courses****103. Christianity, 600-1700 (4)**

Lecture/discussion—3 hours; extensive writing. The spread of Christianity in the medieval world; the split between Eastern and Western Christianity; Christian reactions to Judaism and Islam; the Reformations and wars of religion. Offered in alternate years. GE Credit: ArtHum, Div, SocSci, Wrt.—II. Coudert

(new course—eff. winter 07)

**131. Genocide (4)**

Lecture/discussion—3 hours; term paper. Prerequisite: one of courses 1, 2, 3A, 3B, 3C, 3E or consent of instructor. Comparative and critical study of the modern phenomenon of genocide from religious, ethical and historical perspectives. Offered in alternate years. GE credit: ArtHum, Div.—(I.) Watenpaugh

(new course—eff. fall 07)

**161. Modern Islam (4)**

Lecture/discussion—3 hours; term paper. Prerequisite: course 60 or consent of instructor. The response of Islam to modernity: secularism, reformism, fundamentalism. Islam and imperialism, women, media and immigration. Islamic modernism, political Islam, Islam in Europe and America. GE Credit: ArtHum, Div, Wrt.—II. (II.)

(new course—eff. fall 06)

**167. Iraq (4)**

Seminar—3 hours; term paper. Origins, causes and ethical challenges of conditions in Iraq; larger historical, cultural and ethical dimensions of mass violence, war, liberation, neocolonialism, terrorism and resistance.—III. (III.) Watenpaugh  
(new course—eff. spring 07)

**Graduate Courses****201. Methods and Issues in Religious Studies (4)**

Seminar—3 hours; term paper. Prerequisite: graduate standing. Focuses on controversies in the study of comparative religion. How is religion best defined? Are there methods unique to the study of religion? What does the study of religion contribute to the study of society in general? May be repeated two times for credit when topic differs. Offered in alternate years. (III.) Coudert  
(change in existing course—eff. spring 06)

**212. Religion and Violence (4)**

Seminar—3 hours; term paper. Comparative and critical study of the ideological, cultural, and theological relationship between forms of violence and religion and religious practice. Offered in alternate years.—(II.) Watenpaugh  
(new course—eff. fall 07)

**299. Directed Research (1-12)**

(S/U grading only.)  
(new course—eff. fall 07)

**Russian****New and changed courses in Russian (RUS)****Lower Division Course****1A. Accelerated Intensive Elementary Russian (15)**

Lecture/discussion—15 hours. Special 12 week accelerated, intensive summer session course that combines the work of courses 1, 2, and 3. Introduction to Russian grammar and development of all language skills in a cultural context with emphasis on communication. Not open to students who have completed course 1, 2, or 3—IV. (IV.) Arnett  
(new course—eff. summer special session 08)

**Science and Society****New and changed courses in Science and Society (SAS)****Lower Division Courses****7. Terrorism and War (4)**

Lecture—3 hours; discussion—1 hour; term paper. Exploration of terrorism and war from science and social sciences perspectives. Terrorist cells and groups; biological, chemical, nuclear, and environmental terrorism; intelligence gathering and espionage; military strategy; genocide; epochal wars; clash of civilizations; nation building; and future global scenarios. GE credit: Div, SciEng, SocSci, Wri.—III. (III.) Carey  
(change in existing course—eff. winter 04)

**9. Crisis in the Environment (3)**

Lecture—3 hours. Explores contemporary environmental issues by examining the causes, effects and solutions to a wide range of environmental problems facing the global ecosystem. Integrated discussion of political, societal and economic impact linkages with environmental problems. GE Credit: SciEng, SocSci, Wri.—III. (III.) Dahlgren  
(new course—eff. fall 06)

**10. Water, Power, Society (3)**

Lecture—2 hours; discussion—1 hour. Water resources issues. How water has been used to gain and wield socio-political power. Water resources development in California as related to current and future sustainability of water quantity and quality. Roles of science and policy in solving water problems. (Same course as Hydrologic Science 10.) GE credit: SciEng, SocSci, Wri.—III. (III.) Fogg  
(change in existing course—eff. spring 05)

**11. California Geography (3)**

Lecture—2 hours; discussion—1 hour; term paper. Introduction to cultural/societal patterns of California and their relationship to natural resources, biomes, geomorphology, and physiography. Focus on diversity of California's environments and their impacts on and alterations by human activities. Environmental issues in the State. GE credit: SciEng, SocSci, Wri.—I. (I.)  
(new course—eff. fall 06)

**12. Plants and Society (4)**

Lecture—3 hours; extensive writing—3 hours. Prerequisite: high school biology. Dependence of human societies on plant and plant products. Plants as resources for food, fiber, health, enjoyment and environmental services. Sustainable uses of plants for food production, raw materials, bioenergy, and environmental conservation. Global population growth and future food supplies. Not open for credit to students who have complete Plant Biology 12. (Former course Plant Biology 12.) (Same course as Plant Sciences 12.) GE Credit: Div, SciEng, SocSci, Wri.—I, II, III. (I, II, III.) Fischer, Jasieniuk, Nevins  
(new course—eff. fall 07)

**18. GIS and Society (3)**

Lecture—2 hours; Laboratory—3 hours; term paper or discussion—0.3 hours. Geographic Information Systems (GIS) as a spatial technology and a tool for change in society. Evaluate physical, biological and social impact of GIS in the context of case studies such as land, water and community planning. GE Credit: SciEng, SocSci, Wri.—III. (III.) Wallender  
(new course—eff. spring 07)

**40. Photography: Bridging Art and Science (3)**

Lecture/discussion—2 hours; studio—3 hours. Photography is used to explore the common ground between art and science. Photographic processes, creativity and aesthetics, chaos and order, principles of space, time and light. Photographic interpretation and documentation of the natural world. GE Credit: ArtHum, Div, SciEng, SocSci, Wri.—III. (III.) Nathan  
(new course—eff. spring 08)

**42. Earth, Water, Science and Song (3)**

Lecture—2 hours; studio—3 hours. Fusion of water and soil science with performing arts. Creative communication of scientific concepts and facts through exercises in song writing and poetry. Design, discuss and conduct public performances related to the functioning of the natural world. GE Credit: ArtHum, SciEng.—II. (II.) Silk  
(new course—eff. winter 08)

**Upper Division Course****135S. Biodiversity and Society in South Africa (4)**

Lecture/discussion—3 hours; term paper or discussion—2 hours; fieldwork—2 hours. Prerequisite: acceptance into the Quarter Abroad Program "Biodiversity & Conservation in South Africa" and attendance in South Africa. Biodiversity in social context of South Africa; race, politics and conservation; use of indigenous plants and animals; weeds; water issues; ecotourism. Weekend and other field trips. Not offered every year. GE credit: Div, SciEng, SocSci, Wri.—II. Cranston, Gullan  
(new course—eff. winter 07)

**Science and Technology Studies****New and changed courses in Science and Technology Studies (STS)****Lower Division Courses****98. Directed Group Study (1-5)**

Prerequisite: consent of instructor (P/NP grading only.)  
(new course—eff. fall 06)

**99. Special Study for Undergraduates (1-5)**

Prerequisite: consent of instructor (P/NP grading only.)  
(new course—eff. fall 06)

**Upper Division Courses****109. Visualization in Science (4)**

Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 1 or 20 or Anthropology 2. Anthropological approaches to scientific visualization techniques, informatics, simulations. Examination of different visualization techniques toward understanding the work involved in producing them, critical assessment of their power and limits, especially when visualizations are used socially to make claims. Offered in alternate years. (Same course as Anthropology 109.) GE credit: SocSci, Wri.—II. Dumit  
(new course—eff. spring 07)

**164. Writing Science (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3, or equivalent. Texts and writing practices in the production of scientific knowledge. Surveys the literary structure of scientific arguments; history of scientific genres; rhetoric and semiotics in scientific culture; graphical systems in the experimental laboratory; narratives of science, including science fiction. (Same course as English 164.) GE Credit: Wri.—I. Milburn  
(new course—eff. fall 06)

**173. Science Fiction (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or Science and Technology Studies 1, or equivalent. The literary modes and methods of science fiction. Representative texts, authors, and themes of the genre—e.g., time travel, alternative universes, and utopias. Relations of science fiction to science, philosophy, and culture. (Same course as English 173.) GE credit: ArtHum, Wri.  
(change in existing course—eff. winter 08)

**175. Laboratory Studies Lab (4)**

Lecture/discussion—4 hours. Prerequisite: upper division standing or consent of instructor. Hands-on training in STS fieldwork, interviewing, archival research and data analysis. Review of laboratory studies literature, informed consent procedures, ethics, and care of the data. Individual and group projects possible.—III. (III.)  
(new course—eff. spring 07)

## Soil Science

### New and changed courses in Soil Science (SSC)

#### Upper Division Course

##### 109. Sustainable Nutrient Management (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 100 or the equivalent. Availability of nutrients in organic and conventional agricultural, vineyard, orchard and plantation forest soils; management of fertilizers, cover crops, compost, sewage sludge and manures for crop production and to prevent loss to the environment is emphasized.—III. (III.) Horwath  
(change in existing course—eff. spring 08)

## Sociology

### New and changed courses in Sociology (SOC)

#### Lower Division Course

##### 11. Sociology of Labor and Employment (4)

Lecture—3 hours; discussion—1 hour. Labor and employment issues in the contemporary United States with some use of historical and comparative materials. Topics will include strategies pursued by employers and employees, labor market discrimination and the role of social policies in shaping labor markets. GE Credit: SocSci, Wrt.—II. (II.) Block  
(change in existing course—eff. summer session 1 06)

#### Upper Division Courses

##### 100. Origins of Modern Sociological Theory (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1; consent of instructor; restricted to upper division standing. The origins of modern sociological thought. Special emphasis on three major theorists from the classical tradition of nineteenth century European social thought: Karl Marx, Max Weber, and Emile Durkheim. GE credit: Wrt.—I, II, III. (I, II, III.)  
(change in existing course—eff. fall 08)

##### 153. The Sociology of Childhood (4)

Lecture—3 hours; term paper. Prerequisite: upper division standing. Contemporary childhood in historical, cross-cultural, and global perspectives. Examine changes in understanding of the nature of childhood and “best interests of the child” by class, race, gender, geographic region, and historical period.—I. (I.) Wolf  
(new course—eff. spring 07)

#### Graduate Courses

##### 201. Social Research (4)

Lecture/discussion—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Comparative survey of sociological inquiry, taught as a practicum. Philosophy of social science; values and research; research agendas and research problem formulations; research process; explanations. Interpretation; study design; concept formation, measure, sampling, data acquisition, inference; rhetoric and presentation of findings.—I. (I.) Cohen  
(change in existing course—eff. fall 07)

##### 208. Topics in Advanced Quantitative Methods in Social Science (4)

Seminar—3 hours; term paper. Prerequisite: course 206 or the equivalent and graduate standing; major graduate student. Analysis of the logic and application of an advanced statistical model; the particular model chosen may vary. Emphasis on the model's assumptions, its strengths and weaknesses, its application for social science inquiry, and the relationship between methods and social theory. May be repeated up to 12 units for credit. Offered in alternate years.—II, III. Shu  
(change in existing course—eff. spring 07)

## Spanish

### New and changed courses in Spanish (SPA)

#### Upper Division Courses

##### 132. Golden Age Drama and Performance (4)

Lecture—1.5 hours; performance instruction—1.5 hours. Prerequisite: course 100. Golden Age drama: text and performance. Study of Spanish Baroque drama as performance art. Close reading of plays and related aspects of seventeenth-century theater: theatrical spaces, staging, performance, actors, public, language, costumes. Final project is performance of a play. May be repeated two times for credit. Limited enrollment. Offered in alternate years.—II, III. Martín  
(new course—eff. winter 07)

##### 132N. Medieval and Renaissance Spanish Literature (4)

(cancelled course—eff. fall 07)

##### 133N. Golden Age Literature of Spain (4)

Lecture—3 hours. Prerequisite: course 100. Introduction to the study of the principal authors and literary movements of 16th- and 17th-century Spain and Spanish American colonial literature. May be repeated three times for credit.—II. (II.) Martín  
(change in existing course—eff. spring 06)

##### 134A. Don Quijote I (4)

Lecture—3 hours; term paper. Prerequisite: course 100. Critical interpretation of Don Quijote Part One by Cervantes. Focused study of key elements within the socio-cultural context of Golden Age Spain. Don Quijote as prototype for the modern novel. Offered in alternate years.—(I, II.) Martín  
(new course—eff. fall 07)

##### 134B. Don Quijote II (4)

Lecture—3 hours; term paper. Prerequisite: courses 100 and 134A. Critical interpretation of Don Quijote Part Two by Cervantes. Focused study of key elements within the socio-cultural context of Golden Age Spain. Don Quijote as prototype for the modern novel. Offered in alternate years.—II, III. Martín  
(new course—eff. winter 06)

##### 134N. Don Quijote (4)

(cancelled course—eff. fall 07)

##### 141. Introduction to Spanish Culture (4)

Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 24, 24S, or 33. Introduction to history, geography and culture of Spain. Art, history of ideas, and everyday cultural manifestations. Introduction to critical reading and textual analysis. Not open for credit to students who have completed course 141S. GE credit: ArtHum, Div.—I. (I.) González, Martínez-Carazo  
(change in existing course—eff. fall 07)

##### 141S. Introduction to Spanish Culture (4)

Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 24, 24S, or 33. Introduction to history, geography and culture of Spain. Art, history of ideas, and everyday cultural manifestations. Introduction to critical reading and textual analysis. Offered in a Spanish speaking country under the supervision of UC Davis faculty. Not open for credit to students who have completed course 141. GE credit: ArtHum, Div.—III. (III.) Martínez-Carazo  
(change in existing course—eff. spring 07)

##### 170. Introduction to Spanish American Culture (4)

Lecture—3 hours; term paper. Prerequisite: consent of instructor. Introduction to history, geography and culture of Spanish America. Multiple genres of cultural production and representation, with a focus on cultural diversity and regional difference. Introduction to critical reading and textual analysis. Not open for credit for students who have completed course 170S. GE credit: ArtHum, Div.—III. (III.) Bejel, Irwin, Lazzara, Peluffo  
(change in existing course—eff. fall 06)

##### 170S. Introduction to Spanish American Culture (4)

Lecture—3 hours; project. Prerequisite: consent of instructor. Introduction to history, geography and culture of Spanish America. Multiple genres of cultural production and representation, with a focus on cultural diversity and regional difference. Introduction to critical reading and textual analysis. Offered in a Spanish-speaking country. Not open for credit for students who have completed course 170. GE credit: ArtHum, Div.—III. (III.) Colombi  
(change in existing course—eff. summer session 1 06)

##### 180. Senior Seminar in Spanish Linguistics (4)

Seminar—3 hours; term paper. Prerequisite: senior standing; a major in Spanish or consent of instructor. Group study of a special topic drawn from Spanish linguistics. Limited enrollment. May be repeated once for credit.—I. (I.) Blake, Bradley, Colombi  
(new course—eff. fall 07)

#### Graduate Courses

##### 230. Topics in Latin American Cultural Studies (4)

Seminar—3 hours; term paper. Discussion of select contemporary theoretical debates in Latin American Cultural Studies. Application of critical questions to the analysis of cultural texts. May be repeated two times for credit when topic differs. Offered in alternate years.—(II.) McKee  
(new course—eff. fall 07)

##### 231. Interamerican Studies (4)

Seminar—3 hours; term paper. Survey of methodologies of investigation for crosscultural or comparative projects in the geographical context of the Americas. Focus on particular problems of language, discipline, national definitions, and global hierarchies of knowledge that complicate such projects. Readings of interamerican cultural texts. Offered in alternate years.—(II.) McKee  
(new course—eff. fall 07)

##### 291. Foreign Language Learning in the Classroom (4)

Seminar—3 hours; project. Overview of approaches to university-level foreign language instruction and the theoretical notions underlying current trends in classroom practices across commonly taught foreign languages. (Same course as French 291 and German 291.)—I, II. (I, II.) Anderson, Arnett, Blake, Iwasaki  
(new course—eff. fall 06)

## Statistics

### New and changed courses in Statistics (STA)

#### Upper Division Courses

##### 120. Probability and Random Variables for Engineers (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21A, B, C, and D. Basic concepts of probability theory with applications to electrical engineering, discrete and continuous random variables, conditional probability, combinatorics, bivariate distributions, transformation or random variables, law of large numbers, central limit theorem, and approximations. No credit for students who have completed course 131A or Civil and Environmental Engineering 114. GE credit: SciEng.—I, III. (I, III.) Mueller

(change in existing course—eff. fall 07)

##### 131A. Introduction to Probability Theory (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21A, B, C, and D. Fundamental concepts of probability theory, discrete and continuous random variables, standard distributions, moments and moment-generating functions, laws of large numbers and the central limit theorem. Not open for credit to students who have completed Mathematics 135A.—I, II, III. (I, II, III.) Mueller

(change in existing course—eff. fall 07)

##### 131B. Introduction to Mathematical Statistics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 131A or Mathematics 135A. Sampling, methods of estimation, sampling distributions, confidence intervals, testing hypotheses, linear regression, analysis of variance, elements of large sample theory and nonparametric inference.—II, III. (II, III.) Mueller

(change in existing course—eff. fall 07)

##### 131C. Introduction to Mathematical Statistics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 131B. Sampling, methods of estimation, sampling distributions, confidence intervals, testing hypotheses, linear regression, analysis of variance, elements of large sample theory and nonparametric inference.—III. (III.) Mueller

(change in existing course—eff. fall 07)

#### Graduate Courses

##### 226. Statistical Methods for Bioinformatics (4)

Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course 131C or consent of instructor; data analysis experience recommended. Standard and advanced statistical methodology, theory, algorithms, and applications relevant to the analysis of omics data. (Same course as Biostatistics 226.) Offered in alternate years.—(II.)

(change in existing course—eff. fall 07)

##### 235A-235B-235C. Probability Theory (4-4-4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: 235A—Mathematics 125B and 135A or course 131A or consent of instructor; 235B—Mathematics 235A/course 235A or consent of instructor; 235C—Mathematics 235B/course 235B or consent of instructor. Measure-theoretic foundations, abstract integration, independence, laws of large numbers, characteristic functions, central limit theorems. Weak convergence in metric spaces, Brownian motion, invariance principle. Conditional expectation. Topics selected from martingales, Markov chains, ergodic theory. (Same course as Mathematics 235A-235B-235C.)—I-II-III. (I-II-III.)

(change in existing course—eff. spring 08)

## Professional Course

### 396. Teaching Assistant Training Practicum (1-4)

Prerequisite: consent of instructor; graduate standing. (S/U grading only.)—I, II, III. (I, II, III.)

(new course—eff. spring 01)

## Transportation Technology and Policy

### New and changed courses in Transportation Technology and Policy (TTP)

#### Graduate Courses

##### 210. Fundamentals of Transportation Technology (4)

Lecture—2 hours; discussion—2 hours. Prerequisite: consent of instructor; Mathematics 21A, 21B, 22A; graduate or junior/senior undergraduate as a technical elective. Limited enrollment. Not open for credit to students who have completed Transportation Technology and Policy; Fundamentals of Transportation Technology 289. (Former course Transportation Technology and Policy; Fundamentals of Transportation Technology 289).—III. (III.) Erickson

(new course—eff. spring 07)

##### 220. Transportation Planning and Policy (4)

Lecture/discussion—4 hours. Transportation planning process at the regional level, including the role of federal policy in shaping regional transportation planning, tools and techniques used in regional transportation planning, issues facing regional transportation planning agencies, pros and cons of potential solutions and strategies. Students having taken this course previously as course 289 cannot repeat for credit; having taken other course 289 offerings does not preclude taking this course for credit. Limited enrollment. Offered in alternate years.—III. Handy

(new course—eff. winter 07)

##### 282. Transportation Orientation Seminar (1)

Seminar—1 hours. Ten weeks of seminars, introducing various topics in transportation research and education, focusing on topics of particular interest at UC Davis. May be repeated for credit. (S/U grading only.)—I. (I.) Handy

(new course—eff. spring 06)

## University Writing Program

### New and changed courses in University Writing Program (UWP)

#### Lower Division Courses

##### 1. Expository Writing (4)

Lecture/discussion—4 hours. Prerequisite: completion of Entry-Level Writing requirement. Composition, the essay, paragraph structure, diction, and related topics. Frequent writing assignments. Not open for credit to students who have completed English 1. GE credit: Wrt.—I, II, III, IV. (I, II, III, IV.)

(change in existing course—eff. fall 05)

##### 18. Style in the Essay (4)

Lecture/discussion—4 hours. Prerequisite: course 1 or English 3 or the equivalent. Style, language, and structure in the essay. Analyzing style, developing a voice in writing, revising sentences, developing effective paragraphs and arguments, and writing with force and clarity. Not open for credit to students who have completed English 18. GE credit: Wrt.—I, II, III. (I, II, III.)

(change in existing course—eff. fall 05)

##### 19. Writing Research Papers (4)

Lecture/discussion—4 hours. Prerequisite: course 1 or English 3 or the equivalent. Critical reading, analysis, documentation, and writing research-based assignments. Formulation of research topics and development of effective arguments. Reading and writing assignments may focus on a single theme. Not open for credit to students who have completed English 19. GE Credit: Wri.—I, II. (I, II.)

(change in existing course—eff. fall 05)

##### 98. Directed Group Study (1-5)

Prerequisite: course 1 or English 3 or the equivalent; consent of instructor. (P/NP grading only.)

(new course—eff. fall 05)

##### 99. Special Study for Undergraduates (1-5)

Prerequisite: course 1 or English 3 or the equivalent; consent of instructor. (P/NP grading only.)

(new course—eff. fall 05)

#### Upper Division Courses

##### 101. Advanced Composition (4)

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent and upper division standing. Instruction in advanced principles of expository writing. Writing tasks within and beyond the University. Different writing modes, including narrative, analysis, explanation, argument, critique. Not open for credit to students who have completed English 101. GE Credit: Wri.—I, II, III, IV. (I, II, III, IV.)

(change in existing course—eff. fall 05)

##### 102A. Writing in the Disciplines: Special Topics (4)

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent and upper division standing; restricted to majors or to students concurrently enrolled in an upper division course in a specific academic discipline or interdisciplinary field. Advanced instruction in writing in that discipline and practice in effective styles of communication. May be repeated for credit when topic differs. Not open for credit to students who have completed English 102A or course 102A in the same academic field. GE credit: Wrt.—I, II, III. (I, II, III.)

(change in existing course—eff. fall 08)

##### 102B. Writing in the Disciplines: Biology (4)

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent; upper division standing; open to majors in a biological science or to students concurrently enrolled in an upper division biological science course. Advanced instruction in writing in biology. Not open for credit to students who have completed English 102B. GE credit: Wrt.—I, II, III. (I, II, III.)

(new course—eff. fall 05)

##### 102C. Writing in the Disciplines: History (4)

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent; upper division standing; open to majors in history or to students concurrently enrolled in an upper division course accepted for the history major. Advanced instruction in writing in history. Not open for credit to students who have completed English 102C. GE credit: Wrt.—II. (II.)

(new course—eff. fall 05)

**102D. Writing in the Disciplines: International Relations (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Open to majors in international relations or to students concurrently enrolled in an upper division course accepted for the major. Advanced instruction in writing in international relations. Not open for credit to students who have completed English 102D. GE credit: Wrt. —II. (II.)

(new course—eff. fall 05)

**102E. Writing in the Disciplines: Engineering (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Open to upper division students in the College of Engineering and to students enrolled in an upper division engineering or computer science course for the major. Advanced instruction in writing in the discipline of engineering. Not open for credit to students who have completed English 102E. GE credit: Wrt —I, II, III. (I, II, III.)

(new course—eff. fall 05)

**102F. Writing in the Disciplines: Food Science and Technology (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Open to majors in food science and technology and to students concurrently enrolled in an upper division course in food science and technology. Advanced instruction in writing in food science and technology. Not open for credit to students who have completed English 102F. GE credit: Wrt. —III. (III.)

(new course—eff. fall 05)

**102G. Writing in the Disciplines: Environmental Writing (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent; upper division standing; restricted to students with upper division coursework with an environmental focus. Advanced instruction in writing and practice in effective styles of communication in the fields of environmental study, policy, or advocacy. Not open for credit to students who have completed English 102A or course 102A in the same academic field. Not offered every year. GE credit: Wrt. —III. (III.)

(change in existing course—eff. fall 08)

**102H. Writing in the Disciplines: Human Development and Psychology (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent and upper division standing; restricted to majors and minors or to students concurrently enrolled in an upper division course in Human Development or Psychology. Advanced instruction in writing and practice in effective styles of communication in Human Development and Psychology. Not open for credit to students who have completed English 102A or course 102A in the same academic field. GE credit: Wrt.—I. (I.)

(change in existing course—eff. fall 08)

**102I. Writing in the Disciplines: Ethnic Studies (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent and upper division standing; restricted to majors and minors in ethnic studies, or students with upper division coursework focusing on race and ethnicity. Advanced instruction in cross-disciplinary writing about race and ethnicity and practice in effective styles of communication. Not open for credit to students who have completed English 102A or course 102A in the same academic field. GE credit: Wrt.—I. (I.)

(change in existing course—eff. fall 08)

**102J. Writing in the Disciplines: Fine Arts (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent and upper division standing; restricted to majors and minors or to students concurrently enrolled in an upper division course in Art History, Art Studio, Design, Music, or Theater and Dance. Advanced instruction in writing about the arts and practice in effective styles of communication. Not open for credit to students who have completed English 102A or course 102A in the same academic field. GE credit: Wrt.—I, III. (I, III.)

(change in existing course—eff. fall 08)

**102K. Writing in the Disciplines: Sociology (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent and upper division standing; restricted to majors and minors in Sociology or to students concurrently enrolled in an upper division Sociology course. Advanced instruction in writing and practice in effective styles of communication in Sociology and related academic and professional fields. Not open for credit to students who have completed English 102A or course 102A in the same academic field. GE credit: Wrt.—II. (II.)

(change in existing course—eff. fall 08)

**104A. Writing in the Professions: Business Reports and Technical Communication (4)**

Lecture/discussion—3 hours. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Designing, writing, and documenting business and technical reports. Presenting data graphically. Suitable for students planning careers in science, government, business, engineering, or industry. Not open for credit to students who have completed English 104A. GE credit: Wrt —I, II, III. (I, II, III.)

(new course—eff. fall 05)

**104B. Writing in the Professions: Law (4)**

Lecture/discussion—3 hours. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Advanced principles of critical thinking, argumentation, and style, with special emphasis on their application in the legal profession. Suitable for students planning careers in law, business, administration, or management. Not open for credit to students who have completed English 104B. GE credit: Wrt.—I, II, III. (I, II, III.)

(new course—eff. fall 05)

**104C. Writing in the Professions: Journalism (4)**

Lecture/discussion—3 hours. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Non-fiction for magazines and newspapers, with attention to style and language. Emphasis on research, interviewing, market analysis, and query letters. Not open for credit to students who have completed English 104C. GE credit: Wrt.—I, II, III. (I, II, III.)

(new course—eff. fall 05)

**104D. Writing in the Professions: Elementary and Secondary Education (4)**

Lecture/discussion—3 hours. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Advanced expository writing in the contemporary American classroom. Strongly recommended for teaching credential candidates. Not open for credit to students who have completed English 104D. GE credit: Wrt.—I, II, III. (I, II, III.)

(new course—eff. fall 05)

**104E. Writing in the Professions: Science (4)**

Lecture/discussion—3 hours. Prerequisite: course 1 or English 3 or the equivalent; upper division standing or enrollment in a graduate science curriculum. Writing abstracts, research proposals, scientific papers, other forms of scientific communication. Presenting data graphically. Primarily for students engaged in or planning careers in basic or applied research. Not open for credit to students who have completed English 104E. GE credit: Wrt. —I, II, III. (I, II, III.)

(new course—eff. fall 05)

**104F. Writing in the Professions: Health (4)**

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or the equivalent; upper division standing. Advanced expository writing common in the health professions, emphasizing effective communication between the writer and different audiences. Topics relate to health, disability, and disease. Suitable for students planning careers in professions such as medicine, dentistry, physical therapy, optometry. Not open for credit to students who have completed English 104F. GE credit: Wrt.—I, II, III. (I, II, III.)

(new course—eff. fall 05)

**104I. Writing in the Professions: Internships (4)**

Lecture/discussion—3 hours. Prerequisite: course 1 or English 3 or the equivalent and upper division standing; restricted to students concurrently enrolled in an internship and to Contemporary Leadership minors. Advanced instruction in writing in the workplace, including public and private sectors, government agencies, profit and non-profit organizations. Collaborative work and practice in effective styles of communication. Not open for credit to students who have completed English 102A or course 102A. GE credit: Wrt.—III. (III.)

(change in existing course—eff. fall 08)

**192. Internship in Writing (1-12)**

Internship—3-36 hours. Prerequisite: course 1 or English 3 or the equivalent. Internships in fields where students can practice their skills. May be repeated up to 12 units for credit. (P/NP grading only.)

(new course—eff. fall 05)

**197T. Tutoring in Writing (1-5)**

Tutoring—1-5 hours. Prerequisite: upper division standing; consent of instructor. Tutoring one-on-one or leading small voluntary discussion groups affiliated with a writing course. May be repeated up to 10 units for credit. (P/NP grading only.)

(new course—eff. fall 05)

**197TC. Community Tutoring in Writings (1-4)**

Tutoring—1-4 hours. Prerequisite: upper division standing; consent of instructor. Field experience, with individuals or in K-12 classroom instruction, focusing on reading- and writing-to-learn strategies in any subject area. May be repeated up to 10 units for credit. (P/NP grading only.)

(new course—eff. fall 05)

**198. Directed Group Study (1-5)**

Prerequisite: course 1 or English 3 or the equivalent; consent of instructor. May be repeated up to 10 units for credit. (P/NP grading only.)

(new course—eff. fall 05)

**199. Special Study for Advanced Undergraduates (1-5)**

Prerequisite: consent of instructor. (P/NP grading only.)

(new course—eff. fall 05)

**Graduate Courses****298. Directed Group Study (1-5)**

Prerequisite: graduate standing; consent of instructor. (S/U grading only.)

(new course—eff. fall 05)



**299. Individual Study (1-12)**

Prerequisite: consent of instructor; graduate standing. (S/U grading only.)  
(new course—eff. fall 05)

**Professional Courses****390. Theory and Practice of University-Level Composition Instruction (4)**

Seminar—3 hours; term paper. Prerequisite: graduate standing; appointment as Teaching Assistant in the Composition Program. Examination of current theories about the teaching of writing and their practical application to undergraduate writing courses at UC Davis. Not open for credit to students who have completed English 390. (S/U grading only.)—III.  
(III.)  
(new course—eff. fall 05)

**396. Teaching Assistant Training Practicum (1-4)**

Prerequisite: graduate standing; consent of instructor. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)  
(new course—eff. fall 05)

**Vegetable Crops****New and changed courses in Vegetable Crops (VCR)****Lower Division Course****92. Internship (1-12)**

(cancelled course—eff. winter 07)

**Upper Division Courses****192. Internship (1-12)**

(cancelled course—eff. winter 07)

**198. Directed Group Study (1-5)**

(cancelled course—eff. winter 07)

**199. Special Study for Advanced Undergraduates (1-5)**

(cancelled course—eff. winter 07)

**Graduate Courses****212. Postharvest Physiology of Vegetables (3)**

(cancelled course—eff. winter 07)

**216. Ecology and Agriculture (3)**

(cancelled course—eff. winter 07)

**220. Genomics and Biotechnology of Plant Improvement (3)**

(cancelled course—eff. winter 07)

**221. Genomics and Breeding of Vegetable Crops (3)**

(cancelled course—eff. winter 07)

**290. Seminar (1)**

(cancelled course—eff. winter 07)

**298. Group Study (1)**

(cancelled course—eff. winter 07)

**299. Research (1-12)**

(cancelled course—eff. winter 07)

**Professional Course****396. Teaching Assistant Training Practicum (1-4)**

(cancelled course—eff. winter 07)

**Veterinary Medicine****New and changed courses in Veterinary Medicine (VMD)****Upper Division Course****170. Ethics of Animal Use (4)**

(cancelled course—eff. spring 08)

**Professional Courses****400A. Freshman Doctoring (2.5)**

Lecture—11 sessions; laboratory—3 sessions; workshop—5 sessions; laboratory/discussion—6 sessions. Prerequisite: first-year standing in the School of Veterinary Medicine; consent of instructor. Introduction to the “art” of veterinary medicine, focusing on essential skills (communication, team-building, leadership, conflict management, stress management, financial management). Emphasis on practical application of these skills to function efficiently and effectively in practice, academia, industry, government or other career. (S/U grading only.)—I. (I.) Klingborg, Timmins  
(change in existing course—eff. fall 06)

**400B. Sophomore Doctoring (2.6)**

Lecture—8 sessions; lecture/discussion—10 sessions; project—3 hours; laboratory—5 sessions. Prerequisite: second-year standing in the School of Veterinary Medicine; consent of instructor. Further the development of new technical skills that will prepare students for life-long learning and successful veterinary practice management. Emphasis will be on hands-on learning through participation. (Deferred grading only, pending completion of sequence. S/U grading only.)—I, II, III. (I, II, III.) Klingborg, Timmins  
(change in existing course—eff. fall 06)

**400C. Junior Doctoring (1.8)**

Lecture—3 sessions; laboratory—2 sessions; lecture/discussion—10 sessions; project—3 hours. Prerequisite: third-year standing in the School of Veterinary Medicine; consent of instructor. Introduction to the “art” of veterinary medicine, focusing on essential skills (communication, team-building, leadership, conflict management, stress management, financial management). Emphasis on practical application of these skills to function efficiently and effectively in practice, academia, industry, government or other career. (Deferred grading only, pending completion of sequence. S/U grading only.)—I, II, III. (I, II, III.) Klingborg, Timmins  
(change in existing course—eff. fall 06)

**406. Principles of Behavior (0.7)**

Lecture—7 sessions. Prerequisite: first-year standing in the School of Veterinary Medicine. Overview of animal behavior with relevance to veterinary medicine.—I. (I.) Bain  
(change in existing course—eff. fall 08)

**409. Epidemiology (1.7)**

Lecture—11 sessions; discussion—6 sessions. Prerequisite: first-year standing in School of Veterinary Medicine; consent of instructor. Introduction to epidemiologic effect measures, causal inference, experimental and non-experimental study design, and clinical epidemiology, with applications in veterinary medicine.—I. (I.) Kass  
(change in existing course—eff. fall 08)

**419. Virology (2.7)**

Lecture—27 sessions. Prerequisite: second-year standing in the School of Veterinary Medicine. Introduction to the classification, morphology, and the strategy of replication of animal viruses, covering the molecular pathogenesis of animal viruses at the cellular level with emphasis on agents of infectious diseases of domestic animals.—I. (I.) Yilma  
(change in existing course—eff. fall 08)

**425. Veterinary Genetics (1.8)**

Lecture—16 sessions; discussion—2 sessions. Prerequisite: first-year standing in the School of Veterinary Medicine; consent of instructor. Introduction to genetics as it applies to the practice of veterinary medicine.—III. (III.) Bannasch  
(change in existing course—eff. spring 07)

**434. Introduction to Veterinary Hematology (1.4)**

Lecture—10 sessions; laboratory—4 sessions. Prerequisite: first-year standing in the School of Veterinary Medicine; consent of instructor. The regulation of production of blood cells, the morphology of bone marrow and hematopoietic cells, the morphology and function of blood cells and the activities of hemostasis.—III. (III.) Vernau  
(change in existing course—eff. spring 08)

**435. Veterinary Clinical Pathology (3.9)**

Lecture—13 sessions; laboratory/discussion—26 sessions. Prerequisite: consent of instructor; second-year standing in School of Veterinary Medicine. The principles, selection, use, interpretation, and limitations of laboratory tests used for the diagnosis and monitoring of disease in animals. (Deferred grading only, pending completion of sequence.)—II, III. (I, II, III.) Borjesson  
(change in existing course—eff. winter 08)

**437. Veterinary Ethics and Law (2)**

Lecture—16 sessions; discussion—4 sessions. Prerequisite: consent of instructor; third-year standing in the School of Veterinary Medicine. Ethical and legal issues critical to successful and ethical veterinary practice. Processes through which ethical and legal questions are approached and resolved. Reading and discussions supplemented with problem-based learning.—III. (III.) Tannenbaum  
(change in existing course—eff. spring 08)

**447. Introduction to Public Veterinary Practice and Foreign Animal Diseases (1)**

Lecture—10 sessions. Prerequisite: second-year standing in the School of Veterinary Medicine; consent of instructor. Overview of the importance of foreign animal diseases and the veterinary responsibilities associated with the prevention, detection and reporting of these diseases in the United States.—I. (I.) Smith, Wetherall  
(change in existing course—eff. fall 06)

**470B. VMTH Techniques (3.4)**

(cancelled course—eff. winter 07)

**470C. VMTH Techniques (3.4)**

(cancelled course—eff. spring 07)

**Veterinary Medicine: Anatomy, Physiology and Cell Biology****New and changed courses in Anatomy, Physiology and Cell Biology (APC)****Lower Division Courses****92. Internship (1-12)**

Internship—3-36 hours. Prerequisite: lower division standing; consent of instructor. Internship experience off and on campus in all subject areas offered in the Department of Anatomy, Physiology & Cell Biology. Internships are supervised by a member of the faculty. (P/NP grading only.)  
(new course—eff. winter 07)

**99. Special Study for Undergraduates (1-5)**

Prerequisite: consent of instructor. (P/NP grading only.)  
(new course—eff. winter 07)

## Upper Division Course

### 100. Comparative Vertebrate Organology (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: Biological Science 1A and 1B or 2A and 2B. Functional anatomy of major organ systems in vertebrates. Each system examined from cellular to gross level in fish, birds, and mammals. Emphasis on how differentiated cell types are integrated into tissues and organs to perform diverse physiological functions. (Same course as Neurobiology, Physiology, and Behavior 123.)—II. (II.) Werner

*(change in existing course—eff. winter 08)*

## Professional Course

### 458. Behavior Therapy in Companion Animals (2)

*(cancelled course—eff. fall 08)*

## Veterinary Medicine: Medicine and Epidemiology

### New and changed courses in Veterinary Medicine: Medicine and Epidemiology (VME)

#### Upper Division Course

### 158. Infectious Disease in Ecology and Conservation (3)

Lecture—3 hours. Prerequisite: Evolution and Ecology 101 or Environmental Science and Policy 100 or Veterinary Medicine 409 or equivalent. Introduction to the dynamics and control of infectious disease in wildlife, including zoonotic diseases and those threatening endangered species. Basic epidemiological models and application to field data. Scientists' role in developing disease control policies. Offered in alternate years.—(II.) Foley

*(new course—eff. winter 08)*

### 198. Directed Group Study (1-5)

Prerequisite: consent of instructor. (P/NP grading only.)

*(new course—eff. fall 07)*

## Graduate Course

### 258. Infectious Disease in Ecology and Conservation (1)

Discussion—2 hours. Prerequisite: course 158 (must be taken concurrently). Presentation, analysis and discussion of primary literature on the dynamics and control of infectious disease in wildlife, including zoonotic diseases and those threatening endangered species. Multidisciplinary approach combines perspectives of ecology and veterinary medicine. Offered in alternate years. (S/U grading only.)—II. Foley

*(change in existing course—eff. winter 08)*

### 290C. Research Group Conference (1)

Conference—10 sessions. Prerequisite: consent of instructor; first-, second- or third-year standing in the School of Veterinary Medicine. Current research topics relevant to veterinary clinical pharmacology. May be repeated two times for credit. (S/U grading only.)—I, II, III. (I, II, III.) Tell

*(change in existing course—eff. spring 07)*

## Professional Courses

### 401. Introduction to Ecosystem Health (1.0)

Lecture—10 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine. Core principles and approaches for assessing ecosystem health with emphasis on relationships between environmental, animal and human health. Topics include ecosystem change and human/animal impacts, emerging infectious disease, wildlife zoonoses, ecotoxicology, and indicators of ecosystem health.—I. (I.) Johnson

*(new course—eff. fall 08)*

### 415. Small Animal Orthopedics (1.5)

Lecture—13 sessions; laboratory—2 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine. Common conditions of small animal lameness and basic principles of small animal traumatology.—III. (III.) Kapatkin

*(change in existing course—eff. fall 08)*

### 458. Behavior Therapy in Companion Animals (2.0)

Lecture—20 sessions. Prerequisite: second- and third-year standing in the School of Veterinary Medicine. Clinical application of behavior modification procedures, management and drug therapy to resolve common behavioral problems of companion animals including dogs, cats, horses and birds.—III. (III.) Bain

*(new course—eff. spring 08)*

### 450. Small Animal Clinical Immunology (1.7)

Lecture—17 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine; consent of instructor. Review of the basic mechanisms of immunologic diseases in small companion animals and a description of common immunologic diseases organized by body system, including clinical presentation, diagnosis and treatment.—III. (III.) Sykes

*(change in existing course—eff. spring 07)*

### 461. Small Animal Orthopedic Surgery (1.6)

*(cancelled course—eff. fall 08)*

### 461L. Small Animal Orthopedic Surgery Laboratory (0.3)

*(cancelled course—eff. fall 08)*

### 463. Soft Tissue Surgery (1.8)

Lecture—18 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine. Pathophysiology and surgical treatment of selected soft tissue diseases.—III. (III.) MacLeod

*(change in existing course—eff. spring 08)*

### 464C. Equine Medicine, Level I (3.4)

Lecture—33 sessions; discussion—1 session. Prerequisite: third-year standing in the School of Veterinary Medicine (and completion of courses 464A and 464B if Equine Medicine is fulfilling your core requirement); consent of instructor. Continuation in instruction in the etiology, pathophysiology, epidemiology, clinical presentation, diagnostic evaluation, treatment, prevention and control of important infectious and non-infectious diseases of horses. A problem-based approach to differential diagnosis emphasized.—II. (II.) Pusterla

*(change in existing course—eff. winter 06)*

### 465L. Advanced Equine Medicine Level II Laboratory (0.8)

Laboratory—8 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine; courses 464A, B, C; consent of instructor; concurrent enrollment in course 465. Clinical presentation and instruction in treatment of the medical aspects of equine practice. (S/U grading only.)—III. (III.) Watson

*(change in existing course—eff. spring 06)*

### 486. Equine Clinical Neonatology (1)

Discussion—10 sessions. Prerequisite: first-, second- and third-year standing in the School of Veterinary Medicine. Discussion of methods of equine neonatal intensive care and disease pathophysiology in a case format. (S/U grading only.)—III. (III.) Madigan

*(change in existing course—eff. spring 07)*

### 487. Comparative Anatomy and Physiology of Non-Domestic Animals (2)

Lecture—20 sessions. Prerequisite: first-, second- or third-year standing in the School of Veterinary Medicine; consent of instructor. Comparative anatomy and physiology of non-domestic species, including captive and free-ranging wildlife, exotic pets, laboratory animals, and species in apiculture, aquaculture, and viculture. Basis for understanding husbandry, diseases, and other veterinary concerns of multiple taxa. (S/U grading only.)—II. (II.) Larsen

*(change in existing course—eff. winter 08)*

## Veterinary Medicine: Molecular Biosciences

### New and changed courses in Veterinary Medicine: Molecular Biosciences (VMB)

#### Graduate Courses

### 260. Toxicologic Pathology (3)

*(cancelled course—eff. winter 07)*

### 266. Mass Spectrometry in Biological Sciences: Basics, Applications and Communication Tools (4)

Lecture—22 sessions; discussion—7 sessions; laboratory—1 sessions. Prerequisite: Math 16C or equivalent, one year college chemistry or equivalent, one year college physics or equivalent; consent of instructor. Deliver working knowledge and communication tools of mass spectrometry focusing on samples with biological origin: instrumentation, ionization technique selection, scanning techniques, signal detection, quantification and structure elucidation. Way of generating and understanding mass spectral information.—III. Lango

*(new course—eff. fall 06)*

## Professional Courses

### 418. Veterinary Complementary Medicine (1.1)

*(cancelled course—eff. fall 06)*

### 475. Case Studies in Large Animal Clinical Toxicology (1.5)

Discussion—15 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine; consent of instructor. Clinical systematic approach to poisoning problems in horses, cattle, sheep, goats, lamoids and other livestock emphasizing their diagnosis and treatment.—I. (I.) Puschner

*(change in existing course—eff. fall 06)*

### 480. Case Studies in Small and Exotic Animal Clinical Toxicology (1.5)

Discussion—15 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine; consent of instructor. Clinical systematic approach to poisoning problems in small and exotic animals emphasizing diagnosis and treatment.—II. (II.) Pop-penga

*(change in existing course—eff. winter 07)*

## Veterinary Medicine: Pathology, Microbiology, and Immunology

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### New and changed courses in Veterinary Medicine: Pathology, Microbiology, and Immunology (PMI)

#### Graduate Courses

#### 250. Philosophy and Ethics of Biomedical Science (1)

Seminar—1 hour. Prerequisite: graduate-level standing. Presentations by faculty and guest speakers followed by discussions of relevant current events by graduate students. (S/U grading only.)—III. (III.) Wilson

(new course—eff. summer session 2 06)

#### 292A. Seminar in Animal Virology (1)

Seminar—1 hour. Prerequisite: graduate-level standing or consent of instructor. A discussion of the current topics in animal virology. (Same course as Microbiology 296.) May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.) Marthas, Miller

(change in existing course—eff. summer session 2 06)

#### Professional Course

#### 419. Field Techniques for Assessment of Wildlife and Ecosystem Health (2)

Fieldwork—7 sessions. Prerequisite: first, second, third-year or MPVM standing in the School of Veterinary Medicine or consent of instructor. Introduction to the concepts and technical skills necessary to conduct field studies pertaining to wildlife/ecosystem health. Emphasis will be on Southern California ecosystem. Limited enrollment. (S/U grading only.)—III. (III.) Ziccardi

(change in existing course—eff. spring 08)

#### 475. Diagnostic Medicine of Domestic Animals (2)

(cancelled course—eff. fall 08)

## Veterinary Medicine: Population Health and Reproduction

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### New and changed courses in Veterinary Medicine: Population Health and Reproduction (PHR)

#### Graduate Courses

#### 210B. Analytic Epidemiology II: Cohort Studies (3)

(cancelled course—eff. winter 07)

#### 216A. Immunodiagnostic Techniques (2)

(cancelled course—eff. winter 07)

#### 216B. Research Methods in Avian Immunology (2)

(cancelled course—eff. winter 07)

#### 231. Pathophysiology of Mammalian Reproductive Processes (3)

(cancelled course—eff. winter 07)

#### Professional Course

#### 446B. Equine Reproduction (1)

Lecture—6 sessions; laboratory—4 sessions. Prerequisite: consent of instructor; second-year standing in the School of Veterinary Medicine. Introduction to clinical equine reproduction with emphasis on methods of diagnosis and the interpretation of clinical and laboratory findings.—III. (III.) Ball

(change in existing course—eff. spring 06)

## Veterinary Medicine: Preventive Veterinary Medicine

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### New and changed courses in Veterinary Medicine: Preventive Veterinary Medicine (MPM)

#### Professional Courses

#### 402. Medical Statistics I (4)

Lecture—3 hours; laboratory—2 hours. Prerequisite: MPVM standing in the School of Veterinary Medicine or consent of instructor. Statistics in clinical, laboratory and population medicine: graphical and tabular presentation of data; probability; binomial; Poisson, normal, *t*, *F*, and Chi-square distributions; elementary nonparametric methods; simple linear regression and correlation; life tables. Microcomputer applications of statistical procedures in population medicine.—IV. (IV.) Farver

(change in existing course—eff. summer session 2 08)

#### 403. Medical Statistics II (4)

Lecture—3 hours; laboratory—2 hours. Prerequisite: MPVM standing in the School of Veterinary Medicine and/or successful completion of course 402 (or equivalent) or consent of instructor. Continuation of course 402. Analysis of variance in biomedical sciences; nonparametric methods; multiple regression; biomedical applications of statistical methods. Microcomputer applications to reinforce principles that are taught in lecture.—I. (I.) Farver

(change in existing course—eff. fall 08)

#### 404. Medical Statistics III (4)

Lecture—3 hours; laboratory—2 hours. Prerequisite: MPVM standing in the School of Veterinary Medicine and/or successful completion of course 403 (or equivalent) or consent of instructor. Continuation of course 403. Analysis of time dependent variation and trends, analysis of multiway frequency tables; logistic regression; survival analysis selecting the best regression equation; biomedical applications.—II. (II.) Farver

(change in existing course—eff. winter 08)

#### 408A. Veterinary Research: Planning and Reporting (2)

Lecture—20 sessions. Prerequisite: MPVM standing in the School of Veterinary Medicine or consent of instructor. Planning, critical analysis, ethics, and written and oral communication of veterinary research.—I. (I.) Mazet

(change in existing course—eff. fall 08)

#### 408B. Veterinary Research: Planning and Reporting (1)

Lecture—10 sessions. Prerequisite: MPVM standing in the School of Veterinary Medicine or consent of instructor. Planning, critical analysis, ethics, and written and oral communication of veterinary research.—I. (I.) Mazet

(change in existing course—eff. fall 08)

#### 410. Animal Health Policy and Risk Communication (1)

Discussion—10 sessions. Prerequisite: MPVM standing in the School of Veterinary Medicine or consent of instructor. International, national and state policy issues affecting veterinary medicine, how policy is made, organizational cultures, the role of science in policy-making, ten best practices in risk/crisis communication, message-mapping for the public and policy-makers, and effective meeting management.—I. (I.) Mazet

(change in existing course—eff. fall 08)

#### 412. Introduction to Information Management (3)

Lecture—10 sessions; laboratory—20 sessions. Prerequisite: MPVM standing in the School of Veterinary Medicine or consent of instructor. Introduction to information management. Emphasis on data quality and design of data applications. Specific topics include library fundamentals and managing human resources for project management, data collection, organization, storage, analysis and communication. Limited enrollment.—IV. (IV.)

(change in existing course—eff. summer session 2 08)

#### 426. Applied Epidemiologic Problem Solving (1.0)

Laboratory—10 sessions. Prerequisite: MPVM standing in the School of Veterinary Medicine or consent of instructor. Integration of epidemiologic and statistical methodology in a problem-solving approach to contemporary animal population health issues. Data validation and manipulation; descriptive statistical analysis using spreadsheets, database management, and Epi Info software. Builds on skills learned in courses 405L and 406.—II. (II.) Gardner

(change in existing course—eff. winter 08)

#### 431R. Graduate Veterinary Neurology/Neurosurgery (2)

Seminar—4 hours. Prerequisite: resident status in the Veterinary Medical Teaching Hospital or consent of instructor. Lectures/discussions/literature reviews of diagnosis and medical/surgical treatment of neurological diseases of animals to include relevant neurologic and neurosurgical topics from human medicine. May be repeated for credit up to 12 times for 24 units of credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Sturges, Vernau

(change in existing course—eff. fall 07)

#### 432R. Advanced Veterinary Neurosurgery Seminar (1.5)

Lecture/laboratory—15 sessions. Prerequisite: resident status in Small Animal Surgery or Neurology/Neurosurgery in the Veterinary Medical Teaching Hospital or consent of instructor. Overview of the diagnosis and treatment of neurological disease in small animals with an emphasis on neurosurgery. Laboratory sessions allow residents to develop familiarity with anatomical landmarks and the neurosurgical skills. May be repeated six times for credit. (S/U grading only.)—II, III. (II, III.) Sturges

(change in existing course—eff. fall 07)

#### 433R. Clinical Neuromuscular/Neuropathology Conference (1)

Seminar—1 hour. Prerequisite: resident status at the Veterinary Medical Teaching Hospital or consent of instructor. Case discussions and review of neuropathology and neuromuscular disease. May be repeated twelve times for credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) LeCouteur, Vernau

(new course—eff. fall 07)

## Veterinary Medicine: Surgical and Radiological Sciences

### New and changed courses in Veterinary Medicine: Surgical and Radiological Sciences (VSR)

#### Graduate Course

##### 290. Clinical Neurology/Neuropathology Conference (1)

(cancelled course—eff. fall 07)

#### Professional Courses

##### 405. Advanced Small Animal Abdominal Ultrasound (2.1)

Lecture—12 sessions; discussion—6 sessions; laboratory—3 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine; consent of instructor. The use of ultrasound for the diagnosis of common clinical diseases in both the abdomen and thorax. Examination techniques of the thorax and the abdomen covered in the laboratory sessions and examples of the abnormal presented in discussion.—II. (II.) Pollard

(change in existing course—eff. winter 07)

##### 406. Small Animal Diagnostic Ultrasound (1)

Lecture—7 sessions; discussion—1 session; laboratory—2 sessions. Prerequisite: second-year standing in the School of Veterinary Medicine. Ultrasound imaging principles.—I. (I.) Pollard

(change in existing course—eff. fall 07)

##### 409. Known Case Conference (1.5)

(cancelled course—eff. fall 06)

##### 409R. Known Case Conference—Imaging (1.5)

Discussion—15 sessions. Prerequisite: resident status in the Veterinary Medical Teaching Hospital; consent of instructor. Film review of current and past Veterinary Medical Teaching Hospital proven cases. Intended for radiology residents and others with background in diagnostic imaging. May be repeated three times for credit. (S/U grading only.)—I, II, III. (I, II, III.) Kent

(new course—eff. fall 06)

##### 411R. Small Animal Orthopedics Conference (0.9)

Discussion—9 sessions. Prerequisite: resident status in the Veterinary Medical Teaching Hospital; consent of instructor. Current cases and literature pertaining to small animal orthopedics. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Kapatkin

(change in existing course—eff. fall 06)

##### 413. Small Animal Dentistry (2.4)

Lecture—19 sessions; discussion—5 sessions. Prerequisite: consent of instructor; third-year standing in School of Veterinary Medicine. Introduction to the principles of oral examination, pathophysiology and treatment of periodontitis, exodontics, basic oral soft tissue surgery dental emergencies, orthodontics, developmental and regressive dental conditions, endodontics, prosthodontics, advanced periodontal therapy, oral medicine and advanced oral surgery. (Deferred grading only, pending completion of sequence.) (S/U grading only.)—II, III. (II, III.) Verstraete

(change in existing course—eff. winter 08)

##### 415. Lameness in Dogs (1.4)

Lecture—13 sessions; laboratory—1 session. Prerequisite: third-year standing in the School of Veterinary Medicine; consent of instructor. Discussion of lameness examination and detailed descriptions of common congenital and acquired disorders that cause lameness in dogs. Discussion of methods to diagnose and treat.—III. (III.) Kapatkin

(change in existing course—eff. spring 06)

##### 418R. Topics in Surgery/Oncology (0.4)

Discussion—4 sessions. Prerequisite: resident status at the Veterinary Medical Teaching Hospital; consent of instructor. Discussion of topics relevant to surgery and oncology with special focus on new treatments, recommendations, and modalities. May be repeated up to 16 times for credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Kent, MacLeod

(new course—eff. winter 07)

##### 424. Clinical Veterinary Oncology (1)

Lecture—10 sessions. Prerequisite: second-year standing in the School of Veterinary Medicine; consent of instructor. The internal medicine subspecialty of oncology. Clinical considerations and basic tenets of tumor biology. (S/U grading only.)—I. (I.) Theon

(change in existing course—eff. fall 06)

##### 425R. Veterinary Cancer Biology: Clinical Applications (1)

Discussion—10 sessions. Prerequisite: resident status in the Veterinary Medical Teaching Hospital; consent of instructor. Survey of contemporary literature regarding the clinical management of important tumors in domestic animals and focus on diagnosis and treatment. (S/U grading only.)—I. (I.) Kent

(change in existing course—eff. fall 06)

##### 426R. Veterinary Cancer Biology: Mechanisms of Disease (1)

Discussion—10 sessions. Prerequisite: resident status in the Veterinary Medical Teaching Hospital; consent of instructor. Survey of contemporary literature regarding the biology of cancer with particular reference to mechanisms underlying tumorigenesis in domestic animals. (S/U grading only.)—III. (III.) Kent

(change in existing course—eff. spring 07)

##### 441R. Small Animal Emergency/Critical Care Journal Discussion (1)

Discussion—1 hour. Prerequisite: resident status at the Veterinary Medical Teaching Hospital; consent of instructor. Review of current medical and veterinary emergency and critical care literature. Focus on scientific methodology, content and relevance to clinical practice. May be repeated twelve times for credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Jandrey

(new course—eff. fall 07)

##### 442R. Small Animal Emergency/Critical Care Physiology Rounds (3)

Seminar—3 hours. Prerequisite: resident status at the Veterinary Medical Teaching Hospital; consent of instructor. Review of physiology and topics pertinent to small animal emergency and critical care. May be repeated twelve times for credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Burkiit

(new course—eff. fall 07)

##### 459R. Renal Transplantation (0.5)

Lecture/discussion—5 sessions. Prerequisite: resident status at the Veterinary Medical Teaching Hospital; consent of instructor. Topics related to renal transplant cases. May be repeated up to 12 times for credit. (S/U grading only.)—I, II, III, IV. (I, II, III, IV.) Mehl

(new course—eff. spring 07)

##### 461. Small Animal Orthopedic Surgery (1.6)

Lecture—16 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine; consent of instructor. Introduction to principles of small animal orthopedic surgery including: orthopedic anatomy and examination, orthopedic instrumentation, fracture management, traumatic joint disease and traumatic muscle and tendon disease.—II. (II.) Hayashi

(change in existing course—eff. winter 07)

##### 461L. Small Animal Orthopedic Surgery Laboratory (0.3)

Laboratory—3 sessions. Prerequisite: third-year standing in the School of Veterinary Medicine; concurrent enrollment in course 461; consent of instructor. Hands-on experience in application of external coaptation and basic principles of application of different types of fixation for fractures. (S/U grading only.)—II. (II.) Hayashi

(change in existing course—eff. winter 07)

## Wildlife, Fish, and Conservation Biology

### New and changed courses in Wildlife, Fish, and Conservation Biology (WFC)

#### Upper Division Courses

##### 110. Biology and Conservation of Wild Mammals (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or Biological Sciences 2A, 2B, 2C; Evolution and Ecology 101 or ESP 100 or equivalent course. Origins, evolution, diversification, and geographical and ecological distributions of mammals. Morphological, physiological, reproductive, and behavioral adaptations of mammals to their environment.—III. (III.) Kelt

(change in existing course—eff. spring 08)

##### 111. Biology and Conservation of Wild Birds (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or Biological Sciences 2A, 2B, 2C; Evolution and Ecology 101 or ESP 100 or equivalent course. Phylogeny, distribution, migration, reproduction, population dynamics, behavior and physiological ecology of wild birds. Emphasis on adaptations to environments, species interactions, management, and conservation.—I. (I.) Anderson, Eadie

(change in existing course—eff. fall 08)

##### 111L. Laboratory in Biology and Conservation of Wild Birds (3)

Laboratory—6 hours; fieldwork—3 hours. Prerequisite: course 111 (may be taken concurrently); consent of instructor. Laboratory exercises in bird species identification, anatomy, molts, age and sex, specialized adaptations, behavior, research, with emphasis on conservation of wild birds. Several weekend field trips, after class bird walks, and independent bird study are required. Limited enrollment.—I. (I.) Anderson, Eadie

(change in existing course—eff. fall 08)

**151. Wildlife Ecology (4)**

Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences, 1A, 1B, 1C or Biological Sciences, 2A, 2B, 2C or the equivalents; course 110L or 111L recommended. Ecology of wild vertebrates, including habitat selection, spatial organization, demography, population growth and regulation, competition, predation, and community dynamics, set in the context of human-caused degradation of environments in North America.—I. (I.) Van Vuren  
*(change in existing course—eff. spring 08)*

**152. Ecological Management of Problem Wildlife (3)**

Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B, and 1C, or Biological Sciences 2A, 2B, 2C, or the equivalent. Ecological approaches to managing wild vertebrates that cause problems for agriculture, public health, or conservation of biodiversity. Offered in alternate years.—II. Van Vuren  
*(change in existing course—eff. fall 08)*

# Policies and Requirements Addendum

## Academic Calendar

### Changes to Academic Calendar

#### UC Davis Academic Calendar 2006-2008\*

	Fall 2006	Winter 2007	Spring 2007	Fall 2007	Winter 2008	Spring 2008
Class Schedule and Registration Guide and Registration appointment times available	May 8	Oct 23	Jan 29	May 7	Oct 22	Jan 28
Pass 1 Registration (assigned appointments)	May 15	Oct 30	Feb 5	May 14	Oct 29	Feb 4
Pass 2 Registration (assigned appointments)	Aug 28	Nov 27	Feb 26	Aug 27	Nov 26	Feb 25
Last day to:	Sep 21	Dec 27	Mar 21	Sep 20	Jan 2	Mar 24
• Pay fees and enroll without incurring a \$50 late fee						
• Petition for classification to resident status						
<b>Quarter begins</b>	<b>Sep 25</b>	<b>Jan 2</b>	<b>Mar 27</b>	<b>Sep 24</b>	<b>Jan 4</b>	<b>Mar 27</b>
Orientation	Sep 25-27	Jan 2	Mar 27	Sep 24-26	Jan 4	Mar 27
<b>Instruction begins</b>	<b>Sep 28</b>	<b>Jan 3</b>	<b>Mar 28</b>	<b>Sep 27</b>	<b>Jan 7</b>	<b>Mar 31</b>
• Last day to file for PELP						
Last day to:	Oct 11	Jan 17	Apr 11	Oct 10	Jan 18	Apr 11
• Pay late fee						
• Drop 10-day-drop courses						
• Change student status (part-time/full-time)						
Last day to add courses	Oct 13	Jan 19	Apr 13	Oct 12	Jan 23	Apr 15
Last day to drop 20-day-drop courses	Oct 25	Jan 31	Apr 25	Oct 24	Feb 4	Apr 25
Last day to:	Nov 1	Feb 7	May 2	Oct 31	Feb 11	May 2
• Opt to take courses on a P/NP basis						
• File to take courses on a S/U basis						
Monday classes meet	N/A	Jan 17	May 30	N/A	eliminated	eliminated
<b>Instruction ends</b>	<b>Dec 8</b>	<b>Mar 14</b>	<b>Jun 6</b>	<b>Dec 7</b>	<b>Mar 17</b>	<b>Jun 5</b>
Final examinations	Dec 11-16	Mar 16-22	Jun 8-14	Dec 10-14	Mar 18-22	Jun 7, 9-12
<b>Quarter ends</b>	<b>Dec 16</b>	<b>Mar 22</b>	<b>Jun 14</b>	<b>Dec 14</b>	<b>Mar 22</b>	<b>Jun 12</b>
Commencement	Dec 17	Jun 15-17	Dec 15	Jun 15-17	Jun 13-15	Jun 13-15
Academic and Administrative Holidays	Nov 10 Nov 23-24 Dec 25-26 Dec 29-Jan 1	Jan 15 Feb 19 Mar 30	May 28	Nov 12 Nov 22-23 Dec 24-25 Dec 31-Jan 1	Jan 21 Feb 18	Mar 28 May 26
<b>Filing for Candidacy (Graduation)</b>						
Filing period for those who expect to complete work for a bachelor's degree to file for candidacy with the Registrar †	Jun 1-Oct 11	Nov 1-Jan 17	Feb 1-Apr 11	Jun 1-Oct 10	Nov 1-Jan 18	Feb 1-Apr 11
Last day to file minor with the Dean's Office ‡	Oct 11	Jan 17	Apr 11	Oct 10	Jan 18	Apr 11
<b>Undergraduate Admission-Readmission</b>						
Last day for applicants to file admission & scholarship application	Nov 30, 2006	Jul 31, 2006	Oct 31, 2006	Nov 30, 2006	Jul 31, 2007	Oct 31, 2007
Last day to file readmission application with the Registrar for undergraduate status	Jul 31, 2006	Oct 31, 2006	Jan 31, 2007	Jul 29, 2007	Oct 31, 2007	Jan 31, 2008

#### Summer Sessions 2007

Jun 25-Aug 3  
Aug 6-Sep 14

#### Financial Aid Filing Period

- Filing period for grants, loans, work-study and California Student Aid awards for 2007-2008; Jan 1-Mar 2
- Filing period for undergraduate scholarship application for 2007-2008: Oct 1-Dec 3, 2007

#### Key to Symbols

- \* Dates are subject to change and should be checked with appropriate *Class Schedule and Registration Guide*.
- † For students graduating Sep 2007, the filing period is May 17-Jul 8.
- ‡ For students graduating Sep 2007, the deadline to file a minor program with Dean's Office is Jul 8.

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2007-2008 offering in parentheses

General Education (GE) credit: ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Social-Cultural Diversity; Wrt=Writing Experience

# Undergraduate Admission

## Changes to College Board Advanced Placement (AP) Examination Credit table; Physics requirements

### College Board Advanced Placement (AP) Examination Credit

NATURAL SCIENCES			
<i>All colleges:</i> 4 units of credit toward Natural Sciences Credit or Preparatory Course Work allowed for science majors for each Natural Sciences examination passed, except 8 units of credit allowed for Mathematics BC and Physics B examinations.			
Biology .....	5, 4, 3	Biological Sciences 10	8 units
Biological Sciences 1A is the first course taken by most students contemplating majors in the Life Sciences.			
Chemistry.....	5	Chemistry 2A	Determined by consultation with adviser
Although Chemistry 2A may be taken for full credit, students are strongly encouraged to enroll in the 2HA, 2HB, 2HC sequence.			
Chemistry.....	4, 3	Chemistry 10	8 units
Computer Science AB .....	5, 4	Engineering: Computer Science 30	Engineering: Computer Science 40
Credit for Computer Science and Engineering 30 may serve as prerequisite for Computer Science and Engineering 40 with consent of instructor			
Computer Science AB .....	3		4 units
<i>College of Engineering:</i> examination awards units towards the unrestricted electives requirement.			
Computer Science A.....	5, 4, 3		2 units
Environmental Sciences.....	5, 4, 3	Environmental and Resource Sciences 10, 10G	Environmental and Resource Sciences 60
Mathematics AB .....	5, 4	Mathematics 12, 16A, 17A or 21A	Mathematics 16B, 17B or 21B
Mathematics 16A, 17A or 21A may be taken for full credit. Credit for Mathematics 16A, 17A or 21A equivalents may serve as prerequisite for Mathematics 16B, 17B or 21B.			
Mathematics AB .....	3		4 units
Mathematics BC .....	5	Mathematics 12, 16A-16B, 17A-17B or 21A-21B	Mathematics 16C, 17C or 21C
Mathematics 16A, 16B, 17A, 17B, 21A, or 21B may be taken for full credit. Mathematics 16A, 16B, 17A, 17B, 21A, or 21B equivalents may serve as a prerequisite for Mathematics 16B, 16C, 17C, 21B, or 21C.			
Mathematics BC.....	4, 3	Mathematics 12, 16A, 17A or 21A	Mathematics 16B, 17B or 21B
Mathematics 16A, 17A or 21A may be taken for full credit. Credit for Mathematics 16A, 17A or 21A equivalents may serve as prerequisite for Mathematics 16B, 17B or 21B.			
Physics B .....	5, 4	Physics 1A, 1B	8 units
Physics B .....	3		8 units
Physics CI.....	5, 4	Physics 1A	4 units
Physics CI.....	3		4 units
Physics CII .....	5, 4		4 units
Physics CII .....	3		4 units
Statistics .....	5,4	Statistics 13	4 units
Statistics 13 may be taken for full credit.			
Statistics .....	3		4 units
SOCIAL SCIENCE			
<i>College of Agricultural and Environmental Sciences:</i> 4 units of credit allowed toward Breadth requirement or Unrestricted electives for each Social Science examination passed.			
American Government .....	5, 4, 3	Political Science 1	4 units

## International Baccalaureate Examinations

UC Davis recognizes the International Baccalaureate (IB) examinations for college credit. Higher Level examinations

presented with scores of 5, 6 or 7 receive degree credit and in specific instances are deemed comparable to various lower division courses. Students completing the International Baccalaureate (IB) diploma with a score of 30 or above will receive a

maximum of 30 quarter (20 semester) units. The credit will apply toward the minimum 180 quarter units needed to receive a bachelor's degree.

# Undergraduate Education

## College of Biological Sciences; Changes to Unit Credit Limitations

- **Passed/Not Passed Units.** All courses used to satisfy major requirements must be taken on a letter-graded basis, unless courses are only offered on a Passed/Not Passed basis.
- **Physical Education.** Maximum of 6 units of Physical Education 1, 6 and similar physical activity courses including transfer work.
- **Transfer Work.** Maximum of 105 units of credit earned at two-year institutions (community college).

- **Graduate Courses.** Courses numbered 200-299 may only be counted towards the degree with approval of the Dean prior to enrolling in the course. These courses may not be applied toward the 64-unit upper division requirement.
- **Professional and Teaching Courses.** Maximum of 9 units in courses numbered 300-399 and 400-499. These courses may not be applied toward the 64-unit upper division requirement.
- **Upper Division Standing.** Must complete 84 units before enrolling in 192, 194H and 199 to receive degree and upper division credit.

- **Special Study.** Not more than 5 units per quarter of Special Study courses (99, 194H, 199).
  - **Nonstandard Courses.** Maximum of 20 units of nonstandard courses including transfer work.\*
- Nonstandard courses are defined here as tutoring, internship, research, research conference, honors research and similar course activities. Some examples of these courses are, but are not limited to, courses numbered 90C, 92, 92C, 97T, 97TC, 189, 190C, 191, 192, 192C, 193, 194H, 199, etc. Courses numbered 98 or 198 are not included in this 20-unit limitation.

There are additional unit credit limitations on tutoring and internship units.



- **Tutoring.** Maximum of 3 tutoring units including but not limited to 97T, 197T, 97TC and 197TC.
- **Internship.** A maximum of 6 internship units including but not limited to 92, 192, 92C, 192C.

\*Specific exceptions to these limits may be granted by the Committee on Undergraduate Petitions based on the uniqueness of the experiences and their concordance with the petitioner's educational objectives.

### Changes to English Composition Requirement

The English Composition requirement may be satisfied in one of two ways:

1. Completing 8 units, to include 4 upper division units, in English composition courses with at least a C- or Passed grade from the following list: Comparative Literature 1, 2, 3, 4, English 3, Evolution and Ecology 12, Native American Studies 5, Nematology 150, University Writing Program 1, 18, 19, 101, 102A, 102B, 102C, 102D, 102E, 102F, 102G, 104A, 104B, 104C, 104D, 104E, 104F.

### OR

2. Passing the English Composition Examination, administered by the Entry-Level Writing program, upon completion of 70 units of degree credit. This examination does not yield credit. Students interested in entering the health science field should check with the Health Sciences Advising Office or the Dean's Office before choosing this option.

## Biological Sciences

### Changes to Biological Sciences (BIS) major requirements

#### B.S. Major Requirements:

##### Microbiology emphasis ..... 15-20

**Field requirement:** Students must take Microbiology 102 to satisfy Field requirement (c).

**Laboratory requirement:** Students must take Microbiology 102L to satisfy the area of emphasis laboratory requirement.

Options: Complete one of the four options a-d below; or complete an individual option with approval from your faculty adviser.

(a) <i>Microbial Physiology and Molecular Genetics</i> option.....	15-18
Microbiology 102L, 140, 150.....	9
Select one course from Microbiology 170; Molecular and Cellular Biology 121, 161.....	3
Select one course from Microbiology 105 and 105L, 155L, 160, 170; Pathology, Microbiology, and Immunology 127... 3-6	3-6
(b) <i>Microbial Diversity and Ecology</i> option.....	15-17
Microbiology 102L, 105 and 105L, 120.....	12
Select one course from Food Science and Technology 104; Microbiology 140, 150, 162, 170; Pathology, Microbiology, and Immunology 127, 128; Plant Biology 148; Plant Pathology 148; Soil Science 111.....	3-5
(c) <i>Biotechnology and Applied Microbiology</i> option.....	16-19
Microbiology 102L.....	3
Select two courses from Microbiology 140, 150, 170.....	6
Select one course from Food Science and Technology 102A, 104.....	3-4
Select one course from Microbiology 155L; Molecular and Cellular Biology 120L, 160L.....	4-6
(d) <i>Medical Microbiology</i> option.....	15-20
Microbiology 102L; Pathology, Microbiology, and Immunology 126.....	6
Select one course from Medical Microbiology and Immunology 115, 116; Pathology, Microbiology, and Immunology 127.....	3-5
Select one course from Microbiology 105 and 105L, 162; Pathology, Microbiology, and Immunology 128.....	3-6
Select one course from Microbiology 140, 150, 170.....	3

#### Molecular and Cellular Biology emphasis ..... 12-17

One course from Molecular and Cellular Biology 121 or 161.....	3
<b>Laboratory experience:</b> One or more laboratory courses from Biological Sciences 120P; Molecular and Cellular Biology 120L, 140L, 160L; or other laboratory course to total 3 units (or 9 hours per week) that emphasizes cellular or molecular biology with approval of your adviser  .....	3-6
Restricted electives.....	6-8
Select two or more courses from Biological Sciences 120; Molecular and Cellular Biology 122, 123, 126, 142, 143, 144, 145, 150, 162, 163, 164; Neurobiology, Physiology, and Behavior 103; Pathology, Microbiology, and Immunology 126; Plant Biology 113, 126; or other courses with adviser's approval.	

## Chemistry

### Changes to Chemistry (CHE) major requirements

**The Program.** The Department of Chemistry offers several degree programs leading to the Bachelor of Arts and the Bachelor of Science. The curriculum leading to the A.B. degree offers a substantive program in chemistry while allowing students the freedom to take more courses in other disciplines and pursue a broad liberal arts education. Students who have a deeper interest in chemistry normally elect one of the several programs leading to the B.S. degree. The standard B.S. program, which is accredited by the American Chemical Society, is appropriate for students who are interested in chemistry as a profession. The other B.S. programs pro-

vide emphasis in three areas of applied chemistry: chemical physics, environmental chemistry and pharmaceutical chemistry. These emphases are slightly less intense in chemistry, and draw on significant course materials from areas that are relevant to the particular emphasis but outside of a classical chemistry degree. Students following the A.B or one of the B.S. programs may consider taking advantage of the Education Abroad Program. Faculty advisors can assist students in planning a curriculum while abroad that assures regular progress in the major. A minor program in chemistry is also available.

**Career Alternatives.** Chemistry graduates with bachelor's degrees are employed extensively throughout various industries in quality control, research and development, production supervision, technical marketing, and other areas. The types of industries employing these graduates include chemical, energy, pharmaceutical, genetic engineering, biotechnology, food and beverage, petroleum and petrochemical, paper and textile, electronics and computer, and environmental and regulatory agencies. The bachelor's programs also provide chemistry graduates with the rigorous preparation needed for an advanced degree in chemistry and various professional schools in the health sciences.

#### A.B. Major Requirements:

	UNITS
<b>Preparatory Subject Matter.....</b>	<b>36-39</b>
Chemistry 2A-2B-2C or 2AH-2BH-2CH... 15	
Physics 7A-7B-7C.....	12
Mathematics 21A-21B-21C or 16A-16B-16C.....	9-12

#### Depth Subject Matter ..... 43

Chemistry 105, 110A, 110B, 110C, 124A, 128A, 128B, 128C, 129A, 129B.....	32
At least 11 additional upper division units in chemistry (except Chemistry 107A or 107B) or related areas, including one course with formal lectures. Courses in related areas must be approved in advance by the major adviser.....	11

#### Total Units for the Major ..... 79-82

#### B.S. Major Requirements:

	UNITS
<b>Preparatory Subject Matter.....</b>	<b>56</b>
Chemistry 2A-2B-2C or 2AH-2BH-2CH... 15	
Physics 9A, 9B, 9C, 9D.....	19
Mathematics 21A, 21B, 21C, 21D, 22A, 22B.....	22

#### Depth Subject Matter ..... 54

Chemistry 105, 110A, 110B, 110C, 115, 124A, 124B or 124C, 124L, 125, 128A, 128B, 128C, 129A, 129B, 129C.....	47
At least 7 additional upper division units in chemistry (except Chemistry 107A, 107B), including one course with formal lectures.....	7

#### Total Units for the Major ..... 110

### Applied Chemistry: Chemical Physics Emphasis

#### B.S. Major Requirements:

	UNITS
<b>Preparatory Subject Matter.....</b>	<b>56</b>
Chemistry 2A-2B-2C or 2AH-2BH-2CH... 15	
Physics 9A, 9B, 9C, 9D.....	19
Mathematics 21A, 21B, 21C, 21D, 22A, 22B.....	22

#### Depth Subject Matter ..... 54

Chemistry 105, 110A, 110B, 110C, 115, 124A, 125, 128A, 128B, 129A.....	35
Physics 104A, 105A, 110A.....	12
At least one course from Physics 105B, 110B, 112, 115A, 140A.....	4
At least 3 additional upper division units in chemistry (except Chemistry 107A, 107B).....	3

#### Total Units for the Major ..... 110

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2007-2008 offering in parentheses

General Education (GE) credit: ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Social-Cultural Diversity; Wrt=Writing Experience

## Applied Chemistry: Environmental Chemistry Emphasis

### B.S. Major Requirements:

	UNITS
<b>Preparatory Subject Matter..... 44-48</b>	
Chemistry 2A-2B-2C or 2AH-2BH-2CH ... 15	
Physics 7A, 7B, 7C ..... 12	
Mathematics 16A-16B-16C or 21A-21B-21C..... 9-12	
Biological Sciences 1A ..... 5	
Statistics 13, 32 or 100 ..... 3-4	
<b>Depth Subject Matter ..... 53-62</b>	
Chemistry 100, 105, 107A-107B or 110A-110B-110C, 115, 118A-118B-118C or 128A-128B-128C-129A-129B, 124A ..... 32-39	
Environmental Science and Policy 110 ..... 4	
Environmental Toxicology 101 ..... 4	
Atmospheric Science 160 ..... 4	
At least two courses from Environmental Science and Policy 151; Environmental Toxicology 102A, 102B, 120, 131, 135, 146; Geology 150A; Soil Science 111 ..... 6-8	
At least 3 additional upper division units in chemistry (Chemistry 199 or 194H strongly encouraged) ..... 3	
<b>Total Units for the Major ..... 97-110</b>	

## Applied Chemistry: Pharmaceutical Chemistry Emphasis

### B.S. Major Requirements:

	UNITS
<b>Preparatory Subject Matter..... 49-53</b>	
Chemistry 2A-2B-2C or 2AH-2BH-2CH ... 15	
Physics 7A, 7B, 7C ..... 12	
Mathematics 16A-16B-16C or 21A-21B-21C..... 9-12	
Biological Sciences 1A, and 1B or 1C..... 10	
Statistics 13, 32 or 100 ..... 3-4	
<b>Depth Subject Matter ..... 48-58</b>	
Chemistry 107A, 107B, 118A-118B-118C or 128A-128B-128C-129A-129B-129C, 124A, 130A, 130B, 135, 150..... 33-36	
Biological Sciences 102 or Chemistry 131 ..... 3	
At least four courses (not used to satisfy the above requirements) from Biological Sciences 102, 103, Biotechnology 171 or Veterinary Medicine 170, Chemistry 131, 199 (minimum 3 units) or 194H, Environmental Toxicology 103A, Microbiology 102, Neurobiology, Physiology, and Behavior 100, 101, Plant Biology 126, 130 ... 12-19	
<b>Total Units for the Major ..... 97-111</b>	

## Communication

### Changes to Communication (CMN) major requirements

#### A.B. Major Requirements:

	UNITS
<b>Preparatory Subject Matter..... 21</b>	
Anthropology 4 or Linguistics 1 ..... 4	
Communication 1 or 3 ..... 4	
Psychology 1 ..... 4	
Sociology 1 ..... 5	
Statistics 13 ..... 4	
<b>Depth Subject Matter ..... 44</b>	
Communication 101 ..... 4	
Communication 102, 134, 141 ..... 12	
Select one of Communication 103 or 105 or 135 ..... 4	
Select one of Communication 140 or 142 or 143 or 146 or 152 or 165 or 170 ..... 4	

Select five of the following additional courses (the five courses must be other than those chosen to fulfill the above requirements). 20  
 Communication 103, 105, 130, 135, 136, 138, 140, 142, 143, 146, 152, 165, 170, 172, 180, 189A, 189B, 189C, 189D, Anthropology 117, 120, Linguistics 160, 163, 171, 173, Political Science 164, 165, Psychology 132, Sociology 126, 128, 135, 148

**Total Units for the Major ..... 65**

**Grading recommendation.** Although not required, it is recommended that all courses offered in satisfaction of the major, except variable-unit courses, be taken for a letter grade.

**Major Advisers.** Faculty (Contact department.)

**Advising Office.** 109 Sproul Hall

### Minor Program Requirements:

	UNITS
<b>Communication..... 24</b>	
One course from Communication 1, 3 ..... 4	
At least five upper division courses in communication ..... 20	

**Graduate Study.** The Department of Communication offers programs of study and research leading to the M.A. degree in Communication. Detailed information may be obtained from the Graduate Adviser, Department of Communication.

**Graduate Adviser.** C. Berger

## Community and Regional Development

### Changes to Community and Regional Development (CRD) major and minor requirements

#### B.S. Major Requirements:

	UNITS
<b>English Composition Requirement ..... 4-12</b>	
One course from English 3, University Writing Program 1, 3, 18, 19, 101, 104A, 104B, 104C, 104D, or 104E ..... 4	
Additional course from above or, Comparative Literature 1, 2, 3, 4, Native American Studies 5 or Communication 1, University Writing Program 102 ..... 4	
Additional course from University Writing Program 101, 102 104A, 104B, 104C, 104D, or 104E..... 4	
<b>Preparatory Subject Matter..... 22-25</b>	

Community and Regional Development 1, 2 ..... 8	
Agricultural Systems and Environment 21 or Computer Science Engineering 15 ..... 3-4	
Economics 1A or 1B..... 5	
Anthropology 2 or Sociology 1 ..... 4-5	
Statistics 13 or 32 or Sociology 46B ..... 3-4	

#### Breadth/General Education

**Requirement ..... 24**

Satisfaction of General Education requirement.

**Depth Subject Matter ..... 40**

Two courses from Community and Regional Development 151, 151L, 160, 161, or 168 ..... 8	
Two courses from Community and Regional Development 140, 142, 152, 153A or 153B..... 8	
Community and Regional Development 154, 157, 158, or 171 ..... 4	
Two courses from Community and Regional Development 164, 172, 173, 174, or 176 ..... 8	
Two courses from Community and Regional Development 118, 141, 156, 162, or	

International Agricultural Development 103 ..... 8	
Internship: Community and Regional Development 192 ..... 4	

### Areas of Specialization

Take 20 units from each of two options or 40 units from one option. The Areas of Specialization must include two Community and Regional Development courses. Up to 4 units of variable-unit course work may be counted toward this requirement (e.g., Community and Regional Development 192).

### Community Groups Option..... 40

Students must consult with a faculty adviser to identify an emphasis within the option and to select suitable courses.

**General** (Community and Regional Development 151, 152, 153, 154, 157, 160, 161, 172, 176, American Studies 156, Human Development 103)

**African Americans** (African American and African Studies 100, 123, 130, 145A, Sociology 128, 129, 130, 134)

**Asian Americans** (Asian American Studies 100, 110, 111, 112, 155)

**Chicanas/os** (Chicana/o Studies 100, 110, 111, 120, 121, 131, 132, 140, Political Science 168)

**Native Americans** (Native American Studies 115, 116, 117, 118, 122, 130A, 130B, 134, 156, 181B)

**Youth** (American Studies 152, Human Development 100A, 100B, 101, 102, 103, 130, 131, 140, 140L, 141, 142, 151, Psychology 112, Sociology 122, 152)

**Aging** (Community and International Health 180, Human Development 100C, 143, 160, 162, 191, Sociology 154)

**Gender** (American Studies 154, Anthropology 130, Political Science 166, Psychology 114, Sociology 132, 133, 145B, Women's Studies 103, 130, 140, 187)

**Specialty Challenged Individuals** (Education 115, Human Development 130, 131) Class (Sociology 140, 185)

### Economic Development Option ..... 40

Students must consult with a faculty adviser to identify an emphasis within the option and to select suitable courses.

**Community Economic Development** (Agricultural and Resource Economics 100A, 115A, 115B, 144, Community and Regional Development 118, 140, 141, 152, 156, 162, Economics 104, 105, 130, 131, 151A, 151B, 138, Sociology 139)

**Administration** (Agricultural and Resource Economics 112, 113, 171A, Community and Regional Development 168, Political Science 183, Psychology 156, Sociology 180A, 180B)

**Communication** (Communication 114, 130, 136, 140, 152, Community and Regional Development 173)

**Political Dynamics of Economic Development** (Agricultural and Resource Economics 146, Community and Regional Development 157, 158, 171, 172, Environmental Horticulture 110, 112, Environmental Science and Policy 160, 161, 168A, 168B, 171, 172, 179, Political Science 100, 102, 105, 107, 108, 109, 142, 175, Sociology 185)

### Organization and Management Option ..... 40

Students must consult with a faculty adviser to identify an emphasis within the option and to select suitable courses.

**Administration** (Community and Regional Development 157, 158, 168, Agricultural Economics 100A, 171A, Computer Science Engineering 167, Economics 104,

105, 115A, Political Science 100, 105, 142, 155, 181, 182, 183)  
**Communication** (Communication 114, 130, 134, 136, 140, 152, Community and Regional Development 173, 175, Education 120, 163)  
**Human Resources** (Community and Regional Development 151, 160, 161, 172, 176, Economics 151B, Food Service Management 123, Psychology 143, 144, 145, 183, Sociology 120, 128, 129)  
**Management** (Community and Regional Development 118, 140, 141, 154, 161, 162, 164, 168, Agricultural Economics 112, 113, History 174A, Political Science 188, Sociology 138, 139, 158, 159, 180A, 180B)

#### Policy and Planning Option ..... 40

Students must consult with a faculty adviser to identify an emphasis within the option and to select suitable courses.

**General** (Community and Regional Development 118, 142, 151, 153, 154, 156, 160, 161, 162, 168, Environmental Science and Policy 165, Political Science 100, 103, 105, 108, 109, 142, 173, 183)  
**Environmental Policy** (Political Science 107, 175, Environmental Science and Policy 110, 160, 161, 164, 166, 168A, 168B, 171, 172, 173, 179, Environmental and Resource Sciences 121)  
**Law and Policy** (Sociology 120, 152, 155, Political Science 103, 105, 154, 155, 181, 182)

**Urban and Regional Planning** (Community and Regional Development 140, 141, 152, 157, 158, 159, 171, Economics 115A, Environmental Planning and Management 110, 134, Environmental Science and Policy 171, 173, Geography 155, Political Science 100, 101, 102)

#### Social Services Option ..... 40

Students must consult with a faculty adviser to identify an emphasis within the option and to select suitable courses.

**Community Health** (Community and Regional Development 164, Community Health 101, Environmental Science and Policy 126, Psychology 160, Sociology 154)

**Aging** (Community Health 180, Human Development 100C, 143, 160, 162)

**Counseling** (Communication 134, 135, Education 160, 163, Human Development 121, 130, Psychology 143, 145, 168)

**Youth** (American Studies 152, Human Development 100A, 100B, 101, 102, 103, 130, 131, 140, 140L, 141, 142, 151, Psychology 112, Sociology 122, 152)

**The Family** (Human Development 110, Sociology 131, 134, 135)

**Education** (Community and Regional Development 173, 175, Agricultural Education 100, 160, 163, Education 100, 110, 114, 120, Psychology 136, Sociology 124)

**Bilingual Education** (Education 151, 152, 153, Psychology 132)

#### Unrestricted Electives..... 38-40

#### Total Units for the Degree ..... 180

#### Major Adviser. M. Wells

**Advising Center** for the major is located in 1303 Hart Hall (530) 752-2244.

#### Minor Program Requirements:

The Community and Regional Development faculty offers the following minor program:

UNITS

#### Community Development ..... 24

Community and Regional Development 1 ..... 4

Five courses selected from Community and Regional Development 140, 141, 142, 151 and 151L, 157, 158, 162, 164, 168, 171, 172, 173, 176..... 20

## Education, School of

### Changes to Minor in Education (EDU) requirements:

The Education minor is open to all UC Davis undergraduates. The minor offers an introduction to educational theory, research, and practice. It also gives students the opportunity to engage in fieldwork in local schools and the community.

Why Pursue a Minor in Education?

- Complete a teaching credential program
- Major in a related program
- Work towards a master's degree in education or related field
- Work towards a Ph.D. degree in education
- Seek employment in government or industry training programs
- Develop a better understanding of the issues and concerns of public and private education.

**Courses.** Students must complete 20 units the Minor program in Education. At least 12 units of the 20-unit minimum for the minor must be in Education. The remaining units for the minor may be in education or a related field.

### Minor Program Requirements:

UNITS

#### Upper Division Required Courses ..... 12

Education 100, 110, 120 ..... 12

#### Elective Courses ..... 8

The remaining eight units may be taken from the following courses:

Education 115, 153 ..... 2  
 Education 151, 152 ..... 3  
 Education 122, 130, 163 ..... 4  
 Education 192 ..... variable

#### Approved Courses Outside of Education

Mathematics 197TC\* ..... 1-5  
 University Writing Program 197TC\* ..... 2-4  
 African American & African Studies 130;  
 American Studies 152; Biological Sciences 195A or B\*; Human Development 100A, 100B, 101; Linguistics 173; Psychology 130, 132; Sociology 124; Spanish 116, 117;  
 University Writing Program 104D\* ..... 4  
 \* Internship (192, 195TC, 197TC) and Independent Study (199), or a combination of both, may not exceed a total of four units. Elective courses may include only one internship.

**Minor Advisers.** A designated faculty member in the School of Education may advise students and give final approval on the minor. For additional information contact the Student Services office in 2060 Academic Surge.

## Engineering: Civil and Environmental

### Changes to Civil and Environmental Engineering (ECI) minor program

Students are required to pre-apply to the minor program offered by Civil and Environmental Engineering. Full details regarding admission and completion of the minor are included in the Application Form available from the department Web site or the undergraduate advisor in 2045 Engineering III.

### Minor Program Requirements:

Prerequisite courses must be completed prior to enrollment in coursework taken for minor.

UNITS

#### Construction Engineering and Management ..... 24

Civil and Environmental Engineering 137, 143, 153 ..... 12  
 Twelve units from Civil and Environmental Engineering 179, Agricultural and Resource Economics 112, 155, 157, 171A, 171B, Economics 134, 162, Psychology 156; may include one course from Agricultural and Resource Economics 18, Management 11A, 11B ..... 12

**Minor advisors.** J.T. Harvey, J. Darby, J. Lund

## English

### Changes to English (ENL) major requirements

#### A.B. Major Requirements:

UNITS

#### Preparatory Subject Matter ..... 20

English 3 or University Writing Program 1 ..... 4  
 Two courses from English 42, 43, 44, 45 ..... 8  
 Two courses from English 30A, 30B, 46A, 46B, 46C ..... 8

#### Depth Subject Matter ..... 44

English 110A or 110B ..... 4  
 English 117A, 117B, or 117C ..... 4  
 One course from five of the following six historical fields ..... 20  
 (a) *Medieval*: English 111, 113A, 113B  
 (b) *Renaissance*: English 115, 122  
 (c) *British Literature—Restoration through Romantic period*: English 123, 130, 155A  
 (d) *British Literature—Victorian or Twentieth Century*: 133, 137N, 138, 139, 155B, 155C  
 (e) *American Literature pre-1865*: English 142, 143, 158A, 181A  
 (f) *American Literature post-1865*: English 140, 144, 146N, 147, 158B, 166, 167, 168, 181B, 182

The following courses may be used to satisfy the above requirement if they fall into that category for subject, time period, etc. (Please refer to quarterly expanded course descriptions.): English 150A, 150B, 152, 159, 165, 178, 179, 185A, 185B, 186

Upper Division Seminar, one course selected from English 187, 188, 189, 194H ..... 4  
 Area of Emphasis (choose one) ..... 12

**General Emphasis:**  
 Three upper division English electives .. 12  
**Creative Writing Emphasis:**  
 Three sections of English 100F, 100P and/or 100NF ..... 12

(Students pursuing the Creative Writing Emphasis may replace the upper division seminar portion of the core requirement with an upper division English elective.)  
**Teaching Emphasis:**  
 University Writing Program 101 or 104A, 104B, 104C, 104D, 104E, or 104F ..... 4  
 English 105 or 106/Linguistics 106 ..... 4  
 One course selected from English 178, 179, 181A, 181B, or an upper division ethnic literature course from outside the English department ..... 4

#### Total Units for the Major ..... 64

# History

## Changes to History (HIS) major requirements

### A.B. Major Requirements:

UNITS

#### Preparatory Subject Matter (Plan I or II) ..... 20

Five lower division courses chosen from the following six fields, including at least two from one field, one from a second field, and one from a third field. The fifth course can be taken from any field..... 20

- (a) *African and Middle East History*: History 6, 15
- (b) *Asian History*: History 6, 8, 9A, 9B
- (c) *European History*: History 3, 4A, 4B, 4C
- (d) *Latin American History*: History 7A, 7B, 7C
- (e) *U.S. History*: History 17A, 17B, 72A, 72B
- (f) *World History*: History 10A, 10B, 10C

#### Depth Subject Matter—Plan I..... 40-41

Four upper division courses from one of the fields of concentration listed below ..... 16  
 Three upper division courses from one of the other fields of concentration listed below ..... 12  
 Two upper division courses from a field or fields other than those chosen to satisfy the two preceding requirements ..... 8  
 One course from the following: History 101 or 102 or 103 (in field of concentration) ..... 4-5

#### Total Units for the Major, Plan I..... 60-61

#### Depth Subject Matter—Plan II..... 42

Four upper division courses from one of the fields of concentration listed below. Include a two-quarter sequence of courses..... 16  
 Three upper division courses from one of the other fields listed ..... 12  
 History 101 ..... 5  
 History 102 in field of concentration (in exceptional circumstances, a student may, with the permission of an adviser, take the seminar in another field) ..... 5  
 History 103 in field of concentration ..... 4

#### Total Units for the Major, Plan II..... 62

#### Fields of Concentration

- (a) *Pre-Industrial Europe*: History 102A, 102B, 102C, 102D, 102P, 102X, 111A, 111B, 111C, 121A, 121B, 121C, 122, 125, 130A, 130B, 130C, 131A, 131B, 131C, 133, 135A, 136, 139A, 144A, 148A, 151A, 151B.
- (b) *Modern Europe*: History 102E, 102F, 102I, 102X, 134A, 135B, 138A, 138B, 138C, 139B, 141, 142, 143, 144B, 145, 146A, 146B, 147A, 147B, 147C, 148B, 149A, 151C, 151D.
- (c) *United States History*: History 102K, 102L, 102M, 102X, 169A, 169B, 170A, 170B, 170C, 171, 173, 174A, 174B, 174C, 174D, 175A, 175B, 175C, 176A, 176B, 177A, 177B, 178, 180A, 180B, 180C, 181, 183A, 183B, 185A, 185B, 187A, 187B, 188A, 188B, 189A, 189B, 189C.
- (d) *Asian History*: History 102G, 102H, 102N, 102Q, 102R, 102X, 110, 191A, 191B, 191C, 191D, 191E, 191F, 194A, 194B, 194C, 194D, 194E, 196A, 196B.
- (e) *African History*: History 102O, 102X, 110, 115A, 115B, 115C, 116.
- (f) *Latin American History*: History 102J, 102X, 110, 161A, 161B, 162, 163A, 163B, 165, 166A, 166B, 168, 169A, 169B.

(g) Within broad fields, a student may wish to concentrate some of the courses on a particular area or period, such as China or Great Britain or Medieval Europe. Special approval is not required.

**Major Advisers.** See the department's Web site for updated information.

# Human Development

## Changes to Human Development (HDE) major requirements

UNITS

#### English Composition Requirement ..... 12

See College requirement.....0-8  
 Choose from University Writing Program 101, 102A, 102B, 102C, 102D, 102E, 102F, 102G, 104A, 104B, 104C, 104D, 104E, 104F ..... 4

#### Preparatory Subject Matter.....39-47

Two courses from: Anthropology 1, 2, or 15 .....8-9  
 One course from: Biological Sciences 1A, 10, Microbiology 10, or Neurobiology, Physiology, and Behavior 12 .....3-5  
 One course from: Molecular and Cellular Biology 10 or Biological Sciences 101† ..... 4  
 One course from: History 17A, 17B, 72A, 72B, or Political Science 1 ..... 4  
 Two courses from Philosophy 5, 30, 31, 32, or 38 ..... 8  
 One course from: Neurobiology, Physiology, and Behavior 10, 101, or Psychology 101 .....4-5  
 Psychology 1 ..... 4  
 One course from: Psychology 41 or Sociology 46A and 46B, or Statistics 10 or 13 .....4-8

#### Breadth/General Education..... 16-24

Satisfaction of General Education requirement ..... 12

#### Depth Subject Matter ..... 50-55

Human Development 100A, 100B, 100C ..... 12  
 Human Development 120 or 121 ..... 4  
 One course from: Biological Sciences 101†, Human Development 117, Nutrition 111AV, or Psychology 121 .....3-5  
 One course from: Human Development 102, 110, 130, 160, or 162\* ..... 4  
 One course from: Human Development 101, 103, 132, or 163\* ..... 4  
 One course from: Human Development 140-140L, or 141 or 142 or 143\* .....4-6

#### Restricted Electives..... 19-20

Five additional upper division courses chosen from among Human Development courses or from a list of restricted electives in consultation with faculty adviser. May include only one practicum course.

#### Unrestricted Electives ..... 54-67

#### Total Units for the Degree ..... 180

† Biological Sciences 101 cannot be used to satisfy both the Preparatory Subject Matter and the Depth Subject Matter Requirements.  
 \* At least one course from among these groupings must focus on childhood/adolescence (101, 102, 103, 110, 130, 132) and one must focus on adulthood/aging (117, 143, 160, 162, 163).

**Major Adviser.** L. Harper

# International Relations

## Changes to International Relations (IRE) major requirements

### Track II: Peace and Security

Focuses on political and security relationships among states and non-state actors, examining questions of war, peace, alliances, and diplomacy.

- Economics 162 .....4
- Political Science 123, 130, 132.....12
- Political Science 120 or 121 .....4
- Three additional courses from at least two departments selected from Anthropology 123BN, Comparative Literature 157, Economics 116, 122, History 145, 146A, 146B, Philosophy 118, Physics 137, Political Science 112, 124, 126, 131, 140, 145, Sociology 100, 118, 157, Women's Studies 102 ..... 12
- Four courses to fulfill Area Studies Requirement ..... 16

# Linguistics

## Changes to Linguistics (LIN) major requirements

### A.B. Major Requirements:

UNITS

#### Preparatory Subject Matter.....4-24

Linguistics 1 ..... 4  
 Foreign language, one course beyond the 15-unit requirement of the College of Letters and Science in the same language used to fulfill the college requirement ..... 0-20

#### Depth Subject Matter ..... 44

Linguistics 103A, 103B, 111, 131 .....16  
 Any three Linguistics courses from among those numbered from 110 to 159 ..... 12  
 One Linguistics course from among those numbered from 160 to 169 ..... 4  
 One Linguistics course from among those numbered from 170 to 189 ..... 4  
 At least eight upper division units from the following courses ..... 8  
 Any Linguistics course not used to satisfy the requirements listed above, African American and African Studies 156, Anthropology 110, 117, 119, 120, Communication 105, Education 151, English 105B, 106 French 109, 160, 161, 162, German 105, Human Development 101, Native American Studies 107, Philosophy 137, 156, Psychology 132, Spanish 111N, 112N, 113, 114N, 115, 115S, 116, 117, 118.

#### Total Units for the Major .....48-68

**Major Adviser.** R. Aranovich

# Nature and Culture

## Changes to the Nature and Culture (NAC) major requirements

### A.B. Major Requirements:

UNITS

#### Preparatory Subject Matter.....38-41

Nature and Culture 1 ..... 4  
 Geology 3-3L and 50-50L and Geology 36 or Astronomy 2; or Chemistry 2A-2B and Biological Sciences 1A..... 13-15  
 Biological Sciences 1B-1C ..... 10

Environmental Science and Policy 30, or Anthropology 2, or Geology 10.....	3-4
Comparative Literature 1, 2, 3, or 4, or English 3.....	4
Comparative Literature 20.....	4
<b>Recommended.</b> Statistics 13, 32, 102, or 103.	
<b>Depth Subject Matter.....</b>	<b>44</b>
Nature and Culture 100 and 180.....	8
Nature and Culture 120 or 140, or American Studies 157, or Veterinary Medicine 170.....	4
Environmental Science and Policy 100, or Evolution and Ecology 101 or Plant Biology 147.....	4
Anthropology/Environmental Science and Policy 101 or 102.....	4
Nature and Culture 130, or English 184 or Native American Studies 181A, 181B, or 181C, or Comparative Literature 120.....	4
Electives, a minimum of 20 units selected in consultation with an adviser from one or two thematic clusters. Possible clusters include Human Evolution and Ecology, Human Culture and Society, Indigenous Peoples, California and the Southwest, Art and Literature, Earth and Environment, The Impact of Humans on the Environment, Environmental Law, Policy and Planning. A representative list of clusters and courses is available from advisers and from the Program office.....	20
<b>Total Units for the Major.....</b>	<b>82-85</b>

## Neurobiology, Physiology, and Behavior

### Changes to the Neurobiology, Physiology, & Behavior (NPB) minor requirements; new minor in Human Physiology

#### Minor Requirements:

	UNITS
<b>Human Physiology.....</b>	<b>20</b>
Exercise Biology 101.....	4
Neurobiology, Physiology, & Behavior 101.....	5
One course from Exercise Biology 102, 110, 111, 113, 116, 117, 125	
One course from Neurobiology, Physiology, & Behavior 112, 113, 114, 122, 130, 131, 168	
One course from two of the following areas: <i>Functional Anatomy:</i> Cell Biology and Human Anatomy 101; Anthropology 156 <i>Genetics And Development:</i> Anthropology 153; Human Development 100C, 101, 117; Molecular and Cellular Biology 162 <i>Immunology:</i> Medical Microbiology 188 <i>Nutrition:</i> Nutrition 111B	

## Physics

### Changes to Physics (PHY) major requirements

#### Physics

#### A.B. Major Requirements:

	UNITS
<b>Preparatory Subject Matter.....</b>	<b>41-47</b>
Physics 9A, 9B, 9C, 9D or 9HA, 9HB, 9HC, 9HD, 9HE.....	19-25

Mathematics 21A, 21B, 21C, 21D, 22A, 22B.....	22
<b>Depth Subject Matter.....</b>	<b>35-37</b>
Physics 104A, 105A, 110A, 110B, 112, 115A, 122.....	28
At least one course from 127, 140A, 129A, or 130A.....	4
Physics 102 (1 unit) waived if 104B taken.....	0-1
At least one additional fixed-unit upper division Physics course excluding 137 and 160.....	3-4
<b>Total Units for the Major.....</b>	<b>76-84</b>

#### B.S. Major Requirements:

	UNITS
<b>Preparatory Subject Matter.....</b>	<b>50-56</b>
Physics 9A, 9B, 9C, 9D or 9HA, 9HB, 9HC, 9HD, 9HE.....	19-25
Mathematics 21A, 21B, 21C, 21D, 22A, 22B.....	22
Computer Science Engineering 30 (or equivalent programming course).....	4
Chemistry 2A or 2HA (2B-2C or 2HB-2HC highly recommended).....	5
<b>Depth Subject Matter.....</b>	<b>59-62</b>
Physics 104A, 105A, 105B, 110A, 110B, 110C, 112, 115A, 115B.....	36
Physics 102 (1 unit) or 104B.....	1-4
Physics 122 or 116A,B and C.....	4-12
Two courses from one specialty (Astrophysics/Cosmology, Condensed Matter, or Nuclear/Particle Physics) and one course from a different specialty. Lists of courses in each specialty are available from the department.....	12
Additional upper division Physics courses excluding 137 and 160, for a total of 15 upper division Physics courses of 3 or more units each. With prior departmental approval, one course from mathematics, engineering, or natural science may be used to meet this requirement. May include only one course from 194H, 195, 198, 199.....	0-9
<b>Total Units for the Major.....</b>	<b>109-118</b>

#### Physics: Astrophysics Emphasis

#### B.S. Major Requirements:

	UNITS
<b>Preparatory Subject Matter.....</b>	<b>50-56</b>
Physics 9A, 9B, 9C, 9D or 9HA, 9HB, 9HC, 9HD, 9HE.....	19-25
Mathematics 21A, 21B, 21C, 21D, 22A, 22B.....	22
Computer Science Engineering 30 (or equivalent programming course).....	4
Chemistry 2A or 2HA (2B-2C or 2HB-2HC highly recommended).....	5
<b>Depth Subject Matter.....</b>	<b>59-65</b>
Physics 104A, 105A, 108A, 108L, 110A, 110B, 112, 115A, 115B,.....	32
Physics 102 or 104B.....	1-4
Physics 122 or 157.....	4
Physics 151, 152, 153, 156.....	16
Two elective courses from: Physics 105B, 110C, 116A, 129A, 130A, 130B, 150 (only with an astrophysics topic and prior departmental approval), 154, 155, Geology 163; may include only one course from Physics 194H, 195, or 199.....	6-9
<b>Total Units for the Major.....</b>	<b>109-121</b>

#### Recommended

Computer Science Engineering 40;  
Astronomy 25

#### Applied Physics

#### B.S. Major Requirements:

	UNITS
<b>Preparatory Subject Matter.....</b>	<b>49-56</b>
Physics 9A, 9B, 9C, 9D or 9HA, 9HB, 9HC, 9HD, 9HE.....	19-25

Mathematics 21A, 21B, 21C, 21D, 22A, 22B.....	22
Computer Science Engineering 30 (or equivalent programming course).....	4
Depending on area of concentration: Chemistry 2A or 2HA (2B-2C or 2HB-2HC highly recommended) or Computer Science Engineering 40 or Mathematics 22AL.....	14-5

#### Depth Subject Matter.....

Physics 104A, 105A, 110A, 110B, 112, 115A, 116A, 116B,.....	32
Physics 102 (1 unit) or 104B.....	1-4
Physics 122 or 116 C.....	4
Further courses from approved lists within one of the following concentrations chosen in consultation with a major adviser, to bring total number of three-five unit Depth courses to 15.....	20-24
Lists of approved courses for concentrations in atmospheric physics, chemical physics, computational physics, geophysics, materials science, physical electronics, and physical oceanography are available from the Physics Department.	

#### Total Units for the Major.....

#### Recommended Electives

Astronomy 2  
Computer and numerical analysis:  
Mathematics 128A or Applied Science Engineering 115  
Statistics: Statistics 131A  
Advanced mathematics: Mathematics 108, 118AB, 119AB 127ABC 185AB

**Program Variance.** Courses from other departments may be submitted for courses in the depth subject matter requirements by obtaining written permission from the Undergraduate Curriculum Committee Chairperson, as approved by the Department.

**Major Advisers.** Contact Departmental Undergraduate Majors office in 225 Physics/Geology Building, for adviser assignment.

## Religious Studies

### Changes to the Religious Studies (RST) major requirements

#### Committee in Charge

David Biale, Ph.D. (*History*)  
Naomi Janowitz, Ph.D. (*Religious Studies*)  
Whalen Lai, Ph.D. (*Religious Studies*)  
Jay Mechling, Ph.D. (*American Studies*)  
Baki Tezcan, Ph.D. (*Religious Studies, History*)

#### Faculty

Naomi Janowitz, Ph.D., Professor  
Whalen W. Lai, Ph.D., Professor  
Baki Tezcan, Ph.D., Assistant Professor

#### Emeriti Faculty

Lincoln D. Hurst, Ph.D., Professor

#### The Major Program

Majoring in religious studies provides an opportunity to explore and analyze, from an academic perspective, the written and oral traditions of diverse religions

**The Program.** The major introduces students to the academic study of religion. The religious studies major offers a broad choice of courses, including history, philosophy, sociology, anthropology, American studies, classics, and medieval studies. For some students, religious studies is an appropriate second major and might combine well with anything from philosophy to international agricultural development, from history to international relations.

**Career Alternatives.** The emphasis in religious studies courses on developing analytical thinking skills and clear written expression is an asset for many career goals. As a strong liberal arts program, the major can lead to research and/or teaching on all levels in the field of religion. Because the major integrates so many academic areas, it is also an excellent background for graduate programs, especially in the humanities, and for professional schools including law, business, and foreign service.

### A.B. Major Requirements:

UNITS

#### Preparatory Subject Matter..... 24

At least one course from each of the following groups..... 20

- (a) Religious Studies 1, 2  
(b) Religious Studies 21, 23, 40, 60, 70, 75

Anthropology 2 or, with approval from adviser, a lower division course related to religion from African American and African Studies, American Studies, Philosophy, Native American Studies, or other departments.... 4

#### Depth Subject Matter ..... 40

Five upper division Religious Studies courses plus Religious Studies 100..... 24

Two upper division History courses related to religion..... 8

Sociology, philosophy, anthropology..... 8

Two upper division courses related to religion in the above disciplines such as Philosophy 105, 145, Sociology 146, 149, Anthropology 124; or, with approval from adviser, in other disciplines such as Medieval Studies, Native American Studies, African American and African Studies, Classics, or other departments.

#### Total Units for the Major ..... 64

**Recommended.** A reading knowledge of a foreign language is highly recommended. Consult the major adviser for a complete list of recommended upper division courses.

**Course Equivalents.** The major advisers have a list of lower and upper division courses that can be substituted for courses suggested above.

**Major Advisers.** W.W. Lai, N. Janowitz

### Minor Program Requirements:

The following four minor program options and others responsive to students' needs are subject to approval by the major adviser or the Curriculum Committee. The four areas of emphasis are Religious Studies, Asian Religions, Judaism, and Christian Studies.

UNITS

#### Religious Studies ..... 20

Lower division course ..... 4

Upper division courses..... 16

Religious Studies 100 required.

Some substitutions from other departments or programs allowed with consent of adviser.

**Preministerial Adviser.** \_\_\_\_\_

**Jewish Studies.** Students interested in Jewish studies should contact M. Hoffman of Religious Studies or D. Biale of History.

## UC Davis Quarter Abroad Program

### Changes to the UC Davis Quarter Abroad Program entry

Frank Hirtz, Director

207 Third Street, Suite 120  
(530) 297-4602; Fax (530) 297-4695  
<http://quarterabroad.ucdavis.edu>

### Programs of Study

UC Davis Quarter Abroad is a study-abroad program unique to the Davis campus. A UC Davis faculty-led program, Quarter Abroad offers multiple programs each year in various countries and specializations. Participants remain registered UC Davis students while abroad and receive UC Davis units for their academic work. Financial aid and scholarships fully apply. Students may participate in Quarter Abroad as early as their freshman year, or as late as their senior year. Students must have a 2.000 GPA, be in good academic standing, and fulfill prerequisites specific to the program.

**Academic Focus.** Students of any major can participate in Quarter Abroad. All programs are approximately one quarter in length and are led by UC Davis faculty members. Students may take courses in the language applicable to the country or earn units through an internship component for specific programs. All programs allow students to experience the host country's unique culture through co-curricular activities, such as day-trips to surrounding areas, museum tours, and theatre visits.

Students can earn 12-22 quarter units through 3-5 courses taken abroad. The UC Davis faculty leader teaches at least one of the courses of the program, while the rest are led by adjunct faculty of the host country. Students may be able to apply earned units towards their major, minor, language, or general education requirements.

Quarter Abroad courses can apply specifically towards the Global and International Studies minor. The minor is designed for students who intend to focus their interest in global and international studies in either the Arts and Humanities or the Social Sciences.

In preparation for Quarter Abroad, students are urged to take Education Abroad Program 90X or 190X, which examine issues of study abroad.

## UC Davis Summer Abroad

### Changes to the UC Davis Summer Abroad entry

Eric Schroeder, Director

207 Third Street, Suite 220  
(530) 757-3308; Fax (530) 297-7142;  
<http://summer-abroad.ucdavis.edu>

### Programs of Study

UC Davis Summer Abroad is a study-abroad program unique to the Davis campus. A UC Davis faculty-led program, Summer Abroad offers multiple programs each year in various countries and specializations. Participants remain registered UC Davis students while abroad and receive UC Davis units for their academic work. Financial aid and scholarships apply. Students may participate in Summer Abroad as early as their freshman year, or as late as their senior year or after graduation.

**Academic Focus.** Students of any major can participate in Summer Abroad. All programs are approximately four weeks in length, and are led by UC Davis faculty members. Students may also earn units through an internship component for some programs. All programs allow students to experience the program country's unique culture through co-curricular activities, such as day-trips to surrounding areas, museum tours, and theater visits.

Students can earn 8-12 quarter units through 2-3 courses taken abroad. Students may be able to apply earned units towards their major, minor, or General Education requirements.

Summer Abroad courses can apply specifically towards the Global and International Studies minor. The minor is designed for students who intend to focus their interest in global and international studies

in either the Arts and Humanities or the Social Sciences.

In preparation for Summer Abroad, students are urged to take Education Abroad Program 90X or 190X, which examine issues of study abroad.

## University of California, Davis Washington Program

### Changes to the University of California, Davis Washington Program entry

Formally UC Davis Washington Center

Larry Berman, Ph.D., Interim Director and Professor

UC Davis Washington Program,  
1608 Rhode Island Avenue NW, Third Floor  
Washington, D.C. 20036  
(202) 974-6351

#### Information.

UC Davis Washington Program On-Campus Office  
Internship and Career Center  
South Hall, 2nd Floor  
(530) 754-5718;

<http://washingtonprogram.ucdavis.edu>

The UC Davis Washington Program provides students and faculty new and expanded opportunities in the nation's capital to enrich their education and research. Its principal activities are an undergraduate academic internship program, fellowships and internships for graduate and professional school students, fellowships and research grants for faculty, and conferences and workshops organized by UC Davis faculty. The University of California Washington Center resides in an 11-story, state of the art facility in downtown D.C. The center houses the academic and residential programs for undergraduate, faculty, and graduate students participating in the UC Davis Washington Program, as well as those from other UC campuses.

### Undergraduate Academic Internship Program

The UC Davis Washington Undergraduate Program is open to students from all majors at UC Davis who have completed 89.9 or more units towards graduation. Students earn 15 units of academic credit, and continue to be registered as full-time students. A GPA of at least 3.000 is recommended for admission although not required. Applicants are also evaluated based on overall relevant experience, a written statement, letters of recommendation and personal interviews.

The Undergraduate Academic Internship Program runs 11 weeks each fall, winter, and spring quarter. It has three principal components:

- **Internship.** 7 units: Students work three to four days per week as interns in Congress, federal agencies, interest groups, trade associations, research institutions, the media, museums or in other organizations related to policy, politics, science and culture and geared to the interests and objectives of individual students.
- **Research Seminar.** 4 units: This is the core academic component of the program. Each student writes a 20-25 page research paper in consultation with Washington Program faculty and graduate fellows. To complete the assignment, students take advantage of the many unique research resources in Washington, DC.
- **Elective Seminar Course.** 4 units: Each student also enrolls in one upper division seminar course taught at the Washington Center. These courses vary each quarter, and are a mix of political science, international relations, history, other social sciences, the arts and humanities, and science policy. In addition to regular instruction,

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2007-2008 offering in parentheses

General Education (GE) credit: ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Social-Cultural Diversity; Wrt=Writing Experience



seminars often include guest speakers, observations of congressional committees and federal agencies, and other relevant Washington experiences. UC Davis course equivalencies are established each quarter.

Courses are taught by UC Davis faculty in residence, faculty from the UCLA, UC Santa Barbara, UC Santa Cruz, UC San Diego, UC Berkeley, UC Irvine and UC Riverside programs, or visiting faculty from the Washington area.

Financial aid eligibility is maintained, and the aid package can be adjusted to reflect the additional costs of the program. Some additional financial awards also are offered directly by the Washington Program, including the University of California President's Washington Scholarship, Joyce and Norman Weil Scholarships, and the Blanche and Frank Goldstein Building Bridges Award.

Students reside at the UC Washington Center facility, convenient to public transportation. Arrangements are made to cover health services and other aspects of student life. The program also includes many educational, cultural and historical activities in the Washington area.

**Summer Program.** The UC Davis Washington Program also operates an 11-week Summer Program. The Summer Program has a credit or non-credit option. The credit option allows students to earn 7 units of academic credit, in addition to working at an internship. Students pay the summer sessions rate per credit hour plus an application fee. The non-credit internship has a program fee. Both options allow students to participate in many educational, cultural, historical and social activities. Some financial assistance is provided but is more limited than for the academic year programs.

The Washington Program also has positions during the academic year for graduate students as Graduate Fellows (combination of a pre-doctoral research fellowship and a teaching assistantship) and Graduate Summer Internships.

**Graduation Requirements.** All prospective applicants, particularly students who intend to study abroad or in Washington, DC during their senior year, should carefully plan their course programs for Davis and at UCDC in order to satisfy university, college, and major/minor requirements for their degree.

Although units and grade points earned at UCDC are incorporated into the University transcript and GPA, departments and majors retain the right to determine which UCDC courses will be accepted in satisfaction of major and minor requirements.

All degree candidates must meet the University residence requirement. Recognizing the special value of UCDC, the faculty have approved two exceptions to the usual residence requirement for students participating in the Washington Program:

- Students planning to graduate immediately upon completion of participation in UCDC may satisfy the University residence requirement by completing at least 35 of their final 45 units on the Davis campus preceding entry into UCDC
- Students who have not finished all of their degree requirements following completion of their participation in the UCDC program may satisfy the University residence requirement by completing at least 35 units, including at least 12 units after returning from UCDC, on the Davis campus within the final 90 units earned toward the degree.

Students should consult with their college Dean's office early during the UCDC planning process for information on the university residence requirement.

- Students who will not meet the residency requirements outlined may petition their Dean's office requesting an exception to policy.

Students may satisfy GE requirements while at Washington, but should consult with their college Dean's

office prior to departure for information on the certification process.

Students with a large number of units may participate in the UCDC program provided that (1) they will not exceed 225 units prior to their departure and (2) that *all* their degree requirements have been fulfilled either before they leave campus or during their time at UCDC. Participants may only return to campus from UCDC to complete any outstanding degree requirements provided that they can do so within the 225 units.

## Watershed Science

### New minor in Watershed Science

(College of Agricultural and Environmental Sciences)

The Hydrology Program of the Department of Land, Air and Water Resources offers the minor in Watershed Science. This minor is intended for environmental, natural, or social science students who have an interest in the interfaces between hydrology, ecology, policy and management. The interested student should have completed preparatory course work in calculus (Mathematics 16B), chemistry (Chemistry 2A; Chemistry 2B recommended), physics (Physics 7A), and biology (Biological Sciences 1A). Course work in the minor provides fundamental skills and knowledge on science and management of watersheds in the context of current water resources and ecological problems.

### Minor Program Requirements:

UNITS

#### Watershed Science ..... 20-26

Hydrologic Science 141 or Environmental and Resource Sciences 100 and 100L; Soil Science 100 or 118 .....	8-11
Hydrologic Science 144 or Soil Science 107; Environmental and Resource Science 136, Hydrologic Science 124, or Hydrologic Science 151 .....	7-9
Hydrologic Science 143, Environmental and Resource Sciences 144, or Environmental Science and Policy 151, 151L .....	3-7
Hydrologic Science 150, Environmental and Resource Sciences 121, or Environmental Science and Policy 161 .....	3-4

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