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Introduction

The 2014-2016 General Catalog Course Supplement and Policies & Requirements Addendum addresses important changes to the *UC Davis* 2014-2016 *General Catalog*. Changes are contained in two sections; the Course Supplement and Policies & Requirements Addendum.

Course Supplement

Changes, cancellations, or the addition of new courses, are contained in the Course Supplement, below.

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 & Requirements Addendum.

Course Supplement

African American and African Studies

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

Lower Division

15. Introduction to African American Humanities (4)
Lecture—3 hours; discussion—1 hour. Class size limited to 165 students. Introduction to the humanist tradition developed by writers, philosophers, and artists of African descent in the West. Attention also given to African sources, as well as European, Caribbean, Latin-American, and North American variations on this tradition. GE credit: Wrt | ACGH, AH, DD.—*W. (W.)* Harrison, Osumare
(change in existing course—eff. winter 15)

Upper Division

107C. African Descent Communities and Culture in Asia (4)
Lecture/discussion—4 hours. Study of the origin and development of African Descent communities and cultures in Asia. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC.—*W. (W.)* Ng'weno
(change in existing course—eff. winter 15)

107D. African Descent Communities and Cultures in Europe (4)
Lecture/discussion—4 hours. Study of the origin and development of African Descent communities and cultures in Europe. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC.—*S. (S.)* White
(new course—eff. spring 15)

145A. Black Social and Political Thought (4)
Lecture—4 hours. Prerequisite: course 10 or 80, or consent of instructor. Exploration and analysis of Black social and political thought in the Americas. Offered in alternate years. GE credit: SocSci, Div | SS.—*W. (W.)* Harrison
(change in existing course—eff. winter 15)

145B. Black Intellectuals (4)
Lecture—4 hours. Prerequisite: course 10, 80, 145A, or consent of instructor. Exposition and critical analysis of selected theoretical writings of Black intellectuals, and especially political and social thinkers, in the Americas. Offered in alternate years. GE credit: SocSci, Div | DD, SS, WE.—*F. (F.)* Harrison, Lambert, Osumare
(change in existing course—eff. winter 15)

165. Afro-Christianity and the Black Church (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: upper division standing; course 10, 15 or consent of instructor. Examination of the historical role of Christian belief and practice as well as the institution of the Black Church in the experience of African Americans, from slavery to the present. Offered in alternate years. GE credit—SocSci, Div | ACGH, DD, SS.—*(S.)* Harrison
(change in existing course—eff. winter 15)

171. Black African and Black European Film and Video (4)
Lecture/discussion—3 hours; film viewing—3 hours; term paper. Prerequisite: one of course 15, 50, or English 160 or 162, or consent of instructor. Comparative approach in the study of dramatic films and videos that treat black life in Africa and Europe. Critical attention will focus on the imaginative construction of ethnicity, race, nationality, gender, and sexuality in each particular work. Offered in alternate years. GE credit: ArtHum, Div | AH, VL, WC.—*S.* White
(change in existing course—eff. winter 15)

178. African Modernity and Globalization (4)
Lecture—4 hours. Prerequisite: course 12 or consent of instructor. Class size limited to 80 students. Exploration of modernity and globalization and their dimensions and impacts in/on Africa. Examination of modern necessities and constrains in Africa in relation to (neo)colonialism, transnational encounters, technology, gender, risk, ritual, identity, culture, etc. GE credit: ArtHum or SocSci | AH or SS, WC.—*W. (W.)* Adebanwi
(new course—eff. winter 15)

192. Internship in African-American and African Studies (1-8)
Internship—3-24 hours. Prerequisite: completion of 12 units of upper division study in African American and African Studies courses; upper division standing; consent of instructor. Restricted to African American and African Studies majors and minors. Supervised internship in community, government, or private institutions, in all subject areas offered by the African American and African Studies Program. May be repeated up to 12 units for credit. (P/NP grading only.)
(change in existing course—eff. fall 14)

Graduate

202. Critical Foundations in African Studies (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Introduction 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.—*F.* Adebanwi, Adejunmobi
(change in existing course—eff. fall 14)

204. Methodologies in African American and African Studies (4)
Seminar—3 hours; term paper. Relationship between theory and methodology, with emphasis on identifying relevant methodological approaches and constructing theoretically informed research projects for studying the experience of people of African descent whether on the African continent or in the rest of the world.—*F.* Harrison, Ngweno
(change in existing course—eff. fall 14)

Agricultural and Resource Economics

New and changed courses in Agricultural and Resource Economics (ARE)

Lower Division

98. Directed Group Study (1-5)
Prerequisite: consent of instructor. Restricted to lower division students. (P/NP grading only.) Offered in alternate years. Offered irregularly. GE credit: SS.
(change in existing course—eff. fall 14)

Upper Division

100A. Intermediate Microeconomics: Theory of Production and Consumption (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Economics 1A, 1B; Mathematics 16C. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM), and Textiles and

Clothing (ATXC) Majors and Agricultural and Resource Economics (GARE), International Agricultural Development (GIAD), Viticulture and Enology (GVEN) and Transportation Technology and Policy (GTTP) Graduate Majors. Theory of individual consumer and market demand; theory of production and supply of agricultural products, with particular reference to the individual firm; price determination, and employment of resources under pure competition. Not open for credit to students who have completed Economics 100. GE credit: SocSci | QL, SS.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

100B. Intermediate Microeconomics: Imperfect Competition, Markets and Welfare Economics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A. Pass One open to Managerial Economics Majors (AMGE) and Agricultural and Resource Economics (GARE) Graduate Majors. Price determination, and employment of resources under conditions of monopoly, oligopoly, and monopolistic competition. GE credit: SocSci | QL, SS.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

106. Econometric Theory and Applications (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A, Statistics 103. Pass One open to Managerial Economics Majors (AMGE) and Agricultural and Resource Economics (GARE) Graduate Majors. Statistical methods for analyzing data to solve problems in managerial economics. Topics include the linear regression model, methods to resolve data problems, and the economic interpretation of results. Not open for credit to students who have enrolled in or completed Economics 140. GE credit: SocSci | QL, SS.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

107. Econometrics for Business Decisions (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 106. Pass One open to Managerial Economics majors; Pass Two open to majors in the College of Agricultural and Environmental Sciences. Covers state-of-the art econometric and statistical methods for causal and predictive modeling with applications to finance and marketing. GE credit: SocSci | SS.—*F, W, S. (F, W, S.)*

(new course—eff. fall 15)

112. Fundamentals of Organization Management (4)

Lecture—4 hours. Prerequisite: upper division standing or consent of instructor. Open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Role of organizational design and behavior in business and public agencies. Principles of planning, decision making, individual behavior, management, leadership, informal groups, conflict and change in the organization. GE credit: SocSci | SS.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

113. Fundamentals of Marketing Management (4)

Lecture—4 hours. Prerequisite: Economics 1A; for non-majors only. Nature of product marketing by the business firm. Customer-product relationships, pricing and demand; new product development and marketing strategy; promotion and advertising; product life cycles; the distribution system; manufacturing, wholesaling, retailing. Government regulation and restraints. Not open for credit to students who have completed course 136. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 14)

119. Intermediate Managerial Accounting (4)

Lecture—4 hours; extensive problem solving—8 hours. Prerequisite: Management 11A; 11B. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Use of accounting information by mangers in decision making, planning, directing and controlling operations. Focuses on managerial/cost accounting theory and practice. Covers costing systems, budgeting, and financial statement analysis. GE credit: SocSci | SS.—*F, W. (F, W.)*

(change in existing course—eff. fall 16)

120. Agricultural Policy (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Analytical treatment of historical and current economic problems and governmental policies influencing American agriculture. Uses of economic theory to develop historical and conceptual understanding of the economics of agriculture; how public policy influences the nature and performance of American agriculture. GE credit: SocSci | ACGH, SS.—*S. (S.)*

(change in existing course—eff. fall 16)

120S. Agricultural Policy (4)

Lecture—4 hours. Prerequisite: course 100A or consent of instructor. Analytical treatment of historical and current economic problems and governmental policies influencing agriculture. Uses of economic theory to develop historical and conceptual understanding of the economics of agriculture; how public policy influences the nature and performance of agriculture. Taught in Australia under the supervision of a UC Davis faculty member. Not open for credit to students who have completed course 120. Offered irregularly. GE credit: SocSci | SS, WC.

(change in existing course—eff. fall 14)

130. Agricultural Markets (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 106. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Nature, function, organizational structure, and operation of agricultural markets; prices, costs, and margins; market information, regulation, and controls; cooperative marketing. GE credit: SocSci | SS.—*F. (F.)*

(change in existing course—eff. fall 16)

132. Cooperative Business Enterprises (3)

Lecture—3 hours. Prerequisite: Economics 1A. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Study of cooperative business enterprise in the United States and elsewhere; economic theories of behavior, principles of operation, finance, decision-making, and taxation. Offered irregularly. GE credit: SocSci | SS.—*W. (W.)*

(change in existing course—eff. fall 16)

138. International Commodity and Resource Markets (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100B. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Basic nature and scope of international trade in agricultural commodities, agricultural inputs, and natural resources. Market dimensions and policy institutions. Case studies to illustrate import and export problems associated with different regions and commodities. GE credit: SocSci | SS.—*W. (W.)*

(change in existing course—eff. fall 16)

139. Futures and Options Markets (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A; Statistics 103. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. History, mechanics, and economic functions of futures and options markets; hedging; theory of intertemporal price formation and behavior of futures and options prices; price forecasting; futures and options as policy tools. GE credit: SocSci | SS.—*F, S. (F, S.)*

(change in existing course—eff. fall 16)

140. Farm Management (4)

Lecture—4 hours. Prerequisite: Economics 1A. Pass One open to Managerial Economics majors. Farm organization and resources; economic and technological principles in decision making; analytical techniques and management control; problems in organizing and managing the farm business. GE credit: SocSci | SS.—*W. (W.)*

(change in existing course—eff. fall 15)

143. Investments (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Survey of investment institutions, sources of investment information, and portfolio theory. Analysis of the stock, bond and real estate markets from the perspective of the investor. GE credit: SocSci | SS.—*F, Su. (F, Su.)*

(change in existing course—eff. fall 16)

145. Farm and Rural Resources Appraisal (4)

Lecture/discussion—4 hours. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Principles, procedures, and practice of the valuation process with specific emphasis placed on farm real estate. Concepts of value, description of land, identification of the major physical and economic determinants of value, the three primary appraisal approaches to valuation, discussion of appraisal activity and practice. GE credit: SocSci | SS.—*W. (W.)*

(change in existing course—eff. fall 16)

146. Business, Government Regulation, and Society (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100B. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Variety, nature and impact of government regulation: anti-trust laws and economic and social regulation. Nature of the legislative process, promulgation of regulations, and their impact, especially as analyzed by economists. GE credit: SocSci | ACGH, SS.—*S. (S.)*

(change in existing course—eff. fall 16)

147. Resource and Environmental Policy Analysis (3)

Lecture—3 hours. Prerequisite: Economics 1A. Open to non-majors only. Natural resource use problems with emphasis on past and current policies and institutions affecting resource use; determinants, principles, and patterns of natural resource use; property rights; conservation; private and public resource use problems; and public issues. Students who have had or are taking course 100A, Economics 100, or the equivalent, may receive only 2 units of credit, so must enroll in course 147M instead. GE credit: SocSci | SS.—*W. (W.)*

(change in existing course—eff. fall 14)

147M. Resource and Environmental Policy Analysis (2)
Lecture—3 hours. Prerequisite: Economics 1A. Open to non-majors only. Natural resource use problems with emphasis on past and current policies and institutions affecting resource use; determinants, principles, and patterns of natural resource use; property rights; conservation; private and public resource use problems; and public issues. Students who have had or are taking course 100A, Economics 100, or the equivalent, must enroll in this course for 2 units rather than course 147. GE credit: SocSci | SS.—*W. (W.)*
(change in existing course—eff. fall 14)

150. Agricultural Labor (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Analysis of labor markets with focus on U.S. and world agriculture. Labor supply, demand, market equilibrium; why farm labor markets are different; global trends in farm labor; U.S. farm labor history; unions and collective bargaining; immigration policy. GE credit: SocSci, Div, Wrt | SS.—*S. (S.)*
(change in existing course—eff. fall 16)

155. Operations Research and Management Science (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100A; Statistics 103. Pass One open to Managerial Economics (AMGE) and Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Introduction to quantitative methods used to analyze business and economic processes: decision analysis for management, mathematical programming, competitive analysis, and other methods. GE credit: SocSci | SS, QL.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 16)

156. Introduction to Mathematical Economics (4)
Lecture—4 hours. Prerequisite: courses 100B; 155. Pass One open to Managerial Economics (AMGE) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Linear algebra for economists; necessary and sufficient conditions in static optimization problems; implicit function theorem; economic methodology and mathematics; comparative statics; envelope theorem; Le Chatelier principle; applications to production and consumer models. Offered irregularly. GE credit: SocSci | QL, SS.—*Su. (Su.)*
(change in existing course—eff. fall 16)

157. Analysis for Operations and Production Management (4)
Lecture—4 hours. Prerequisite: course 155. Pass One open to Managerial Economics (AMGE), Animal Science and Management (AANM) Majors and Agricultural and Resource Economics (GARE) Graduate Majors. Application of economic theory and quantitative methods to analyze operations and production management problems including process strategy, quality management, location and plant layout, and inventory management. GE credit: SocSci | SS.—*F, W. (F, W.)*
(change in existing course—eff. fall 16)

165. Emerging Economies and Globalization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 100A, 115A, 115B; completion of course 106 and Economics 162 strongly recommended. Pass One open to Managerial Economics and graduate majors. Economic drivers and policy challenges in the major emerging markets, with an emphasis on the effects of rising incomes, population growth, urbanization, and relative wages on world markets and natural resources. GE credit: SocSci | SS.—*F. (F.)*
(new course—eff. fall 15)

194HA. Special Study for Honors Students (4)
Independent study—3 hours; seminar—1 hour. Prerequisite: minimum GPA of 3.500; course 100B, courses 106 and 155 (may be taken concurrently); major in Agricultural and Managerial Economics or Managerial Economics; senior standing; consent of instructor. A program of research culminating in the writing of a senior honors thesis under the direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) GE credit: SocSci | QL, SS, WE.
(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (4)
Independent study—3 hours; seminar—1 hour. Prerequisite: minimum GPA of 3.500; course 100B; courses 106 and 155 (may be taken concurrently); major in Agricultural and Managerial Economics or Managerial Economics; senior standing. A program of research culminating in the writing of a senior honors thesis under the direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) GE credit: SocSci | QL, SS, WE.
(change in existing course—eff. summer 15)

Graduate

222. International Agricultural Trade and Policy (4)
Lecture—4 hours. Prerequisite: course 100B or 204A; Economics 160A or the equivalent. Analysis of country interdependence through world agricultural markets. Partial equilibrium analysis is used to study the impacts of national intervention on world markets, national policy choice in an open economy and multinational policy issues.—*F. (F.)*
(change in existing course—eff. fall 14)

223. Economics of Agriculture (4)
Lecture—4 hours. Prerequisite: courses 204A and 256A or equivalent completed or concurrent required. Open to MS students in Agricultural and Resource Economics, Ph.D. students in Agricultural and Resource Economics and qualified students from other UC Davis graduate groups/programs. Analytic treatment of the historical development and contemporary role of agriculture in the global, U.S. and California economies. Uses economic reasoning and evidence to develop historical and conceptual understanding of the economics of agriculture, agricultural issues, and related government policies.—*F. (F.)* Alston
(new course—eff. fall 15)

239. Econometric Foundations (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: graduate standing or consent of instructor. The course will prepare students for econometric theory and empirical work by examining the statistical foundation of econometrics. Special attention is paid to problems specific to non-experimental data common to social sciences. Topics from matrix algebra are also covered. (Same course as Economics 239.)—*F. (F.)*
(change in existing course—eff. fall 16)

240C. Time Series Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240B or consent of instructor. Probability theory; estimation, inference and forecasting of time series models; trends and non-standard asymptotic theory; vector time series methods and cointegration; time series models for higher order moments and transition data; state-space modeling; the Kalman filter. (Same course as Economics 240C)—*W. (W.)*
(change in existing course—eff. fall 16)

240D. Cross Section Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240B or consent of instructor. Estimation and inference for nonlinear regression models for cross-section data; models for discrete data and for limited dependent variables; models for panel data; additional topics such as bootstrap and semiparametric regression. (Same course as Economics 240D)—*F. (F.)*
(change in existing course—eff. fall 16)

240E. Topics in Time Series Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240C or consent of instructor. 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.)—*S. (S.)*
(change in existing course—eff. fall 16)

240F. Topics in Cross Section Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240D or consent of instructor. 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.)—*S. (S.)*
(change in existing course—eff. fall 16)

252. Optimization with Economic Applications (4)
Lecture—3 hours; discussion—1 hour. Applied linear programming methods emphasizing uses for business decisions: production, diet, blending, network and related problems.—*W. (W.)*
(change in existing course—eff. winer 14)

253. Optimization Techniques with Economic Applications (4)
(cancelled course—eff. fall 14)

256A. Applied Econometrics I (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 106 or Economics 140; or consent of instructor. First of two courses in the Masters-level econometrics sequence. The linear regression model and generalizations are applied to topics in agricultural and resource economics. Tools for empirical research for problems requiring more sophisticated tools than standard regression models are emphasized.—*F. (F.)*
(change in existing course—eff. spring 15)

256B. Applied Econometrics II (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 256A or consent of instructor. Second of two courses in the Masters-level econometrics sequence. The linear regression model and generalizations are applied to topics in agricultural and resource economics. Tools for empirical research for problems requiring more sophisticated tools than standard regression models are emphasized. Offered in alternate years.—*(W.)*
(change in existing course—eff. spring 15)

276. Environmental Economics (4)
(cancelled course—eff. spring 13)

276A. Environmental Economics: Externalities (4)
Lecture—4 hours. Prerequisite: students should have completed the first year graduate-level sequence in microeconomics and econometrics. Course introduces fundamental and recent research in environmental economics, focusing on the design, implementation and evaluation of environmental policy instruments to correct market failures. It will expose students to economic theories and empirical techniques frequently used in this field.—*W. (W.)*
(new course—eff. fall 14)

276B. Environmental Economics: Non-Market Valuation (4)
Lecture—4 hours. Prerequisite: students should have completed the first year graduate-level sequence in microeconomics and econometrics. Second PhD field course in environmental economics, covering

theory and econometrics of methods for valuing nonmarket goods and environmental quality changes. Topics include revealed preference (travel cost, hedonics, sorting equilibrium) and stated preference (contingent valuation, choice experiments, conjoint analysis) techniques.—*S. (S.)*

(new course—eff. fall 14)

Agricultural Education

New and changed courses in Agricultural Education (AED)

Lower Division

98. Directed Group Study (1-5)

Prerequisite: consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

99. Special Study for Undergraduates (1-5)

Prerequisite: consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

Upper Division

160. Vocational Education (3)

Lecture—3 hours. Philosophy and organization of vocational education, with particular reference to educational principles for agriculture commerce, home economics, and industry. GE credit: SocSci, Wrt.—*F. (F.)*

(change in existing course—eff. spring 15)

171. Audiovisual Communications (2)

Lecture—1 hour; laboratory—3 hours. Prerequisite: upper division standing. Theory and principles of audiovisual communications. Comparison of audiovisual materials such as transparencies, slides, computer-generated graphics, and videos. Operation and use of audiovisual equipment is stressed. Offered irregularly.

(change in existing course—eff. spring 15)

172. Multimedia Productions (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: course 171 recommended. Design and production of educational, technical, and professional multimedia presentations. Instructional or professional presentations using a variety of media, including slides, video, transparencies, and computer-generated graphics. Offered irregularly. GE credit: SocSci, Wrt.

(change in existing course—eff. spring 15)

Professional

306A. Field Experience with Future Farmers of America and Supervised Experience Programs (4)

Lecture/discussion—2 hours; field work—6 hours. Prerequisite: acceptance into a teacher education program; course 306B (concurrently). Develop an understanding of the Future Farmers of America and supervised occupational experience programs through planning, conducting, and evaluating actual programs. Offered irregularly.

(change in existing course—eff. spring 15)

306B. Field Experience in Teaching Agriculture (5-18)

Student teaching (corresponds with public school session). Prerequisite: acceptance into a teacher education program; course 306A (concurrently); courses 100, 300, 301, 302. Directed teaching including supervision of occupational experience programs and youth activities in secondary schools or community colleges. May be repeated for credit up to a maximum of 18 units. Offered irregularly.

(change in existing course—eff. spring 15)

American Studies

New and changed courses in American Studies (AMS)

Lower Division

1A. Science and American Culture (4)

Lecture—3 hours; discussion—1 hour. American science as a cultural system. Mutual influence and interaction of that system with other cultural systems including religion, social thought, art, architecture, literature, music, and common sense. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, DD, WE.—*F.*

(change in existing course—eff. spring 15)

1B. Religion in American Lives (4)

Lecture—3 hours; discussion—1 hour. Religions and spiritual practices in the United States, and their interrelationships with other aspects of U.S. history, society and culture; indigenous and imported faiths, and the impact of immigration, colonization and culture contact on religious systems. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*F. (F.)*

(change in existing course—eff. spring 15)

1C. American Lives Through Autobiography (4)

Lecture—3 hours; discussion—1 hour. American culture as understood through the individual life stories told by Americans, with attention to the roles of gender, race, ethnicity, social class, and sexual orientation in the individual's life course. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*W.*

(change in existing course—eff. spring 15)

1E. Nature and Culture in America (4)

Lecture—3 hours; discussion—1 hour. Uses and abuses of nature in America; patterns of inhabitation, exploitation, appreciation, and neglect; attention to California; emphasis on metaphor as a key to understanding ourselves and the natural world; attention to models of healing: stewardship, ecology, the "rights" movement. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*S.*

(change in existing course—eff. spring 15)

4. Freshman Seminar (2)

Seminar—2 hours. Prerequisite: open only to students who have completed fewer than 40 quarter units. Class size limited to 25 students. Investigation of a special topic in American Studies through shared readings, discussions, written assignments, and special activities (such as fieldwork, site visits). Emphasis on student participation in learning.—*W, S. (W, S.)*

(change in existing course—eff. spring 15)

5. Technology in American Lives (4)

Lecture—2 hours; discussion—2 hours. Technology as both a material cultural force and a symbol in American culture; the lives of engineers at work and play; images of the engineer and technology in popular culture; social political and ethical issues raised by technology. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

10. Introduction to American Studies (4)

Lecture—3 hours; discussion—1 hour. United States history, culture and society. Examination of cultural objects and social practices. Topics include popular culture (film, TV, Internet), cultural diversity, social activism, play, and communication. GE credit: GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*S.* Wang, Sze

(change in existing course—eff. spring 15)

21. Objects and Everyday Life (4)

Lecture—3 hours; discussion—1 hour; term paper. Material culture (objects and artifacts ranging from everyday objects like toys and furnishings to buildings and constructed landscapes) as evidence for understanding the everyday (vernacular) lives (gender, social class, ethnicity, region, age, and other factors; collecting and displaying material. Offered in alternate years. GE credit: ArtHum, Div, Wrt | ACGH, AH, DD, WE.—*S.* Kaplan

(change in existing course—eff. fall 16)

25. United States as a Business Culture (4)

Lecture—3 hours; discussion—1 hour. Business as a cultural system and its relation to religion, politics, arts, science, technology, and material culture; business themes of success, creativity, invention, and competition in American autobiographies, fiction, advice literature, film, and television; cultures of the workplace; multinational business. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

30. Images of America and Americans in Popular Culture (4)

Lecture—3 hours; discussion—1 hour. Investigation of verbal and visual discourses about American identity in various popular culture products, including film, television, radio, music, fiction, art, advertising, and commercial experiences; discourses about the United States in the popular culture of other societies. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*(F.)* Kaplan, Smoodin

(change in existing course—eff. spring 15)

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 or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*S. (S.)* Biltekoff

(change in existing course—eff. spring 16)

59. Music and American Culture (4)

Lecture—3 hours; discussion—1 hour. 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 or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

Upper Division

101A. Special Topics: Popular Culture Studies (4)

Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.

(change in existing course—eff. spring 15)

101B. Special Topics: Women's Studies (4)
Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.)
(change in existing course—eff. spring 15)

101C. Special Topics: Material Aspects of American Culture (4)
Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.
(change in existing course—eff. spring 15)

101D. Special Topics: American National Character (4)
Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.
(change in existing course—eff. spring 15)

101E. Special Topics: American Lives Through Autobiography (4)
Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.
(change in existing course—eff. spring 15)

101F. Special Topics: Interrelationship Between Arts and Ideas (4)
Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.
(change in existing course—eff. spring 15)

101G. Special Topics: New Directions in American Culture Studies (4)
Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.
(change in existing course—eff. spring 15)

101H. Special Topics: Problems in Cross-Cultural American Studies (4)
Seminar—3 hours. Intensive reading, writing, and special projects. Interdisciplinary group study of special topics in American Culture Studies, designed for non-majors as well as majors. May be repeated for credit in different subject area only.
(change in existing course—eff. spring 15)

110. A Decade in American Civilization (4)
Lecture—2 hours; discussion—2 hours. Close examination of a single decade in American civilization; the connections between the history, literature, arts, customs, and ideas of Americans living in the decade. Issues and representations of race, class, gender, age, and sexuality in the decade. May be repeated for credit if decades studied are different. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 16)

120. American Folklore and Folklife (4)
Lecture—3 hours; fieldwork—1 hour. Theory and method of the study of American folk traditions, including oral lore, customs, music, and material folk culture; the uses and meanings of those traditions in various folk communities, including families, ethnic institutions, voluntary organizations, and occupational groups. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 15)

125. Corporate Cultures (4)
Lecture—2 hours; discussion—1 hour; fieldwork—1 hour. Prerequisite: consent of instructor. Exploration of the small group cultures of American corporate workplaces, including the role of environment, stories, jokes, rituals, ceremonies, personal style, and play. The effects of cultural diversity upon corporate cultures, both from within and in contact with foreign corporations.
(change in existing course—eff. spring 16)

130. American Popular Culture (4)
Lecture/discussion—3 hours; fieldwork—1 hour. American popular expression and experience as a cultural system, and the relationship between this system and elite and folk cultures. Exploration of theories and methods for discovering and interpreting patterns of meaning in American popular culture. GE credit: ArtHum or SocSci, Div, Wrt| ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 16)

139. Feminist Cultural Studies (4)
Lecture/discussion—4 hours. The histories, theories, and practices of feminist traditions within cultural studies. (Same course as Women's Studies 139.) Offered irregularly. GE credit: SocSci, Div, Wrt| ACGH, AH, DD, SS, VL, WE.
(change in existing course—eff. fall 16)

151. American Landscapes and Places (4)
Lecture—2 hours; discussion—1 hour; fieldwork—3 hours. Comparative study of several American cultural populations inhabiting a region, including their relationship to a shared biological, physical, and social environment, their intercultural relations, and their relationships to the dominant American popular and elite culture and folk traditions. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 16)

152. The Lives of Children in America (4)
Lecture—2 hours; discussion—2 hours. Experience of childhood and adolescence in American culture, as understood through historical, literary, artistic, and social scientific approaches. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—Smoodin
(change in existing course—eff. spring 15)

153. The Individual and Community in America (4)
Lecture—2 hours; discussion—2 hours. Interdisciplinary examination of past and present tensions between the individual and the community in American experience, as those tensions are expressed in such cultural systems as folklore, public ritual, popular entertainment, literature, fine arts, architecture, and social thought. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 15)

154. The Lives of Men in America (4)
Lecture—2 hours; discussion—2 hours. Interdisciplinary examination of the lives of boys and men in America, toward understanding cultural definitions of masculinity, the ways individuals have accepted or resisted these definitions, and the broader consequences of the struggle over the social construction of gender. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 15)

155. Eating in America (4)
Lecture—3 hours; fieldwork. Prerequisite: course 1. Interdisciplinary examination of the culture of food in America. Exploration of eating as a richly symbolic event integral to how Americans express and negotiate values, politics and identity. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt. | ACGH, AH or SS, DD, WE.—*S. (S.)* Biltekoff
(change in existing course—eff. fall 16)

156. Race, Culture and Society in the United States (4)
Lecture—2 hours; discussion—2 hours. Interdisciplinary examination of the significance of race in the making of America; how race shapes culture, identities and social processes in the United States; the interweaving of race with gender, class and nationhood in self and community. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 16)

157. Animals in American Culture (4)
Lecture—3 hours, discussion—1 hour. Animals as symbols in American thought, as found in folklore, popular culture, literature, and art; customs and stories around human-animal interactions, including hunting, religion, foodways, pets, zoos, circuses, rodeos, theme parks, and scientific research on animals. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. spring 15)

158. Technology and the Modern American Body (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Technocultural Studies 1 and either course 1A or 5. The history and analysis of the relationships between human bodies and technologies in modern society. Dominant and eccentric examples of how human bodies and technologies influence one another and reveal underlying cultural assumptions. (Same course as Technocultural Studies 158.) GE credit: GE credit: ArtHum | ACGH, AH, WE.
(change in existing course—eff. spring 15)

190A. Senior Thesis Research Seminar (4)
Seminar—2 hours; extensive writing. Research and prospectus writing for senior thesis.—*F. (F.)*
(change in existing course—eff. spring 16)

190B. Senior Thesis (4)
Independent study—12 hours. Prerequisite: course 190A; consent of instructor. In consultation with advisor, student writes an extended research paper on a topic proposed in course 190A.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

Graduate

255. Food in American Culture (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Graduate standing or advanced undergraduate with consent of instructor. Interdisciplinary theories and methods for the study of food in American culture; food studies in relation to issues of identity (age, gender, ethnicity, religion, region, etc.), social relations, systems of production, and cultures of consumption. Offered irregularly.—*W. (W.)*
(change in existing course—eff. spring 15)

Animal Behavior (A Graduate Group)

New and changed courses in Animal Behavior (ANB)

Graduate

221. Animal Behavior, Ecology and Evolution (3)
Lecture—3 hours. Prerequisite: Neurobiology, Physiology, and Behavior 102, Evolution and Ecology 100, 101 or the equivalent, graduate standing, and consent of instructor. Interface between animal behavior, ecology and evolution. New developments in behavioral ecology and development and testing of hypotheses in this discipline. (Same course as Animal Behavior 221.) Offered irregularly.
(change in existing course—eff. fall 14)

Animal Biology (A Graduate Group)

New and changed courses in Animal Biology (ABG)

Graduate

200A. Integrated Animal Biology I (3)
Lecture/discussion—3 hours. Prerequisite: graduate standing; Biological Sciences 101 or equivalent or consent of instructor. Class size limited to 20 students; Pass One restricted to Animal Biology Graduate Group students. Natural history, management, historical and current uses, and specialized disciplinary features of model and novel animal systems used in research. Development of conceptual approaches in organismal biology to improve experimental design and interpretation of interdisciplinary research studies.—*F. (F.)* DePeters
(change in existing course—eff. fall 14

200B. Integrated Animal Biology II (3)
Lecture/discussion—3 hours. Prerequisite: course 200A. Limited enrollment; Pass One restricted to Animal Biology Graduate Group students. Natural history, management, historical and current uses, and specialized disciplinary features of model and novel animal systems used in research. Development of conceptual approaches in organismal biology to improve experimental design and interpretation of interdisciplinary research studies.—*W. (W.)* Conley, Murray
(change in existing course—eff. fall 14)

202. Grant Procurement and Administration (2)
Lecture—1 hour; discussion/laboratory—1 hour. Prerequisite: course 200B. Class size limited to 12 graduate students; Pass One restricted to Animal Biology Graduate Group students. Topics include: structure of grants, attention to specifications, concise persuasive writing, and grant budgeting. Identify grant opportunities, write a persuasive research grant proposal, and administer grants. Offered in alternate years.—*F. (F.)*
(change in existing course—eff. fall 14)

203. Advanced Animal Welfare (3)
Lecture—3 hours. Prerequisite: Animal Science 103 or equivalent course. Advanced animal welfare. Key concepts used when evaluating and understanding the welfare of animals kept by humans. Topics include animal pain, stress, cognition, motivation and emotions. Critical discussion of primary literature. May be repeated one time for credit. Offered in alternate years.—*S. (S.)* Tucker
(new course—eff. spring 16)

298. Group Study in Animal Biology (1-5)
Prerequisite: graduate standing; consent of instructor.
(change in existing course—eff. fall 14)

298. Group Study in Animal Biology (1-5)
Prerequisite: graduate standing; consent of instructor. May be repeated two times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. spring 15)

Professional

401. Ethics and Professionalism in Animal Biology (2)
Discussion—2 hours. Restricted to graduate standing; Pass One restricted to Animal Biology graduate group students. Case studies and discussion of ethical and professional issues for animal biologists, including the use of animals in research and teaching, patenting and intellectual property, consulting and conflict of interest, scientific integrity, dealing with the media, and mentoring relationships.—*S. (S.)* Mench
(change in existing course—eff. fall 14)

Animal Genetics

New and changed courses in Animal Genetics (ANG)

Upper Division

101. Animal Cytogenetics (3)
Laboratory/discussion—1 hour; laboratory—6 hours. Prerequisite: Biological Sciences 101, 102 or the equivalent. Principles and techniques of cytogenetics applied to animal systems; chromosome harvest techniques, analysis of mitosis and meiosis, karyotyping, chromosome banding, cytogenetic mapping, chromosome structure and function, comparative cytogenetics. GE credit: SciEng | SE.—Delany
(change in existing course—eff. spring 15)

105. Horse Genetics (2)
Lecture—2 hours. Prerequisite: course 15; Biological Sciences 101. Coat color, parentage testing, medical genetics, pedigrees, breeds, the gene map and genus Equus. Emphasis on understanding horse genetics based on the unity of mammalian genetics and making breeding decisions based on fundamental genetic concepts. GE credit: SciEng | SE, SL.—*S. (S.)* Famula
(change in existing course—eff. spring 15)

107. Genetics and Animal Breeding (5)
Lecture—4 hours; laboratory—3 hours. Prerequisite: Biological Sciences 101. Principles of quantitative genetics applied to improvement of livestock and poultry. Effects of mating systems and selection methods are emphasized with illustration from current breeding practices. GE credit: SciEng | SE.—*F. (F.)* Medrano, Miller
(change in existing course—eff. spring 15)

111. Molecular Biology Laboratory Techniques (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1C, 101, 102, 103. Introduction to the concepts and techniques used in molecular biology; the role of this technology in both basic and applied animal research, and participation in laboratories using some of the most common techniques in molecular biology. GE credit: SciEng | SE, SL, VL, WE.—*F. (F.)* Kueltz, Murray
(change in existing course—eff. spring 15)

Graduate

204. Theory of Quantitative Genetics (3)
Lecture—3 hours. Prerequisite: course 107 or the equivalent. Theoretical basis of quantitative genetics and the consequences of Mendelian inheritance. Concepts used to estimate quantitative genetic differences and basis for partitioning the phenotypic variance.
(change in existing course—eff. spring 15)

206. Advanced Domestic Animal Breeding (3)
Lecture—3 hours. Prerequisite: course 107 and Animal Science 205; course 204 recommended. Procedures for the genetic evaluation of individuals to include selection indices and mixed model evaluation for single and multiple traits. Methods of estimating genetic trends. Offered in alternate years.—Famula
(change in existing course—eff. spring 15)

208. Estimation of Genetic Parameters (3)
Lecture—3 hours. Prerequisite: course 107 and Animal Science 205; courses 204 and 108 recommended. General methods for the estimation of components of variance and covariance and their application to the estimation of heritability, repeatability and genetic correlations are considered. Specific emphasis is given to procedures applicable to livestock populations under selection.—Famula
(change in existing course—eff. spring 15)

211. Genetic Engineering of Animals (2)
Lecture—1 hour; lecture/discussion—1 hour. Review of techniques for the genetic engineering of animals and their limitations and applications. Student-led discussions of recent papers in the field and possible future applications of genetically engineered animals in basic research and applied agricultural and medical research. (S/U grading only.)—Murray
(change in existing course—eff. spring 15)

212. Sequence Analysis in Molecular Genetics (2)
Lecture/laboratory—2 hours. Prerequisite: Biological Sciences 101 or the equivalent; graduate standing or consent of instructor. Use of computer algorithms and online databases to analyze nucleic acid and protein sequences in molecular genetics research.—Medrano
(change in existing course—eff. spring 15)

Animal Science

New and changed courses in Animal Science (ANS)

Lower Division

2. Introductory Animal Science (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 1 and Biological Sciences 1A recommended. Growth, reproduction, lactation, inheritance, nutrition, and disease control in domesticated animals and species used in aquaculture; the application of sciences to animal production. GE credit: SciEng, Wrt | SE, SL, VL, WE.—*S. (S.)* Murray
(change in existing course—eff. spring 15)

12. Animal Science: Basic Principles and Application (3)
Lecture—3 hours. Overview of domestic and global animal industries. Exploration of production systems, animal biology, genetics, anatomy, physiology, reproduction, health, behavior, research, biotechnology and welfare. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

17. Canine Behavior: Learning and Cognition (3)
Lecture—3 hours. Domestic dog behavior from basic principles of learning to complex cognitive behaviors; interaction between learning and cognition including how these processes contribute to interactions with humans; basic genetic correlates of learning and cognition.
(change in existing course—eff. spring 15)

41L. Domestic Animal Production Laboratory (2)
Discussion—1 hour; laboratory—3 hours. Prerequisite: course 41 (may be taken concurrently). Animal production principles and practices, including five field trips to dairy cattle, beef cattle, sheep, and swine operations and campus labs. (P/NP grading only.) GE credit: QL, SE, SL, VL, WE.—*F, W, S. (F, W, S.)* Miller, Sainz
(change in existing course—eff. spring 15)

49A. Animal Management Practices: Aquaculture (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)
(change in existing course—eff. spring 15)

49B. Animal Management Practices: Beef (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F, S. (F, S.)*
(change in existing course—eff. spring 15)

49C. Animal Management Practices: Dairy (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

49D. Animal Management Practices: Goats (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F, S. (F, S.)*
(change in existing course—eff. spring 15)

49E. Animal Management Practices: Horses (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F. W. (F, W.)*
(change in existing course—eff. spring 15)

49F. Animal Management Practices: Laboratory Animals (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*W, S. (W, S.)*
(change in existing course—eff. spring 15)

49G. Animal Management Practices: Meats (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

49H. Animal Management Practices: Poultry (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

49I. Animal Management Practices: Sheep (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F. W. (F, W.)*
(change in existing course—eff. spring 15)

49J. Animal Management Practices: Swine (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

49K. Animal Management Practices: Captive and Companion Avian (2)
Discussion—1 hour; laboratory—3 hours. Application of the principles of elementary biology to the management of a specific animal species. Up to four different topics may be taken. (P/NP grading only.)—*F. W. (F, W.)*
(change in existing course—eff. spring 15)

Upper Division

100. Animal Physiology (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: Biological Sciences 2A, Chemistry 2B. Pass One restricted to students in the Animal Science and Animal Science and Management majors. Basic principles of animal physiology in domesticated and captive animals with a comparative approach. Molecular, biochemical, chemical and physical aspects and their influences on function of physiological systems in animals. Not open for credit to students who have taken Neurobiology, Physiology and Behavior 101. GE credit: SciEng | SE.—*S. (S.)* Todgham
(new course—eff. spring 16)

103. Animal Welfare (4)
Lecture—2 hours; discussion—2 hours. Prerequisite: course 104 or Neurobiology, Physiology, and Behavior 102 or the equivalent or consent of instructor. Upper division standing. Application of principles of animal behavior and physiology to assessment and improvement of the welfare of wild, captive, and domestic animals. Topics include animal pain, stress, cognition, motivation, emotions, and preferences, as well as environmental enrichment methods. GE credit: SciEng | SE, SL.—*F. (F.)* Mench
(change in existing course—eff. fall 14)

106. Domestic Animal Behavior Laboratory (2)
Laboratory—6 hours. Prerequisite: course 104 or the equivalent. Research experience with the behavior of large domestic animals. Experimental design, methods of data collection and analysis, and reporting of experimental results. GE credit: SciEng, Wrt | QL, SE, SL, VL, WE.—*S. (S.)* Tucker
(change in existing course—eff. spring 15)

118. Fish Production (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Wildlife, Fish, and Conservation Biology 120 and 121. Current practices in fish production; relationship between the biological aspects of a species and the production systems, husbandry, management, and marketing practices utilized. Emphasis on species currently reared in California. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

119. Invertebrate Aquaculture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 1B. Management, breeding and feeding of aquatic invertebrates; application of basic principles of physiology, reproduction, and nutrition to production of mollusks and crustaceans for human food; emphasis on interaction of species biology and managerial techniques on production efficiencies. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

120. Principles of Meat Science (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A. Anatomical, physiological, developmental, and biochemical aspects of muscle underlying the conversion of muscle to meat. Includes meat processing, preservation, microbiology, and public health issues associated with meat products. (Same course as Food Science and Technology 120.) GE credit: SciEng | SE.—*S. (S.)*
(change in existing course—eff. spring 16)

120L. Meat Science Laboratory (2)
Discussion—1 hour; laboratory—3 hours. Prerequisite: Biological Sciences 2A; course 120 (may be taken concurrently). Laboratory exercises and student participation in transformation of live animal to carcass and meat, structural and biochemical changes related to meat quality, chemical and sensory evaluation of meat, and field trips to packing plant and processing plant. GE credit: SciEng | SE.
(change in existing course—eff. fall 15)

126. Equine Nutrition (3)
Lecture—3 hours. Prerequisite: course 15, Nutrition 115. Equine digestion, digestive physiology, diet development and evaluation, and the relationship of the topics to recommended feeding practices and nutritional portfolios. Offered in alternate years. GE credit: SciEng | SE.—*(S.)*
(change in existing course—eff. spring 15)

129. Environmental Stewardship in Animal Production Systems (3)
Lecture—3 hours. Prerequisite: Biological Sciences 10 or 1A and 1B, Chemistry 2A, 2B, 8A, 8B. Class size limited to 24 students. Management principles of environmental stewardship for grazing lands, animal feeding, operations and aquaculture operations; existing regulations, sample analyses, interpretation and utilization of data, evaluation of alternative practices, and policy development. GE credit: SciEng | SE, SL.—*W. (W.)* Meyer
(change in existing course—eff. fall 14)

131. Reproduction and Early Development in Aquatic Animals (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Molecular and Cellular Biology 150; Wildlife, Fish, and Conservation Biology 120, 121; or consent of instructor. Physiological and developmental functions related to reproduction, breeding efficiency and fertility of animals commonly used in aquaculture. GE credit: SciEng | SE, WE.
(change in existing course—eff. spring 15)

136. Techniques and Practices of Fish Culture (3)
Lecture—1 hour; laboratory—6 hours. Prerequisite: general biology and chemistry; course 2. Daily care and maintenance of fish in residential aquariums, research and commercial facilities. Biological and environmental factors important to sound management of fish. Laboratories focus on fish culture including growth trials and biochemical assays. Not open

for credit to students who have previously completed course 136A or 137. GE credit: SciEng, Wrt | QL, SL, VL, WE.—*F. (F.)* Hung

(new course—eff. winter 16)

136A. Techniques and Practices of Fish Culture (2)

(cancelled course—eff. winter 16)

136B. Techniques and Practices of Avian Culture (2)

(cancelled course—eff. fall 15)

137. Techniques and Practices of Avian Culture (3)

Lecture—1 hour; laboratory—6 hours. Prerequisite: basic understanding of general biology and chemistry; course 2. Not open for credit to students who have previously completed course 136B or 137. Daily care and maintenance of birds for research, commercial production and companion or hobby uses. Biological and environmental factors important to sound management of birds. Laboratories focus on bird husbandry, management and care and include growth trials and biochemical assays. GE credit: SciEng | QL, SE, SL, VL, WE.—*S. (S.)* Hung

(change in existing course—eff. spring 15)

139. Experimental Animal Physiology (3)

Lecture—1 hour; laboratory—3 hours; fieldwork—3 hours. Prerequisite: Animal Biology 102, Biological Sciences 101, or consent of instructor. Restricted to seniors in the Animal Science and Animal Science and Management majors. Combination of theory and hands-on experiences in animal physiology using various experimental techniques. Practical laboratory skill development from cellular level to whole animal, in areas such as genetics, endocrinology, histology and physiological function. GE credit: SciEng | SE, WE.—*S. (S.)*

(new course—eff. spring 16)

141. Equine Enterprise Management (4)

Lecture/discussion—4 hours. Prerequisite: course 115; Economics 1A, 1B recommended. Examination of the concepts and principles involved in the operation of an equine enterprise. Essential aspects of equine enterprise management, including equine law, marketing, cash flow analysis, and impact of state and federal regulations. Offered in alternate years. GE credit: SocSci, Wrt | SS.—*W.*

(change in existing course—eff. winter 15)

144. Beef Cattle and Sheep Production (4)

Lecture—3 hours; laboratory—3 hours; one or two Saturday field trips. Prerequisite: course 41, Animal Genetics 107, Nutrition 115, or consent of instructor; a course in Range Science and a course in microcomputing are recommended. Genetics, physiology, nutrition, economics and business in beef cattle and sheep production. Resources used, species differences, range and feedlot operations. Emphasis on integration and information needed in methods for management of livestock enterprises. GE credit: SciEng | OL, QL, SE, SL, VL, WE.—*S. (S.)* Sainz

(change in existing course—eff. spring 15)

145. Meat Processing and Marketing (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 143 or 144 or consent of instructor. Distribution, processing and marketing of meat and meat products. Meat and meat animal grading and pricing. Government regulations and social/consumer concerns. Future trends and impact on production management practices. Includes poultry. GE credit: SciEng | SE.

(change in existing course—eff. spring 15)

147. Dairy Processing and Marketing (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: course 146 or consent of instructor. Examination of distribution systems, processing practices, product quality, impact of government policy (domestic and foreign), marketing alternatives, and product development. GE credit: SciEng | SE.

(change in existing course—eff. spring 15)

149. Farrier Science (3)

Lecture—3 hours. Prerequisite: course 115. In-depth examination of the structure-function relationship of the equine hoof and how it relates to conformation, injury and performance. Offered irregularly. GE credit: SciEng | SE.

(change in existing course—eff. spring 15)

149L. Farrier Science Laboratory (1)

Laboratory—3 hours. Prerequisite: course 149 (may be taken concurrently) or consent of instructor. Art and science of horseshoeing in equine related fields. Proper use of the tools, materials and techniques in the fabrication of shoes and safe preparation of the hoof for application of shoes. (P/NP grading only.)

(change in existing course—eff. spring 15)

194HB. Undergraduate Honors Thesis in Animal Science (4)

Lecture—1 hour; laboratory—9 hours. Prerequisite: Neurobiology, Physiology and Behavior 101, Animal Biology 103; minimum cumulative GPA of 3.200 and selection by the Honors Selection Committee; consent of instructor. Students will carry out a research project (chosen from faculty-suggested or approved proposals) during the academic year under the guidance of a faculty member. Upon completion, student will write a thesis and present a public seminar describing his/her research. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE, VL.

(change in existing course—eff. fall 14)

Graduate

200. Strategies in Animal Production (4)

Lecture/discussion—4 hours. Prerequisite: consent of instructor. Examines the forces and issues in animal agriculture through the strategic management process.

(change in existing course—eff. spring 15)

206. Models in Agriculture and Nutrition (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: Mathematics 16B; Statistics 108. Basic model building principles and techniques for statistical and systems simulation models. Optimization techniques for non-linear experimental designs and management models are presented. Quantitative analysis and evaluation of linear and non-linear equations used in agriculture and nutrition.

(change in existing course—eff. spring 15)

259. Literature in Animal Science (1)

Seminar—1 hour. Prerequisite: graduate standing. Critical presentation and analysis of recent journal articles in animal science. May be repeated for credit up to nine times. (S/U grading only.)

(change in existing course—eff. spring 15)

290. Seminar (1)

Seminar—1 hour. Reports and discussions of topics of interest in genetics, nutrition, and physiology as they apply to animal science. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

Anthropology

New and changed courses in Anthropology (ANT)

Lower Division

1. Human Evolutionary Biology (4)

Lecture—3 hours; discussion—1 hour. Processes and course of human evolution; primatology; biological and social diversity within Homo sapiens; human paleontology. GE credit: SciEng, Div, Wrt | SE, SL, WE.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15)

1Y. Human Evolutionary Biology (4)

Web virtual lecture—2 hours; lecture/discussion—1 hour; laboratory/discussion—1 hour. Evolutionary theory and mechanisms of evolution; basic population and quantitative genetics; primatology; biological and cultural diversity within Homo sapiens; paleoanthropology. Students may not take both course 1 and course 1Y for credit. GE credit: SE, WE.—*W. (W.)* Weaver

(change in existing course—eff. spring 15)

2. Cultural Anthropology (4)

Lecture—3 hours; discussion—1 hour. Introduction to cultural diversity and the methods used by anthropologists to account for it. Family relations, economic activities, politics, gender, and religion in a wide range of societies. Current problems in tribal and peasant societies. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WC, WE.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15

3. Introduction to Archaeology (4)

Lecture—3 hours; discussion—1 hour. Development of archaeology as an anthropological study; objectives and methods of modern archaeology. GE credit: SciEng or SocSci, Div | SE or SS, SL.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

4. Introduction to Anthropological Linguistics (4)

Lecture—3 hours; discussion—1 hour. Exploration of the role of language in social interaction and world view, minority languages and dialects, bilingualism, literacy, the social motivation of language change. Introduction of analytical techniques of linguistics and demonstration of their relevance to language in sociocultural issues. Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. spring 15)

5. Proseminar in Biological Anthropology (4)

Seminar—3 hours; term paper. Prerequisite: course 1 or course 1Y recommended; and consent of instructor. Course primarily for majors. Integration of related disciplines in the study of biological anthropology through discussion and research projects. Principal emphasis in human adaptation to the environment. Offered irregularly. GE credit: SciEng, Wrt | SE, OL, WE.—Isbell

(change in existing course—eff. fall 16)

15. Behavioral and Evolutionary Biology of the Human Life Cycle (5)

Lecture—3 hours; discussion—1 hour; term paper. Introduction to the biology of birth, childhood, marriage, the family, old age, and death. Examines comparative characteristics of nonhuman primates and other animals as well as cross-cultural variation in humans by study of selected cases. GE credit: SciEng, Div, Wrt | SE, SL, WE.—Crofoot

(change in existing course—eff. spring 15)

20. Comparative Cultures (4)
Lecture—3 hours; discussion—1 hour. Introduction to the anthropological study of cultural diversity. Case studies of eight societies will be presented to illustrate and compare the distinctive features of major cultural regions of the world. Concludes with a discussion of modernization. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, WC, WE.—Sawyer
(change in existing course—eff. spring 15)

24. Ancient Crops and People (4)
Lecture—3 hours; discussion—1 hour. The archaeological evidence for domestication of plants and the origins of agricultural societies. Anthropological context of agriculture and the effects on sexual division of labor, social inequality, wealth accumulation, warfare, human health, and sedentism. Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Eerkens
(change in existing course—eff. spring 15)

25. Ancient Animals and People (2)
Lecture—2 hours. History of human and animal relationships and how animals have influenced social and economic structures of past societies. Why, when and how humans used animals in the context of hunting, domestication, secondary products, ritual, companionship, and conservation. Offered in alternate years. GE credit: SocSci | SS.—Darwent, Steele
(new course—eff. winter 15)

28. Prehistoric Origins of Art (2)
Lecture/discussion—2 hours. Interdisciplinary look at the earliest evidence for art and symbolic behavior. Method and techniques to investigate Prehistoric art. Interpretative framework and relevance for understanding the role of symbolic activities in traditional societies. Offered in alternate years. GE credit: SocSci | SS.—Zwyns
(new course—eff. winter 15)

29. Vikings (2)
Lecture—2 hours. History of the Vikings through the Slavic and Mediterranean regions in the East and across the vast North Atlantic region to the west. Emphasis on archaeology and sagas to understand Viking culture from the 8th to 11th centuries. Offered in alternate years. GE credit: SS, WC.—*S. (S.)* Darwent
(new course—eff. spring 16)

30. Sexualities (4)
Lecture/discussion—4 hours. Introduction to the study of sexuality, particularly to the meanings and social organization of same-sex sexual behavior across cultures and through time. Biological and cultural approaches will be compared, and current North American issues placed in a wider comparative context. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, WC.—Donham
(change in existing course—eff. spring 15)

32. Drugs, Science and Culture (4)
Lecture—3 hours; discussion—1 hour. Drugs, politics, science, society in a cultural perspective: emphasis on roles of science, government and the media in shifting attitudes toward alcohol, marijuana, Prozac and other pharmaceuticals; drug laws, war on drugs and global trade in sugar, opium, cocaine. (Same course as Science and Technology Studies 32.) GE credit: SocSci, Div, Wrt | SS, VL, WE.—Dumit
(change in existing course—eff. spring 15)

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 irregularly. GE credit: SocSci, Div, Wrt | SS, WC.
(change in existing course—eff. spring 15)

50. Evolution and Human Nature (4)
Lecture—3 hours; discussion—1 hour. Evolutionary analyses of human nature, beginning with Lamarck, Darwin, Spencer and contemporaries, and extending through social Darwinism controversies to contemporary evolutionary anthropology research on human diversity in economic, mating, life-history, and social behavior. Offered in alternate years. GE credit: SciEng or SocSci, Div, Wrt | SE or SS, SL, WE.
(change in existing course—eff. spring 15)

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. GE credit: SciEng | SE, SL, WE.—*S. (S.)* Isbell
(change in existing course—eff. spring 15)

Upper Division

100. Theory in Social-Cultural Anthropology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Discussion of the theoretical and philosophical developments in cultural anthropology from the 19th century to the present. Not open for credit to students who have completed course 137. GE credit: SocSci | SS, WE.—*F. (F.)* Donham
(change in existing course—eff. fall 16)

101. Ecology, Nature, and Society (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or 2 or Environmental Science and Policy 30 or Evolution and Ecology 100 or Biological Sciences 101. Interdisciplinary study of diversity and change in human societies, using frameworks from anthropology, evolutionary ecology, history, archaeology, psychology, and other fields. Topics include population dynamics, subsistence transitions, family organization, disease, economics, warfare, politics, and resource conservation. (Same course as Environmental Science and Policy 101.) Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Borgerhoff Mulder
(change in existing course—eff. spring 15)

103. Indigenous Peoples and Natural Resource Conservation (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or Geology 1 or Environmental Science and Policy 30 recommended. Integration of the interests of resident and indigenous peoples with the conservation of natural resources and ecosystems, using case study examples from both the developing and the developed world. Not open for credit to students who have completed course 121N. (Former course 121N.) Offered in alternate years. GE credit: SocSci | ACGH, DD, OL, SS, WC, WE.—Mulder
(change in existing course—eff. fall 16)

104N. Cultural Politics of the Environment (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Relationship between social inequality (based on race, class, and/or gender) and ecological degradation. Articulation of local peoples, national policy, and the international global economy in the contestation over the use of environmental resources. Not open for credit to students who have completed course 134N. (Former course 134N.) GE credit: SocSci, Div | ACGH, DD, SS, WC, WE.—Sawyer
(change in existing course—eff. fall 16)

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 recommended. 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. (Same course as Science & Technology Studies 109.) Offered in alternate years. GE credit: SocSci, Wrt | SS, VL, WE.—Dumit
(change in existing course—eff. fall 16)

110. Language and Sociocultural Anthropology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. The role of language analysis and linguistic theory in the development of sociocultural anthropology. Language, culture, and thought; the linguistic accomplishment of social action; language ideology; language and social power. Language as cultural mediator of politicoeconomic process. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. fall 16)

117. Language and Society (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 4 or Linguistics 1 recommended; course 2 recommended. Consideration of language in its social context. Methods of data collection and analysis; identification of socially significant linguistic variables. Contributions of the study of contextualized speech to linguistic theory. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. fall 16)

120. Language and Culture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 4 or Linguistics 1 recommended; course 2 recommended. Culture, cognition, meaning, and interpretation; language and the classification of experience; communication and learning in crosscultural perspective. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WC, WE.
(change in existing course—eff. fall 16)

121. Special Topics in Medical Anthropology (4)
Lecture/discussion—4 hours. Prerequisite: course 2 recommended. Introduction to critical medical anthropology. Topics include anthropological analysis of bio-medicine, psychiatry, systems of knowledge and healing, the body, emotions, and clinical encounters in a cross-cultural perspective. (Same course as Science and Technology Studies 121.) GE credit: SocSci, Div, Wrt | SS, WC, WE.—Giordano
(change in existing course—eff. fall 16)

122B. Anthropology and Political Economy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Survey of anthropological approaches to the study of political organizations; inter-relationships among political institutions, economic infrastructures and cultural complexity. Not open for credit to students who have completed course 123A. (Former course 123A.) Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. fall 16)

123AN. Resistance, Rebellion, and Popular Movements (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Analysis of popular protest in Third World and indigenous societies ranging from covert resistance to national revolts. Comparative case studies and theories of peasant rebellions, millenarian movements, social bandits, Indian "wars", ethnic and regional conflicts, gender and

class conflicts. Not open for credit to students who have completed course 123B. (Former course 123B.) Offered irregularly. GE credit: SocSci | SS, WC, WE.

(change in existing course—eff. fall 16)

125B. Postmodernism(s) and Culture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. The U.S.-European postmodern condition. "Modernity" as an incomplete project for subordinated groups. The economic, social, technological and political conditions leading to postmodern aesthetics, in comparison with postcolonialism, feminism and minority discourse. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. fall 16)

126A. Anthropology of Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Theories of development and current critiques. Colonial legacies and postcolonial realities. Roles of the state and NGOs, population migrations, changing gender identities, cash-earning strategies, and sustainability issues. Stresses importance of cultural understandings in development initiatives. Case studies emphasizing non-industrial societies. Not open for credit to students who have completed course 126. (Former course 126.) GE credit: SocSci, Div, Wrt | SS, WC, WE.—Smith

(change in existing course—eff. fall 16)

126B. Women and Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Current Third World and Western development issues concerning women in agriculture, industry, international division of labor, political movements, revolutions, politics of health, education, family and reproduction. Impact of colonialism, capitalism, the world system, and international feminism on women and development. Not open for credit to students who have completed course 131. (Former course 131.) GE credit: SocSci, Div, Wrt | SS, WC, WE.—*Su. (Su.)*

(change in existing course—eff. fall 16)

127. Urban Anthropology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor. Survey of approaches to urban living: political structures, organization of labor, class relations, world views. The evolution of urban life and its contemporary dilemmas. Cross-cultural comparisons discussed through case studies. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Srinivas, Zhang

(change in existing course—eff. spring 15)

128A. Kinship and Social Organization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Comparative examination of personal kinship, descent, marriage, household and family organizations; the theories that account for variation, and recent advances in the treatment of these data. Not open for credit to students who have completed course 128. (Former course 128.) Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. fall 16)

128B. Self, Identity, and Family (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Exploration of self, identity, and family systems cross-culturally. Impact of class, gender, race, ethnicity, ruralization, urbanization, and globalization on notions of selfhood in different social/cultural systems. Not open for credit to students who have completed course 129. (Former course 129.) Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. fall 16)

129. Health and Medicine in a Global Context (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 2 recommended. Recent works in medical anthropology and the science studies of medicine dealing with social and cultural aspects of global health issues such as AIDS, pandemics, clinical trials, cultural differences in illnesses, diabetes, organ trafficking, medical technologies, illness narratives, and others. (Same course as Science and Technology Studies 129.) GE credit: SocSci, Div, Wrt | SS, WC, WE.—Dumit

(change in existing course—eff. fall 16)

130A. Cultural Dimensions of Globalization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. The cultural dimensions of recent economic and political developments frequently termed "globalization." Offered in alternate years. GE credit: SocSci, Wrt | SS, WC, WE.

(change in existing course—eff. fall 16)

130BN. Migration and the Politics of Place and Identity (4)
Lecture/discussion—4 hours. Prerequisite: course 2 recommended. Internal and international migration from an anthropological perspective, including causes, processes, and political, economic, and cultural effects of spatial mobility and displacement. Emphasizes the interplay of identity, place, and power in diverse cultural and historical contexts. Not open for credit to students who have completed course 123D. (Former course 123D.) Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.

(change in existing course—eff. fall 16)

131. Ecology and Politics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or consent of instructor. Analysis of the complex interactions between ecological dynamics and political processes employing the emerging approach of political ecology. Case studies of environmental degradation (e.g., desertification, logging, mineral extraction, petroleum, water) from various cultural and geographic regions. Offered in alternate years. GE credit: SocSci, Div.

(change in existing course—eff. spring 15)

132. Psychological Anthropology (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 2 recommended. History of the relationship between anthropology and psychoanalysis. Exploration of anthropology of emotions, colonial psychology, contemporary ethnopsychiatry, studies on personhood, possession, magic, altered states, subjectivity, and definitions of the normal and the pathological in different contexts and cultures. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Giordano

(change in existing course—eff. fall 16)

134. Buddhism in Global Culture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Class size limited to 50 students. Buddhist meditation and ritual as a cultural system that adapts to global and local forces of change. Anthropological theory and method in understanding global culture transmission, including Buddhist reform movements in Asia and Buddhist practice in the West. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.—Klima

(change in existing course—eff. fall 16)

136. Ethnographic Film (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Overview of the use of film in anthropology and its advantages and limitations in comparison to written ethnographic descriptions. Essential features of ethnographic films. Film production in anthropological research and problems encountered in producing films in the field. Offered irregularly. GE credit: SocSci, Wrt | SS, VL, WC, WE.

(change in existing course—eff. fall 16)

137. Meditation and Culture (4)
Lecture/discussion—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Class size limited to 50 students. 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.—Klima

(change in existing course—eff. fall 16)

138. Ethnographic Research Methods in Anthropology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Basic concepts in and approaches to ethnographic field research. Problem formulation, research design, qualitative and quantitative data collection procedures, and techniques for organizing, retrieving, and analyzing information. Ethnographic description and constructed inference. Students will organize and conduct individual research projects. Offered in alternate years. GE credit: SocSci | SS, WC, WE.—de la Cadena

(change in existing course—eff. fall 16)

139AN. Race, Class, Gender Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Comparative analysis of class/race/gender inequality, concentrating on the ways in which beliefs about descent, "blood," and biological difference interact with property and marital systems to affect the distribution of power in society. Not open for credit to students who have completed course 139. (Former course 139.) Offered irregularly. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WC, WE.—de la Cadena

(change in existing course—eff. fall 16)

139BN. Gender and Sexuality (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Gender and sexuality in foraging bands, horticultural and pastoral tribes, agricultural and industrial states. Debates on cultural evolution and distribution of gender hierarchies. Impact of politics, economics, religion, social practices, women's movements on gender and sexuality. Culture, nature, and sexuality. Not open for credit to students who have completed course 130. (Former course 130.) Offered irregularly. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WC, WE.

(change in existing course—eff. fall 16)

140A. Cultures and Societies of West and Central Africa (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Ethnographic survey of West Africa and Congo Basin with analyses of representative societies which illustrate problems of general theoretical concern. Major consideration will be the continuities and discontinuities between periods prior to European contact and the present. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. fall 16)

140B. Cultures and Societies of East and South Africa (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Ethnographic survey of Eastern and Southern Africa with analyses of selected societies which illustrate problems of interest to anthropologists. Major consideration will be given to continuities and discontinuities between periods prior to European contact and the present. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Donham

(change in existing course—eff. fall 16)

141B. Ethnography of California and the Great Basin (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. Description and analysis of the native peoples of California and the Great Basin, and their lifeways at the time of European contact. (Former course 141C.) GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.—Bettinger
(change in existing course—eff. fall 16)

141C. People of the Arctic: Contemporary and Historic Cultures of the Circumpolar Region (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 or 3 recommended. Social, economic, political, and religious lives of Russian, American, Canadian, and Greenlandic Arctic people (Yup'ik, Iñupiat, Inuit). Topics include Arctic ecosystems, archaeological record of human occupation, ethnohistorical and ethnographic accounts, arctic people in popular culture, and contemporary issues. Offered in alternate years.—*F.* Darwent
(change in existing course—eff. fall 16)

142. Peoples of the Middle East (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Peoples of the Middle East (including North Africa). Discussions of class relations, kinship organization, sex/gender systems, religious beliefs and behavior, ethnic relations, political systems. Impact of world systems, political and religious movements and social change. (Former course 136.) GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. fall 16)

143A. Ethnology of Southeast Asia (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Patterns of culture and social organization from prehistory to the present, in the context of historical, ecological, economic, and political settings. Emphasis on the relation of ethnic minorities to national states. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. fall 16)

144. Contemporary Societies and Cultures of Latin America (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2. Introduction to contemporary social structure of Latin America. Origins, maintenance and changes in inequality: economic responses to poverty, sociocultural responses to discrimination, and political responses to powerlessness. GE credit: SocSci, Div, Wrt | SS, WC, WE.—de la Cadena
(change in existing course—eff. spring 15)

145. Performance, Embodiment, and Space in South Asia (4)
Lecture/discussion—4 hours. Prerequisite: course 2 or consent of instructor. South Asian cultures and societies with a focus on performance, embodiment, and space from several disciplinary fields. Topics may include colonialism, nationalism, religious traditions, media, popular culture, cities, social movements, modernity, body-cultures, identity, gender, and diasporas. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.—Srinivas
(change in existing course—eff. spring 15)

146N. Topics in the Anthropology of Europe (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Recent ethnographies of different nation-states and socio-political spaces in Europe. Topics include the question of old and new boundaries, historical and contemporary constructions of Europe, migration and ethnicity, citizenship, belonging, multiculturalism, and post/socialisms. Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Giordano
(change in existing course—eff. fall 16)

148A. Culture and Political Economy in Contemporary China (4)
Lecture/discussion—4 hours. Prerequisite: course 2 recommended. 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: SocSci, Div, Wrt | SS, WC, WE.—Zhang
(change in existing course—eff. fall 16)

149A. Traditional Japanese Society (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 2 recommended. Patterns of culture and social organization from prehistoric to early twentieth-century Japan. Origins, prehistory, and traditional religious and political systems, marriage and kinship, language and culture. Changes and continuities in traditional and contemporary Japanese culture are addressed. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. fall 16)

149B. Contemporary Japanese Society (4)
Lecture—3 hours; discussion—1 hour. Introduction to contemporary Japanese social structure, social organization, and patterns of culture. Analysis of rural-urban cultural continuities and contrasts, class relations, political and economic systems, kinship, sex/gender systems, contemporary religious beliefs and behavior, conflict, consensus, and cultural stereotypes. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Shibamoto-Smith
(change in existing course—eff. spring 15)

151. Primate Evolution (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or Biological Sciences 2B or Biological Sciences 2C or Evolution and Ecology 10 recommended. Origin and relationships of the prosimians, monkeys, and apes. GE credit: SciEng, Wrt | SE, WE.—*S. (S.)* Isbell
(change in existing course—eff. fall 16)

152. Human Evolution (5)
Lecture—3 hours; discussion—1 hour; term paper. Prerequisite: course 1 recommended. Nature and results of the evolutionary processes involved in the formation and differentiation of humankind. GE credit: SciEng, Wrt | SE, WE.—*W. (W.)* Zwyns
(change in existing course—eff. fall 16)

153. Human Biological Variation (5)
Lecture—3 hours; discussion—1 hour; term paper. Prerequisite: course 1 or Biological Sciences 2B recommended. Origin, adaptive significance and methods of analysis of genetic differences among human populations. Special attention given to racial differences such as those in blood groups, plasma proteins, red cell enzymes, physiology, morphology, pigmentation and dermatoglyphics. GE credit: SciEng, Wrt | QL, SE, WE.—D. G. Smith
(change in existing course—eff. fall 16)

154A. The Evolution of Primate Behavior (5)
Lecture—3 hours; discussion—1 hour; term paper. Prerequisite: course 1 or 54 or Evolution and Ecology 10 recommended. Examines ecological diversity and evolution of social systems of prosimians, monkeys, and apes, placing the social behavior of the primates in the context of appropriate ecological and evolutionary theory. GE credit: SciEng, Wrt | SE, VL, WE.—*F. (F.)* Isbell
(change in existing course—eff. fall 16)

154B. Primate Evolutionary Ecology (5)
Lecture—3 hours; lecture/discussion—1 hour; term paper. Prerequisite: course 1 or Evolution and Ecology 10 recommended. 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, with additional discussion of primate and rainforest conservation. GE credit: SciEng, Wrt | QL, SE, WE.
(change in existing course—eff. fall 16)

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: SciEng, Wrt | QL, SE, VL, WE.
(change in existing course—eff. spring 15)

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.) GE credit: SE.—*S. (S.)* Crofoot
(change in existing course—eff. spring 15)

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. GE credit: SciEng | OL, SE, WE.—*S. (S.)* Crofoot
(change in existing course—eff. spring 15)

156A. Human Osteology (4)
Lecture—2 hours; laboratory—4 hours. Prerequisite: course 1 or course 1Y recommended. Not open to students who have previously completed course 156. Human skeleton from archaeological, forensic, and paleontological perspectives, including anatomical nomenclature, variation with sex and age, function, evolution, growth, and development of bones and teeth. Hands-on study and identification of human skeletal remains. GE credit: SciEng | SE.—*F. (F.)* Weaver
(change in existing course—eff. fall 16)

156B. Advanced Human Osteology (4)
Lecture—2 hours; laboratory—4 hours. Prerequisite: course 156A or equivalent. Not open to students who have previously completed course 156. Human skeletons from archaeological, forensic, and paleontological contexts. Bone and tooth structure, growth, and development; measurement, statistics, and biomechanics; assessment of age, sex, weight, height, and ancestry; and indicators of illness, injuries, diet, and activities. Offered in alternate years. GE credit: SciEng | SE.—*S. (S.)* Weaver
(change in existing course—eff. spring 15)

157. Anthropological Genetics (3)
Lecture—3 hours. Prerequisite: course 1 or Biological Sciences 2C recommended. Method and theory of genetic and genomic analysis of molecular evolution of human and non-human primate populations. Special attention to the molecular evolutionary transition to humans and genetic differences among extant human populations and their adaptive significance. Offered in alternate years. GE credit: SciEng | QL, SE.—D. G. Smith
(change in existing course—eff. fall 16)

157L. Laboratory in Anthropological Genetics (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: course 1 or Biological Sciences 2C recommended; enrolled in course 157 concurrently or following. Methods for identifying genetic variation in human blood group antigens, serum proteins and red cell enzymes (hemaglutination), general electrophoresis on starch, cellulose acetate and polyacrylamide,

immunodiffusion and immunoelectrophoresis on agarase. (P/NP grading only.) Offered irregularly. GE credit: QL, SE.—D. G. Smith

(change in existing course—eff. fall 16)

158. The Evolution of Females and Males: Biological Perspective (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 recommended. Current theoretical frameworks for explaining the evolution of sex differences and for understanding the interrelationship between biological processes and cultural construction of gender roles. GE credit: SciEng, Div, Wrt | OL, WE.

(change in existing course—eff. fall 16)

159. Molecular Anthropology of Native America (4)
Seminar—3 hours; term paper. Prerequisite: course 1 or Biological Sciences 2B; or consent of instructor. Use of DNA and other genetic polymorphisms to test hypotheses regarding genetic relationships among different Native American tribal groups and about prehistoric population replacements and migrations to and within the Americas. Integration with craniometric, archaeological, paleoenvironmental, linguistic and ethnohistorical evidence. Offered irregularly. GE credit: SciEng | QL, SE.

(change in existing course—eff. fall 16)

160. Neandertals and Modern Human Origins (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or course 1Y or equivalent recommended. Origins, evolution, and disappearance of Neandertals. Emergence of humans like us in both anatomy and behavior. Interpretation of the fossil and archaeological records of Europe and Africa. Genetics of living and fossil humans. Offered in alternate years. GE credit: SciEng | SE.—Weaver

(change in existing course—eff. fall 16)

170. Archeological Theory and Method (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Introduction to history and development of archeological theory and method, with particular emphasis on the basic dependence of the latter on the former. Stress is on historical development of archaeology in the New World. GE credit: SocSci, Div, Wrt | SS, WE.—*W. (W.)*

(change in existing course—eff. fall 16)

172. New World Prehistory: The First Arrivals (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Survey of data relating to the peopling of the New World. Cultural adaptation and development of early inhabitants of North and South America. Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Darwent

(change in existing course—eff. fall 16)

173. New World Prehistory: Archaic Adaptations (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. Introduction to and survey of prehistoric hunting and gathering adaptations across North America with particular emphasis on the East, Southeast, Midwest, Plains, Southwest, and Northwest. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WE.

(change in existing course—eff. fall 16)

174. European Prehistory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Survey of the prehistory of Europe from its earliest human inhabitants, to the Neandertals and first modern humans, and through early agricultural and complex societies. Analysis and interpretation of the European archaeological record for understanding human dispersals into Europe. Offered in alternate years. GE credit: SocSci | SS, WC, WE.—Steele

(change in existing course—eff. fall 16)

175. Andean Prehistory: Archaeology of the Incas and their Ancestors (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Prehistory of the Andean region, especially Peru, from the earliest hunting and gathering societies through the Inca. Focus on the use of archaeological data to reconstruct ancient human adaptations to the varied Andean environments. Offered in alternate years. GE credit: SocSci | SS, WC, WE.—Eerkens

(change in existing course—eff. fall 16)

176. Prehistory of California and the Great Basin (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. Description and analysis of the prehistoric peoples of California and the Great Basin from earliest times to European contact. Offered in alternate years. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.—Eerkens

(change in existing course—eff. fall 16)

177. African Prehistory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Survey of prehistory of Africa from early human ancestors, through modern human origins, and into early agricultural and complex societies and the Bantu expansion. Analysis and interpretation of the African archaeological record, incorporating human paleontology and genetics. Offered in alternate years. GE credit: SocSci | SS, WC, WE.—Steele

(change in existing course—eff. fall 16)

178. Hunter-Gatherers (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Study and interpretation of the ancient and modern lifeway in which peoples support themselves with primitive technologies and without benefit of domesticated plants and animals. Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, WC, WE.—Bettinger

(change in existing course—eff. fall 16)

179. Asian Prehistory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Survey of the prehistory of Asia from the earliest human occupations to the rise of complex societies. Special focus on fossil and archeological records. Offered in alternate years. GE credit: SocSci.—Zwyns

(change in existing course—eff. fall 16)

180. Zooarcheology (4)
Lecture—2 hours; discussion/laboratory—3 hours. Prerequisite: course 1 or course 3 recommended. Restricted to junior or senior standing. Theories and methods for studying animal skeletal remains from archaeological sites. Identification and quantification of zooarchaeological material, cultural and natural processes affecting animal bones pre- and postburial, and use of faunal remains for determining past human diets and past environments. Offered in alternate years. GE credit: SciEng | SE.—*W. (W.)* Darwent, Steele

(change in existing course—eff. fall 16)

181. Field Course in Archeological Method (9)
Lecture—6 hours; daily field investigation. Prerequisite: course 3. On-site course in archeological methods and techniques held at a field location in the western United States, generally California or Nevada. Introduces basic methods of archeological survey, mapping, and excavation. GE credit: SciEng | SE.—*Su. (Su.)*

(change in existing course—eff. spring 15)

182. Archaeometry (4)
Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course 3 recommended. Scientific techniques used to study the chemical and physical properties of archaeological materials. Types of anthropological questions that can be addressed with different methods. Preparation and analysis of archaeological materials. Offered in alternate years. GE credit: SciEng | QL, SE, VL, WE.—Eerkens

(change in existing course—eff. fall 16)

183. Laboratory in Archeological Analysis (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: course 3 recommended; consent of instructor. Limited enrollment. Museum preparation, advanced field investigation, and guidance in preparation of museum material for publication. May be repeated for credit with consent of instructor. Offered irregularly. GE credit: SciEng, Wrt | OL, QL, SE, WE.

(change in existing course—eff. fall 16)

184. Prehistoric Technology: The Material Aspects of Prehistoric Adaptation (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended. Examination of the role of lithic, ceramic, textile and wooden implements as elements in prehistoric survival and development. Emphasis is descriptive, but the significance of material resources as factors in prehistoric adaptation, settlement patterns, and culture change are discussed. Offered in alternate years. GE credit: SocSci | SS, WE.—Eerkens

(change in existing course—eff. fall 16)

185. Lithic Analysis (4)
Lecture/laboratory—4 hours. Prerequisite: course 3 recommended. Basic concepts of lithic analysis. General introduction on the place of stone tool technology in the archeological record. Physics, terminology and methodological concepts behind the study of stone tools. Review of the development of stone tool technology from its emergence. Offered in alternate years. GE credit: SocSci | SS.—Zwyns

(change in existing course—eff. fall 16)

186A. Museum Studies: Analysis of Native American Basketry (4)
Lecture/laboratory—3 hours; discussion/laboratory—1 hour. Class size limited to 25 students. Study of ethnographic and prehistoric basketry from North America, especially California and Oregon, in a multidisciplinary anthropological context. Techniques for basketry attribution and textile analysis. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, OL, VL, WE.—*F. (F.)* Bettinger

(new course—eff. fall 15)

Graduate

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. Offered in alternate years.

(change in existing course—eff. spring 15)

201. Critical Readings in Ethnography (4)
Seminar—3 hours; term paper. Prerequisite: graduate student in Anthropology or consent of instructor. Critical readings of selected ethnographies that examine a wide range of important topics and analytical issues in social and cultural anthropology. Emphasis on how and why ethnographic writing has changed over time and its relationship with contemporary theoretical explorations.—*F. (F.)* Zhang

(change in existing course—eff. fall 14)

202. History and Theory of Biological Anthropology (4)
Seminar—3 hours; term paper. History of thought in biological anthropology and analysis of major theoretical problems in the field. Suggested for all first-year graduate students lacking intensive preparation in biological anthropology.—Weaver

(change in existing course—eff. spring 15)

203. History and Theory of Archaeology (4)
Seminar—3 hours; term paper. Generally restricted to graduate students; outstanding undergraduates with extensive training in archaeology with consent of instructor. History of archaeology and archaeological theory and analysis of archaeological research methodology.—*F. (F.)* Bettinger
(change in existing course—eff. spring 15)

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 irregularly.—Eerkens
(change in existing course—eff. spring 15)

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. Offered irregularly.—Darwent, Eerkens
(change in existing course—eff. spring 15)

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. Offered irregularly.—Steele, Zwyns
(change in existing course—eff. spring 15)

222. Cities and Citizenship (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing; consent of instructor. Explores the nature of modern cities, urban socioeconomic life, and urban culture and politics from an anthropological perspective.—*F. (F.)* Zhang
(change in existing course—eff. fall 14)

250. Behavioral Ecology of Primates (4)
Seminar—3 hours; term paper. Prerequisite: course 154A (may be taken concurrently) or the equivalent, graduate standing. Concepts, issues, and hypotheses in primate behavioral ecology, with emphasis on the social and ecological determinants and consequences of variation in social organization for individuals. Offered in alternate years.—Isbell
(change in existing course—eff. spring 15)

252. Human Evolution Seminar (4)
Seminar—3 hours; term paper. Prerequisite: course 152 or the equivalent; consent of instructor. Study of selected topics in human evolutionary studies. Each year course will focus on one or more of the following: molecular evolution, primate evolutionary biology, Tertiary hominoids, Australopithecus, Homo erectus, archaic Homo sapiens, brain evolution. May be repeated for credit.—*S. (S.)* Weaver, Zwyns
(change in existing course—eff. spring 15)

253. Seminar in Human Biology (4)
Seminar—3 hours; term paper. Prerequisite: course 153, 157, or consent of instructor. Study of selected topics in human biology. May be repeated for credit when topics vary. Offered irregularly. —*W. (W.)* D. G. Smith
(change in existing course—eff. spring 15)

254. Current Issues in Primate Sociobiology (4)
Seminar—3 hours; term paper. Prerequisite: course 154B or the equivalent. Analysis of primate behavior, with particular emphasis on preparation for field studies. May be repeated for credit when topic differs.—Crofoot, Isbell
(change in existing course—eff. spring 15)

256. Primate Conservation Biology (4)
Seminar—3 hours; term paper. Prerequisite: course 154, graduate standing or upper division undergraduate with consent of instructor. Class size limited to 10 students. Application of understanding of primate biology to conservation of primates and their habitat. Topics include evolutionary anthropology, behavioral ecology, biogeography, macroecology, population biology, and socio-ecology of primates. May be repeated one time for credit if term paper differs. (S/U grading only.) Offered irregularly.
(change in existing course—eff. spring 15)

261. Modeling the Evolution of Social Behavior (4)
Lecture—3 hours; extensive problem solving. Prerequisite: Mathematics 16C or the equivalent or consent of instructor. Tools and topics in modeling the evolution of social behavior in humans and other animals. Game theory, basic population genetics, animal conflict, altruism, reciprocity, signaling, and group selection.
(change in existing course—eff. spring 15)

262. Evolution and Human Behavior (4)
Discussion—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Exploration of the links between behavioral ecological theory and human cultural variation, focusing on reproduction, marriage, parental investment and family structure; implications of evolutionary theory for social organization in human communities, historical and contemporary. Offered in alternate years.—Borgerhoff, Mulder
(change in existing course—eff. spring 15)

263. Human Applications of Foraging Theory (4)
Discussion—3 hours; laboratory—3 hours. Foraging theory models and their use in ethnographic and archaeological analyses of human behavior, with a focus on hunter-gathers and resource selection, patch use, population and habitat, central places, sharing, stochastic processes, population dynamics, and conservation behavior. Not open for credit to students who have completed course 258. Offered irregularly.
(change in existing course—eff. spring 15)

265. Language, Performance, and Power (4)
Seminar—3 hours; term paper. Restricted to 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. Offered in alternate years. (Same course as Linguistics 265.)—Shibamoto-Smith
(change in existing course—eff. fall 14)

270. Anthropology Colloquium Seminar (1)
Seminar—1 hour. Reports and discussions of recent advances in the four subfields of anthropology. To be presented by guest speakers. May be repeated two times for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

280. Current Anthropology Journal Editorial Workshop (4)
Workshop—1 hour; independent study—3 hours. Prerequisite: consent of instructor. Students must enroll for all three quarters. Reading and offering workshop critiques of manuscripts submitted for publication, and reading and discussion of other relevant work in anthropology and human ecology. Track and edit published comments and authors' replies that accompany major features. Participation in the development of new sections for the electronic edition of the journal, including a "news and views" section and a debate section. (Same course as Ecology 280.) May be repeated up to 12 units for credit with consent of instructor.
(change in existing course—eff. spring 15)

291. Advanced Topics in Human Behavioral Ecology (4)
Discussion—3 hours; term paper. Prerequisite: course 261, 262, or 263, or comparable experience in anthropology or related disciplines and consent of instructor. Topically focused, critical discussion of current and emerging research in the field of human behavioral ecology, giving special attention to theory, concepts, models, and methods for the evolutionary analysis of ethnographic and archaeological evidence. May be repeated one time for credit if topic differs.
(change in existing course—eff. spring 15)

Applied Biological Systems Technology

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

Upper Division

180. Introduction to Geographic Information Systems (4)
(cancelled course—eff. summer 11)

197T. Tutoring in Applied Biological Systems Technology (1-5)
Tutorial. Prerequisite: consent of instructor; upper division standing. Tutoring individual students, leading small voluntary discussion groups, or assisting the instructor in laboratories affiliated with one of the department's regular courses. May be repeated for credit if topic differs. (P/NP grading only.) GE credit: SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

Graduate

233. Pest Control Practices (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: graduate standing or consent of instructor. Practical and theoretical considerations of pest control systems and techniques. Design, selection, and use of mechanical systems for field, orchard, greenhouse, and vector control use. Biological, legal, and environmental considerations in pest control and pesticide application.—*W. (W.)* Giles
(change in existing course—eff. fall 14)

289A. Selected Topic in Applied Biological Systems Technology: Agricultural and Natural Resources (1-5)
Prerequisite: consent of instructor. Special topic. May be repeated for credit. Offered irregularly.—*F, W, S. (F, W, S.)*
(new course—eff. fall 15)

289B. Selected Topics in Applied Biological Systems Technology: Biotechnology (1-5)
Prerequisite: consent of instructor. Special topic. May be repeated for credit. Offered irregularly.—*F, W, S. (F, W, S.)*
(new course—eff. fall 15)

289B. Selected Topics in Applied Biological Systems Technology: Food Technology (1-5)
Prerequisite: consent of instructor. Special topic. May be repeated for credit. Offered irregularly.—*F, W, S. (F, W, S.)*
(new course—eff. fall 15)

Arabic

New and changed courses in Arabic (ARB)

Lower Division

1. Elementary Arabic 1 (5)
Lecture/discussion—5 hours. Introduction to basic Arabic. Interactive and integrated presentation of listening, speaking, reading, and writing skills, including the alphabet and basic syntax. Focus on standard Arabic with basic skills in spoken Egyptian and/or one other colloquial dialect. GE credit: ArtHum | AH, WC.—*F. (F.)* Hassouna
(change in existing course—eff. fall 14)

1A. Accelerated Intensive Elementary Arabic (15)
Lecture/discussion—15 hours. Special 12-week accelerated, intensive summer session course that combines the work of courses ARB 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. Offered irregularly. GE credit: ArtHum | AH, WC.—*Su.*
(change in existing course—eff. summer 14)

2. Elementary Arabic 2 (5)
Lecture/discussion—5 hours. Prerequisite: course 1 or consent of instructor. Continuation of basic Arabic from course 1. Interactive and integrated presentation of listening, speaking, reading, and writing skills, including syntax. Focus on standard Arabic and limited use of spoken Egyptian and/or one other colloquial dialect. GE credit: ArtHum | AH, WC.—*W. (W.)* Hassouna
(change in existing course—eff. spring 16)

3. Elementary Arabic 3 (5)
Lecture/discussion—5 hours. Prerequisite: course 2 or with consent of instructor. Continuation of introduction to basic Arabic from courses 1 and 2. Interactive and integrated presentation of listening, speaking, reading, and writing skills, including syntax. Focus on standard Arabic with limited use of spoken Egyptian and/or one other colloquial dialect. GE credit: ArtHum | AH, WC.—*S. (S.)* Hassouna
(change in existing course—eff. spring 16)

21. Intermediate Arabic 21 (5)
Lecture/discussion—5 hours. Prerequisite: course 3 or with consent of instructor. Builds on courses 1, 2, and 3. Interactive and integrated presentation of listening, speaking, reading, and writing skills, including idiomatic expression. Focus on standard Arabic with limited use of Egyptian and/or one other colloquial dialect. GE credit: ArtHum | AH, WC.—*F. (F.)* Hassouna
(change in existing course—eff. spring 16)

21C. Colloquial Egyptian Arabic (4)
Lecture/discussion—3 hours; lecture/laboratory—1 hour. Prerequisite: course 3 or consent of instructor. Continuation of the Colloquial Egyptian Arabic covered in the first year of Arabic; courses 1, 2, and 3. May be repeated one time for credit if instruction material changes. GE credit: ArtHum | AH.—*F, Su. (F, Su.)* Hassouna, Radwan, Sharlet
(new course—eff. spring 16)

22. Intermediate Arabic 22 (5)
Lecture/discussion—5 hours. Prerequisite: course 21 or with consent of instructor. Continuation of course 21. Continuation of interactive and integrated presentation of listening, speaking, reading, and writing skills, including idiomatic expression. Focus on standard Arabic with limited use of Egyptian and/or one other colloquial dialect. GE credit: ArtHum | AH, WC.—*W. (W.)* Hassouna
(change in existing course—eff. spring 16)

22C. Colloquial Egyptian Arabic (4)
Lecture/discussion—3 hours; lecture/laboratory—1 hour. Prerequisite: course 21C or consent of instructor. Continuation of the Colloquial Egyptian Arabic covered in first year of Arabic; courses 1, 2, and 3 and the first quarter of Colloquial Arabic course 21C. May be repeated one time for credit if instruction material changes. GE credit: ArtHum | AH.—*W, Su. (W, Su.)* Hassouna, Radwan, Sharlet
(new course—eff. spring 16)

23. Intermediate Arabic 23 (5)
Lecture/discussion—5 hours. Prerequisite: course 22 or with consent of instructor. Continuation of courses 21 and 22. Interactive and integrated presentation of Arabic listening, speaking, reading, and writing skills, including idiomatic expression. GE credit: ArtHum | AH, WC.—*S. (S.)* Hassouna
(change in existing course—eff. spring 16)

23C. Colloquial Egyptian Arabic (4)
Lecture/discussion—3 hours; lecture/laboratory—1 hour. Prerequisite: course 22C or consent of instructor. Continuation of the Colloquial Egyptian Arabic covered in the first year of Arabic; courses 1, 2, and 3 and the preceding colloquial Arabic courses 21C and 22C. May be repeated one time for credit if instruction material changes. GE credit: ArtHum | AH.—*S, Su. (S, Su.)* Hassouna, Radwan, Sharlet
(new course—eff. spring 16)

Upper Division

101A. Readings in Arabic: 600-1850 (4)
Discussion—3 hours; extensive writing. Prerequisite: course 123 or consent of instructor. Readings in Arabic. Poetry, prose literature, and selections from texts on religion, history, politics, science, philosophy and mysticism. Students can repeat the course one time if the instructor decides that they would benefit from additional practice working on the different selections from the same texts or if 50% or more of the texts are different. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, OL, WC, WE.—Radwan, Sharlet
(change in existing course—eff. spring 16)

121. Advanced Arabic (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 23 or consent of instructor. Review, refinement, and development of skills learned in intermediate Arabic through work with texts, video, and audio on cultural and social issues. Integrated approach to reading, writing, listening, speaking primarily standard Arabic, with limited use of one colloquial dialect. May be repeated two times for credit based on different readings. GE credit: ArtHum | AH, WC.—*F. (F.)* Radwan, Sharlet
(change in existing course—eff. spring 15)

140. A Story for a Life: The Arabian Nights (4)
Lecture/discussion—3 hours; term paper. In-depth exploration of The Arabian Nights, the best-known work of pre-modern Arabic literature and a major work of world literature. Analysis of the work in its historical context and in comparison to other frame tales in world literature. (Same course as Comparative Literature 172 and Middle East/South Asia Studies 121C.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Radwan, Sharlet
(change in existing course—eff. winter 16)

141. Readings in Modern Arabic Literature (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 123 or consent of instructor. Readings of modern Arabic poetry and fiction in original format, assisted by instructor-prepared glossaries and other supplementary material. Readings to be followed by class discussion and short writing assignments in Arabic. Open to students at advanced proficiency in Arabic. May be repeated one time for credit if reading material changes. GE credit: ArtHum | AH, WC.—*F. (F.)* Radwan, Sharlet
(change in existing course—eff. spring 15)

Graduate

299. Individual Study (1-12)
Prerequisite: graduate standing; consent of instructor. Restricted to graduate students. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 14)

297. Directed Independent Study (4)
Discussion—1 hours; independent study. Prerequisite: graduate standing or consent of instructor. Restricted to graduate students. Directed Independent Study on a topic culminating in a term paper. Independent Study may only be arranged with consent of the instructor when graduate seminars are unavailable. Topic varies by instructor. May be repeated five times for credit when no graduate seminars are available and topic differs.—*F, W, S. (F, W, S.)* Radwan, Sharlet
(change in existing course—eff. fall 15)

Professional

396. Teaching Assistant Training Practicum (1-4)
Prerequisite: graduate standing; consent of instructor. Restricted to graduate students. May be repeated 18 times for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 14)

Art History

New and changed courses in Art History (AHI)

Lower Division

1C. Baroque to Modern Art (4)
Lecture—3 hours; discussion—1 hour. Introduction to visual analysis through study of western art 1600-present, examining major artists and movements from Europe to North America. Study of the relationship of art and artists to political, religious, social change, and to changes in ideology, patronage, audience. May be repeated for credit. GE credit: ArtHum, Div | AH, VL, WC.—*S. (S.)* Strazdes
(change in existing course—eff. winter 16)

1D. Arts of Asia (4)
Lecture—3 hours; discussion—1 hour. Introduction to major forms and trends in the arts, architecture, and material culture of Asia from the Neolithic to the contemporary emphasizing the visual manifestation of secular and religious ideas and ideals. Not open for credit to students who have completed course 1DV. GE credit: ArtHum, Div | AH, VL, WC.—*W. (W.)* Burnett
(change in existing course—eff. winter 15)

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. Offered in alternate years. GE credit: ArtHum, Div | AH, VL, WC.—*(F.)* Watenpaugh
(change in existing course—eff. spring 15)

5. Understanding Visual Culture (4)
Lecture/discussion—3 hours; discussion—1 hour. Development of visual literacy for an increasingly visual world; critical analyses focusing on the widest variety of visual imagery: the fine arts across media and eras of world culture, television, film, and advertising. Intended for a diverse spectrum of audiences. GE credit: ArtHum | AH, VL, WC.—*F. (F.)*
(change in existing course—eff. spring 15)

10. Twenty Monuments (4)
(cancelled course—eff. fall 15)

25. Understanding Architecture (4)
Lecture—3 hours; discussion—1 hour. Development of architecture and urban design; how form, space, order are conceived and used across eras and cultures. Examines the function and organization of space, technological problems of construction, visual qualities of architecture, and social issues connected to architecture. GE credit: ArtHum | AH, DD, VL, WC.—*S. (S.)* Watenpaugh
(change in existing course—eff. fall14)

98. Directed Group Study (1-5)
Prerequisite: consent of instructor. Restricted to lower division students. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 14)

99. Special Study for Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 14)

Upper Division

100. Methods of Art History (4)
Extensive writing or discussion—3 hours; term paper. Prerequisite: prior completion of two upper-division Art History courses recommended. Methods of art historical research and analysis, and general issues in critical thought. Writing skills appropriate to a range of art-historical exposition. Offered irregularly. GE credit: ArtHum, Wrt|AH, VL.
(change in existing course—eff. fall 16)

110. Cultural History of Museums (4)
Lecture/discussion—3 hours; term paper. Evolution of museums in the western world from the "cabinet of curiosities" of sixteenth-century Europe to the modern "art center." The changing motives behind collecting, exhibiting, and interpretation of objects. Attention to museums' historical legacies and continuing philosophical dilemmas. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.—Strazdes
(change in existing course—eff. spring 15)

120A. Art, Architecture, and Human Rights (4)
Lecture/discussion—4 hours. Study of human rights as they relate to art, architecture, and cultural heritage. Examines museums, art collections, and cultural-heritage management, their relation to the cultural prerogatives of communities and indigenous groups, and protection of cultural heritage during war and conflict. (Same course as Human Rights 120A.) Offered in alternate years. GE credit: ArtHum or SocSci | AH or SS, DD, VL WC, WE.—*W. (W.)* Watenpaugh
(change in existing course—eff. spring 15)

148. Theory and Criticism: Painting & Sculpture (4)
Lecture—3 hours; term paper. Prerequisite: Art Studio 5 or 7 recommended. Study of forms and symbols in historic and contemporary masterpieces. (Same course as Art Studio 148.) Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.—II, III (II, III.) Pardee
(change in existing course—eff. spring 15)

150. Arts of Subsaharan Africa (4)
Lecture/discussion—3 hours; term paper. Traditional arts and crafts of subsaharan Africa from prehistoric times to the present; the relationships among art, nature, cycles of life, and religion; art as expression of power; sculpture and culture in West and Central Africa; Colonialism and collecting. Offered irregularly. GE credit: ArtHum, Div | AH, VL, WC.—III.
(change in existing course—eff. winter 15)

151. Arts of the Indians of the Americas (4)
Lecture/discussion—3 hours; term paper. Development of art in North America, emphasizing ancient Mexico. South American relationships and parallels. Recent and contemporary Indian arts and crafts from Alaska to Chile. Offered irregularly. GE credit: ArtHum, Div | AH, VL, WE.—*S, Su. (S, Su.)*
(change in existing course—eff. spring 15)

155. The Islamic City (4)
Lecture—3 hours; term paper. Prerequisite: course 1E recommended. Introduction to the urban history of the Islamic world. Critical study of the historiography of the Islamic city, development of urban form, institutions and rituals, and analysis of selected themes. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt.| AH or SS, VL, WC.—*W. (W.)* Watenpaugh
(change in existing course—eff. spring 16)

156. Arts of the Islamic Book (4)
Lecture—3 hours; term paper. Prerequisite: prior completion of course 1E recommended. Critical study of the arts of the luxury book in the pre-modern Islamic world. Representation in Islam, the relationship of word and image, the discipline of calligraphy, aesthetics and representation in Persianate painting. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC.—*W. (W.)* Watenpaugh
(change in existing course—eff. spring 16)

163A. Chinese Art (4)
Lecture/discussion—4 hours. Thematic and chronological examination of 3000 years of Chinese art and culture from Neolithic through Tang Dynasty (10th c. CE). Study of ceremonial and secular objects manifesting folk beliefs and belief systems of ancestor worship, Buddhism, Daoism, and Confucianism. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*W. (W.)* Burnett
(change in existing course—eff. spring 16)

163B. Chinese Painting (4)
Lecture/discussion—4 hours. Thematic and chronological examination of Chinese painting and culture from the Tang Dynasty (7th c. CE) through the early 20th century. Issues considered include political art (made to support or protest regimes), art and the market, art and individual expression. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*W. (W.)* Burnett
(change in existing course—eff. spring 15)

163C. Early Modern Chinese Painting (4)
Lecture/discussion—4 hours. Topics in Chinese Art History, 13th-19th century. Study of issues pertaining to self and society; gender and gendering; religion and philosophy; political engagement and protest; economy and the market; the effects created by periods of transition on visual expression. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*S. (S.)* Burnett
(change in existing course—eff. spring 15)

163D. Art from China 1900 to the Present (4)
Lecture/discussion—4 hours. Prerequisite: course 163B or consent of instructor. Forms of modern and avant-garde expression from China's industrialization to the 21st century. Interactions of art and politics, individual and state, art for the free market versus art for the state, expressions of modernity; China on the world stage. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*W. (W.)* Burnett
(change in existing course—eff. spring 15)

164. The Arts of Japan (4)
Lecture/discussion—3 hours; term paper. Japan's painting, architecture, decorative arts, and print heritage, ancient times to the 20th century in literary, political, intellectual, and spiritual contexts; impact of Japanese art on the West and the West's transformative impact upon Japan's opening in the 19th century. GE credit: ArtHum, Div, Wrt | AH, VL, WC.—*Su. (Su.)*
(change in existing course—eff. winter 16)

168. Great Cities (4)
Lecture—3 hours; term paper. Transformation in architecture and urban form in Paris, London, and Vienna in the context of varying social, political, and economic systems as well as very different cultural traditions, concentrating on the years 1830-1914. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.—Sadler
(change in existing course—eff. spring 15)

172A. Early Greek Art and Architecture (4)
Lecture—3 hours; term paper. Examination of the origin and development of the major monuments of Greek art and architecture from the eighth century to the mid-fifth century B.C. (Same course as Classics 172A.) Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.—*W. (W.)* Roller
(change in existing course—eff. spring 15)

172B. Later Greek Art and Architecture (4)
Lecture—3 hours; term paper. Study of the art and architecture of later Classical and Hellenistic Greece, from the mid-fifth century to the first century B.C. (Same course as Classics 172B.) Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL.—*W. (W.)* Roller
(change in existing course—eff. spring 15)

173. Roman Art and Architecture (4)
Lecture—3 hours; term paper. Art and architecture of Rome and the Roman Empire, from the founding of Rome through the fourth century C.E. (Same course as Classics 173.) Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.—*S. (S.)* Roller
(change in existing course—eff. spring 15)

175. Architecture and Urbanism in Mediterranean Antiquity (4)
Lecture—3 hours; extensive writing. Prerequisite: a lower division Classics course (except 30, 31); course 1A recommended. Architecture and urban development in the ancient Near East, Greece, and Rome. Special emphasis on the social structure of the ancient city as expressed in its architecture, and on the interaction between local traditions and the impact of Greco-Roman urbanism. (Same course as Classics 175.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*W. (W.)* Roller
(change in existing course—eff. spring 15)

177. Northern Renaissance Art (4)
Lecture/discussion—3 hours; term paper. Artistic culture of Western and Central Europe c. 1350-1600. Topics include the development of "realism" in portraiture and landscape, prints and print culture, urbanism, science and the exotic, anti-religious artworks, religious attacks on art, contacts with Renaissance Italy. Offered irregularly. GE credit: ArtHum | AH, VL, WC, WE.—*W, S. (W, S.)*
(change in existing course—eff. spring 15)

177A. Northern European Art (4)
(cancelled course—eff. fall 15)

177B. Northern European Art (4)
(cancelled course—eff. fall 13)

178B. Early Italian Renaissance Art and Architecture (4)
Lecture—3 hours; term paper. Fifteenth-century artists, with a focus on Florence; Donatello and Masaccio through Botticelli, in their artistic, architectural, and cultural setting; the impact of Humanism and the rebirth of classical learning. GE credit: ArtHum, Wrt | AH, VL, WE.—*S. (S.)*
(change in existing course—eff. fall 14)

178C. High and Late Italian Renaissance Art and Architecture (4)
Lecture—3 hours; term paper. High Renaissance and Mannerism in 16th-century Italy: Leonardo, Michelangelo, Raphael, and Titian in their artistic and cultural settings–Florence, Rome, and Venice; the architecture of Bramante, Michelangelo, and Palladio. GE credit: ArtHum, Wrt | AH, VL, WE.—*S. (S.)*
(change in existing course—eff. spring 15)

179B. Baroque Art (4)
Lecture—3 hours; term paper. Seventeenth-century painting, sculpture and graphic arts, including such artists as Caravaggio, Rubens, Rembrandt, and Velázquez in their political and social context. GE credit: ArtHum, Wrt | AH, VL, WE.—*W. (W.)*
(change in existing course—eff. spring 15)

182. British Art and Culture, 1750–1900 (4)
Lecture—3 hours; term paper. British painting in relation to the position of women in society and the rise of the middle-class art market. Topics include Hogarth and popular culture, Queen Victoria and the female gaze, and Pre-Raphaelite artists and collectors. GE credit: ArtHum, Wrt | AH, VL, WC, WE.—*Su. (Su.)*
(change in existing course—eff. spring 16)

183A. Art in the Age of Revolution, 1750–1850 (4)
Lecture—3 hours; term paper. Prerequisite: prior completion of course 1C recommended. Emergence of modernism in Europe from the late 18th century to the middle of the 19th century. Major artistic events viewed against a revolutionary backdrop of changing attitudes toward identity, race, and gender. GE credit: ArtHum | AH, VL, WC, WE.—*F. (F.)*
(change in existing course—eff. spring 16)

183B. Impressionism and Post-Impressionism: Manet to 1900 (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1C recommended. Innovations of Impressionists, Post-Impressionists, and Symbolists in relation to social changes. Assessment of role of dealers and critics, myth of the artist-genius, and gender relations in French art and culture of the late 1800s. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*W. (W.)*
(change in existing course—eff. spring 15)

183C. Modernism in France, 1880–1940 (4)
Lecture—3 hours; term paper. Development of modern art in France, its social context, and its transnational aspects. Post-Impressionism, Fauvism, Cubism, Expressionism, and Surrealism are considered in relation to secessionist movements, the formation of other artistic groups, new forms of patronage, and new audiences. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*W, Su. (W, Su.)*
(change in existing course—eff. winter 15)

184. Twentieth Century Architecture (4)
Lecture—3 hours; term paper. Prerequisite: prior completion of course 25 recommended. Major movements in architecture of the twentieth century in Europe and America. Formal innovations are examined within the social, political, and economic circumstances in which they emerged. GE credit: ArtHum, Wrt | AH, VL, WE.—*W. (W.)*
(change in existing course—eff. spring 16)

185. Avant-Gardism and its Aftermath, 1917-1960 (4)
Lecture/discussion—4 hours. Social, cultural, aesthetic, and theoretical development for artists and their audiences in the context of larger issues like the Mexican, Russian and German revolutions, WWI, the Depression, WWII, etc., and a critical-theoretical inquiry into questions of modernism, modernity, and avant-gardism. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC.—*Su. (Su.)* Stimson
(change in existing course—eff. spring 16)

186. Contemporary Art 1960-Present (4)
Lecture/discussion—4 hours; term paper. Development of new media and aesthetics in the context of such cultural and political phenomena as the New Left, feminism, and globalization; investigation of the critical-theoretical questions of neo avant-gardism, postmodernism, and postmodernity. GE credit: ArtHum, Div, Wrt | ACGH, AH, VL, WE.—*S. (S.)*
(change in existing course—eff. fall 14)

187. Contemporary Architecture (4)
Lecture—3 hours; term paper. Prerequisite: prior completion of course 25 and/or course 184 recommended. Introduction to world architecture and urban design since circa 1966. Relation of influential styles, buildings, and architects to postmodern debates and to cultural, economic, technological and environmental change. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WE.—*S. (S.)*
(change in existing course—eff. winter 16)

188A. The American Home (4)
Lecture/discussion—4 hours; term paper. American domestic architecture and its responsiveness to changes in daily life from Colonial times to the 1960s. Vernacular developments, effects of different socioeconomic conditions, and women's role in shaping the home receive special attention. GE credit: ArtHum, Div, Wrt | ACGH, AH, DD, VL, WE.—*W. (W.)* Strazdes
(change in existing course—eff. spring 15)

188C. American Art to 1910 (4)
Lecture/discussion—4 hours; term paper. Major movements in American art from the 17th-century English speaking colonies to the onset of World War I. Offered in alternate years. GE credit: ArtHum | ACGH, AH, VL, WE.—*F, W, S.* Strazdes
(change in existing course—eff. spring 15)

188D. American Painting and Sculpture to the Civil War (4)
(cancelled course—eff. fall 15)

189. Photography in History (4)
Lecture/discussion—4 hours. Social, cultural, aesthetic and technical developments in the history of photography including patronage and reception, commercial, scientific, political and artistic applications, and a critical-theoretical inquiry into photography's impact on the social category "art" and the history of subjectivity. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL.—*S. (S.)*
(change in existing course—eff. spring 16)

190A. Undergraduate Seminar in Art History: Mediterranean Antiquity (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE. —*F, W, S. (F, W, S.)* Roller
(change in existing course—eff. spring 15)

190B. Undergraduate Seminar in Art History: Medieval (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

190C. Undergraduate Seminar in Art History: Renaissance (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

190D. Undergraduate Seminar in Art History (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)* Strazdes
(change in existing course—eff. spring 15)

190E. Undergraduate Seminar in Art History: Gendering of Culture (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

190F. Undergraduate Seminar in Art History: Chinese (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)* Burnett
(change in existing course—eff. spring 15)

190G. Undergraduate Seminar in Art History: Japanese (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

190H. Undergraduate Seminar in Art History: Modern-Contemporary (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

190I. Undergraduate Seminar in Art History: 17th-18th Century (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

190J. Undergraduate Seminar in Art History: Islamic (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)* Watenpaugh
(change in existing course—eff. spring 15)

190K. Undergraduate Seminar in Art History: 19th Century (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

190L. Undergraduate Seminar in Art History: Architecture & Heritage (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Art History major, minor, or other significant training in Art History recommended. Class size limited to 25 students; for majors, minors, other advanced students. Study of a broad problem or theoretical issue in art, architecture, or material culture. Intensive reading, discussion, research, writing. GE credit: ArtHum | AH, OL, VL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

Graduate

200C. Thesis Writing Colloquium (1)
Discussion—1.5 hour; autotutorial. Prerequisite: course 200B, taken by all Art History M.A. students in their first year. Restricted to graduate students in Art History. Meeting concurrently with course 200B, the colloquium provides a structured, supportive environment for second-year Art History graduate students drafting masters' theses. Offers a forum for technical discussions, discussion of writing/editing procedures, and peer review of writing in progress. (S/U grading only.)—*W. (W.)* Burnett, Strazdes
(change in existing course—eff. fall 14)

210. Museums, Art Exhibitions and Culture (4)
Seminar—3 hours; extensive writing or discussion; term paper. Prerequisite: graduate status in art history or an allied field. Class size limited to 20 students. Issues accompanying the evolution and function of museums from cabinets of curiosities in sixteenth-century Europe to modern art centers. Examination of divergent motives behind collecting, exhibiting, and interpretation of objects. Investigation of museums' historical legacies and continuing philosophical dilemmas. Offered in alternate years. GE credit: ArtHum, Wrt.—*F, W, S.* Strazdes
(new course—eff. winter 15)

251. Seminar in Tribal Arts (4)
(cancelled course—eff. winter 15)

278. Seminar in Italian Renaissance Art (4)
Seminar—3 hours; term paper. Selected areas of special study in Italian art from the fourteenth to the sixteenth century. May be repeated for credit with consent of instructor. Offered in alternate years.—*S.*
(change in existing course—eff. winter 15)

292. Internship (1-4)
Internship—3-12 hours. Prerequisite: graduate student; consent of instructor. Restricted to graduate students in Art History only. 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. Offered irregularly. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 14)

Art Studio

New and changed courses in Art Studio (ART)

Lower Division

2. Beginning Drawing (4)
Studio—6 hours. Introduction to drawing using various black and white media to articulate forms and organize space, with reference to historical and contemporary works. GE credit: ArtHum | AH, VL.—*F, W, S, Su. (F, W, S, Su.)* Pardee, Puls, Werfel
(change in existing course—eff. spring 15)

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. GE credit: ArtHum | AH, VL.—*F, W, S. (F, W, S.)* Bills, Hill, Puls
(change in existing course—eff. winter 15)

7. Beginning Painting (4)
Studio—6 hours. Introduction to techniques and concepts in the practice of painting. GE credit: AH, VL.—*F, W, S. (F, W, S.)* Pardee, Werfel
(change in existing course—eff. spring 16)

8. Beginning Ceramic Sculpture (4)
Studio—6 hours. Introduction to ceramic sculpture construction and processes. Large scale hand-building, glazing, kilns and kiln firing technology. GE credit: ArtHum | AH, VL.—Rosen
(change in existing course—eff. spring 16)

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. GE credit: ArtHum | AH, VL.—Hyde, Suh
(change in existing course—eff. spring 15)

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. GE credit: ArtHum | AH, VL.
(change in existing course—eff. winter 15)

12. Beginning Video (4)
Studio—6 hours. Production techniques of video shooting, editing, lighting, sound and effects. A conceptual framework for video-art techniques. GE credit: ArtHum | AH, VL.—Martin
(change in existing course—eff. winter 15)

30. Introduction to Contemporary Visual Culture (4)
Lecture—3 hours; discussion/laboratory—1 hour. Establishing visual literacy across the media of fine art, photography, advertising, television and film; media culture; focus on critical decoding of contemporary visual culture. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL.—*F. W. (F, W.)* Pardee
(change in existing course—eff. spring 15)

Upper Division

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. May be repeated one time for credit when topic differs. GE credit: ArtHum | AH, VL.—*F, W, S. (F, W, S.)* Pardee, Werfel
(change in existing course—eff. winter 16)

102A. Advanced Painting: Studio Projects (4)
Studio—6 hours. Prerequisite: course 101. Pass One restricted to Art Studio majors. Sustained development of painting for advanced students. Approaches will vary according to the instructor. May be repeated for credit one time. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

102B. Advanced Painting: Figure (4)
Studio—6 hours. Prerequisite: course 101. Pass One restricted Art Studio majors. Advanced painting using the human figure as subject. May be repeated for credit one time. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

102C. Advanced Painting: Special Topics (4)
Studio—6 hours. Prerequisite: courses 2, 7, 101; course 102A or 102B. Pass One restricted to Art Studio majors. 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. May be repeated for credit one time. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

103A. Intermediate Drawing: Black and White (4)
Studio—6 hours. Prerequisite: courses 2. Pass One restricted to Art Studio majors. Advanced study of drawing composition using black and white media. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

103B. Intermediate Drawing: Color (4)
Studio—6 hours. Prerequisite: courses 2. Pass One restricted to Art Studio majors. Study of drawing composition in color media. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

105A. Advanced Drawing: Studio Projects (4)
Studio—6 hours. Prerequisite: courses 2; course 103A or 103B. Pass One restricted to Art Studio majors. Exploration of composition and process in drawing. Emphasis on the role of drawing in contemporary art and on drawing as an interdisciplinary practice. May be repeated for credit one time. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

105B. Advanced Drawing: Figure (4)
Studio—6 hours. Prerequisite: courses 4; course 103A or 103B. Pass One restricted to Art Studio majors. Study of the figure through drawing of the model. Exploration of different methods and process of figure-drawing. May be repeated for credit one time. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

110A. Intermediate Photography: Black and White Analog (4)
Studio—6 hours. Prerequisite: course 9. Pass One restricted to Art Studio majors. Introduction to 35mm and medium format camera. Development of personal aesthetic and portfolio of black and white prints. GE credit: ArtHum | AH, VL.—Hyde, Suh
(change in existing course—eff. spring 15)

110B. Intermediate Photography: Digital Imaging (4)
Studio—6 hours. Prerequisite: course 9. Pass One restricted to Art Studio majors. Comprehensive introduction to all elements of digital photography, including scanning, imaging software and printing. GE credit: ArtHum | AH, VL.—Hyde, Suh
(change in existing course—eff. spring 15)

111A. Advanced Photography: Special Topics (4)
Studio—6 hours. Prerequisite: courses 9 and 110A. Pass One restricted to Art Studio majors. Special topics related to photography and contemporary art practice. Multiple projects in a variety of approaches. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, VL.—Hyde, Suh
(change in existing course—eff. spring 15)

111B. Advanced Photography: Digital Imaging (4)
Studio—6 hours. Prerequisite: course 9 and 110B. Pass One restricted to Art Studio majors. In-depth exploration of digital photography, including refined digital imaging techniques. Theoretical issues involved in digital media. May be repeated for credit one time. GE credit: ArtHum | AH, VL.—Hyde, Suh
(change in existing course—eff. spring 15)

112. Sound for Vision (4)
Studio—6 hours. Prerequisite: course 12 or Technocultural Studies 100. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH.—Martin
(change in existing course—eff. fall 14)

114A. Intermediate Video: Animation (4)
Studio—6 hours. Prerequisite: course 12 or Technocultural Studies 100; one drawing course. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Martin
(change in existing course—eff. fall 14)

114B. Intermediate Video: Experimental Documentary (4)
Studio—6 hours. Prerequisite: course 12 or Technocultural Studies 100. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Martin
(change in existing course—eff. fall 14)

114C. Intermediate Video: Performance Strategies (4)
Studio—6 hours. Prerequisite: course 12 or Technocultural Studies 100. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Martin
(change in existing course—eff. fall 14)

117. Advanced Video and Electronic Arts (4)
Studio—6 hours. Prerequisite: course 12 or Technocultural Studies 100; one of the following: course 112, 114A, 114B, or 114C; upper division standing Art Studio majors. Pass One restricted to 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. GE credit: ArtHum | AH, VL.—Martin
(change in existing course—eff. fall 14)

121. Reinterpreting Landscape (4)
Studio—6 hours. Prerequisite: courses 2, 7. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Pardee, Werfel
(change in existing course—eff. fall 14)

125A. Intermediate Printmaking: Relief (4)
Studio—6 hours. Prerequisite: course 11. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.
(change in existing course—eff. fall 14)

125B. Intermediate Printmaking: Intaglio (4)
Studio—6 hours. Prerequisite: course 11. Pass One restricted to Art Studio majors. Metal plate etching, aquatint, hard and soft ground, burin engraving and related printmaking techniques. May be repeated for credit one time. GE credit: ArtHum | AH, VL.
(change in existing course—eff. spring 15)

125C. Intermediate Printmaking: Lithography (4)
Studio—6 hours. Prerequisite: course 11. Pass One restricted to Art Studio majors. Stone and metal-plate lithography and other planographic printmaking methods. Exploration of the basic chemistry and printing procedure inherent in stone lithogrphay. May be repeated for credit one time. GE credit: ArtHum | AH, VL.
(change in existing course—eff. spring 15)

125D. Intermediate Printmaking: Serigraphy (4)
Studio—6 hours. Prerequisite: course 11. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.
(change in existing course—eff. fall 14)

129. Advanced Printmaking (4)
Studio—6 hours. Prerequisite: completion of two of 125A, 125B, 125C, or 125D. Pass One restricted to Art Studio majors. Development of intermedia printmaking. Advanced modes in print technologies: relief, serigraphy, intaglio, surface, as well as addition of digitized imagery. Production of prints using multi-plate prints and other methods. May be repeated for credit two times. GE credit: ArtHum | AH, VL.
(change in existing course—eff. fall 14)

138. The Artist's Book (4)
Studio—6 hours. Prerequisite: completion of three upper division Art Studio courses. Pass One restricted to Art Studio majors. Creation of an artist's book in an edition of three. Use of a variety of media. May be repeated for credit one time. Offered in alternate years. GE credit: ArtHum | AH, VL.—Hill, Suh
(change in existing course—eff. fall 14)

142A. Intermediate Ceramic Sculpture: Industrial Production Methods (4)
Studio—6 hours. Prerequisite: course 8. Pass One restricted to Art Studio majors. Ceramic sculpture creation using two forms of industrial processes: plaster mold design, fabrication and casting; and extrusion with dies, including die fabrication. May be repeated one time for credit. GE credit: ArtHum | AH, VL.—Rosen
(change in existing course—eff. spring 16)

142B. Intermediate Ceramic Sculpture: Material Study (4)
Studio—6 hours. Prerequisite: course 8. Pass One restricted to Art Studio majors. Study of ceramic materials and processes. Areas studied include clay and clay bodies; glaze materials through temperature, color and texture; history and technology of kilns and kiln firing. Examination of material properties and characteristics through experimentation. May be repeated one time for credit. GE credit: ArtHum | AH, VL.—Rosen
(change in existing course—eff. spring 16)

142C. Intermediate Ceramic Sculpture: Special Topics (4)
Studio—6 hours. Prerequisite: course 8. Pass One restricted to Art Studio majors. Exploration of the ceramic surface for creative expression. Use of glazing techniques including china paint, decals, luster, and silkscreen with underglaze and overglaze as well as the use of common materials such as epoxy, paint, oil and wax. May be repeated two times for credit. GE credit: ArtHum | AH, VL.—Rosen
(change in existing course—eff. spring 16)

143A. Advanced Ceramic Sculpture: Studio Projects (4)
(cancelled course—eff. fall 16)

143B. Advanced Ceramic Sculpture: Issues in Contemporary Ceramics (4)
Studio—6 hours. Prerequisite: course 8; 142A or 142B. Pass One restricted to Art Studio majors. Individual studio work in conjunction with readings, field trips, critiques and writing about contemporary ceramic art. May be repeated for credit two times. GE credit: ArtHum | AH, VL.—Rosen
(change in existing course—eff. fall 14)

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 | AH, VL.—Suh
(change in existing course—eff. spring 15)

148. Theory and Criticism: Painting and Sculpture (4)
Lecture—3 hours; term paper. Prerequisite: course 5 or 7 recommended. Study of forms and symbols in historic and contemporary masterpieces. (Same course as Art History 148.) Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.—Pardee

(change in existing course—eff. spring 15)

149. Introduction to Critical Theory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: two of Art History 1B, 1C, or 183F. An overview of 20th century critical theories of culture and their relation to visual art and mass media culture. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL.

(change in existing course—eff. spring 15)

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 | AH.—Martin

(change in existing course—eff. spring 15)

152A. Advanced Sculpture: Studio Projects (4)
Studio—6 hours. Prerequisite: course 5; 151. Pass One restricted to Art Studio majors.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. GE credit: ArtHum | AH, VL.—Bills, Hill, Puls

(change in existing course—eff. fall 14)

152B. Advanced Sculpture: Material Explorations (4)
Studio—6 hours. Prerequisite: course 5; 151. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Puls

(change in existing course—eff. fall 14)

152C. Advanced Sculpture: Concepts (4)
Studio—6 hours. Prerequisite: course 5; 151. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Puls

(change in existing course—eff. fall 14)

152D. Advanced Sculpture: Metals (4)
Studio—6 hours. Prerequisite: course 5; 151. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Bills

(change in existing course—eff. fall 14)

152E. Advanced Sculpture: Site Specific Public Sculpture (4)
Studio—6 hours. Prerequisite: course 5; 151. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.—Hill

(change in existing course—eff. fall 14)

152F. Advanced Sculpture: Figure (4)
Studio—6 hours. Prerequisite: course 5; 151. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.

(change in existing course—eff. fall 14)

152G. Advanced Sculpture: The Miniature and Gigantic (4)
Studio—6 hours. Prerequisite: course 5; 151. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL.

(change in existing course—eff. fall 14)

171. Mexican and Chicano Mural Workshop (4)
Studio—8 hours; independent study—1 hour. Prerequisite: Chicana/o Studies 70; consent or instructor. The Mural: a collective art process that empowers students and people through design and execution of mural paintings in the tradition of the Mexican Mural Movement; introduces materials and techniques. May be repeated one time for credit. (Same course as Chicana/o Studies 171.) GE credit: ArtHum | AH, VL.—*S. (S.)*

(change in existing course—eff. spring 15)

190. Seminar in Art Practice (4)
Studio—6 hours. Prerequisite: upper division standing Art Studio major. Pass One restricted to Art Studio majors. 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. GE credit: ArtHum | AH, VL, WE.—Hill, Puls, Rosen, Werfel

(change in existing course—eff. spring 15)

Asian American Studies

New and changed courses in Asian American Studies (ASA)

Lower Division

98F. Student Facilitated Course (1-4)
Student-facilitated (taught) course intended for lower division students. Offered irregularly. (P/NP grading only.)

(new course—eff. spring 16)

Upper Division

100. Asian American Communities (4)
Lecture/discussion—4 hours. Survey and analysis of Asian American communities within both historical and contemporary contexts. Presentation of the analytical skills, theories, and concepts needed to describe, explain, and understand the diversity of Asian American communities within the larger, dominant society. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, WE.—*S. (S.)* Hamamoto, Kim, Maira

(change in existing course—eff. fall 16)

102. Theoretical Perspective in Asian American Studies (4)
Lecture/discussion—4 hours. Prerequisite: course 1, 2, 3, or 4 or consent of instructor; upper division standing. Explores major theories of race and its intersections with class, gender, and sexuality from interdisciplinary perspective. Introduces key theoretical developments, issues, debates. Through case studies, analyzes ways various theoretical frameworks and perspectives have been incorporated into range of scholarship. GE credit: SocSci, Div.—*F, Su. (F. Su.)* Ho, Kim, Valverde

(change in existing course—eff. summer 14)

112. Asian American Women (4)
Lecture/discussion—4 hours. Experiences of Asian American women from major ethnic subgroups comparatively examined in their social, economic and historical contexts using theoretical perspectives from social sciences, humanities/arts: identity, racialization, immigration, gender, sexuality, labor, socialization, cultural expression, social movements and feminist theorizing. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, VL, WC, WE.—*F. (F.)* Ho

(change in existing course—eff. fall 16)

113. Asian American Sexuality (4)
Lecture/discussion—4 hours. Restrictive US immigration laws, labor exploitation, race-based exclusionary laws, removal and internment, anti-miscegenation laws, and other examples of social control are surveyed to assess their role in shaping the sexuality of the different Asian American groups. Offered irregularly. GE credit: ArtHum or SocSci, | ACGH, AH or SS, DD, WC, WE.—*W. (W.)* Hamamoto

(change in existing course—eff. fall 16)

114. Asian Diasporas (4)
Lecture—4 hours. Asian diasporic communities and the experiences of its members in the United States and internationally. Community building, cyberspace, gender issues, labor, transnational practices, effects of globalization, political organizing, homeland politics, humanitarian projects, citizenship and nationalism. Offered in alternate years. GE credit: SocSci, Div | ACGH, DD, SS, WC.—*F. (F.)* Kim, Valverde

(change in existing course—eff. fall 16)

115. Multiracial Asian Pacific American Issues (4)
Lecture/discussion—4 hours. Introduction to the experiences of biracial and multiracial Asian Pacific people in the U.S., concentrating on theories of race, racial identity formation, culture, media, and anti-racist struggles. Critical approaches to the analysis of popular media and academic representations. Offered in alternate years. GE credit: SocSci, Div | ACGH, DD, OL, SS, WC, WE.—Valverde

(change in existing course—eff. fall 16)

116. Asian American Youth (4)
Lecture—3 hours; term paper. Social experiences of diverse groups of Asian American youth. Ways in which youth themselves actively create cultural expressions and political interventions. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, OL, WE.—Maira

(change in existing course—eff. fall 16)

121. Asian American Performance (4)
Lecture/discussion—4 hours. Performance work by, for, and/or about Asian Pacific Americans including dramatic literature, performance art, dance, and film. Ethnicity, gender and sexuality, class and age as they intersect with Asian Pacific American identities in and through dramatic performance. Offered in alternate years. GE credit: ArtHum | ACGH, AH, DD, OL, WE.—*W.* Min, See

(change in existing course—eff. fall 16)

130. Asian American Literature (4)
Lecture/discussion—4 hours. Works of Asian American literature by writers from the major ethnic subgroups, examined in their social, economic and historical contexts. Intertextual analysis of their thematic and formal elements to form an understanding of Asian American literary traditions. GE credit: ArtHum, Div | ACGH, AH, DD, OL, WE.—*S. (S.)* Ho, Min

(change in existing course—eff. fall 16)

131. Ethnicity, Culture, and the Self (4)
Lecture—3 hours; discussion—1 hour. Cultural and social psychological influences on Asian Americans focusing on the individual. GE credit: SocSci, Div | ACGH, DD, SS.—Zane

(change in existing course—eff. fall 16)

141. Asian Americans and the Political Culture of Fashion in the U.S. and Asia (4)
Lecture—4 hours; term paper; project. Prerequisite: course 1; course 2, 3, or 4 or consent of instructor. Historical, cultural and sociopolitical development of fashion in Asia and the U.S. as it relates to the Asian Diasporas. Specific aspects of material culture: textiles, clothing and fashion. Offered in alternate years. GE credit: ArtHum, SocSci, Div | ACGH, AH or SS, DD, OL, VL, WC, WE.—*F.* Valverde

(change in existing course—eff. fall 16)

150. Filipino American Experience (4)
Lecture/discussion—4 hours. Examination of the relationship between the Filipino-American community, the Philippine home community and the larger American society through a critical evaluation of the historical and contemporary conditions, problems and prospects of Filipinos in the U.S. GE credit: SocSci | ACGH, DD, SS, WC.—*S. (S.)* Rodriguez

(change in existing course—eff. fall 16)

150B. Japanese American Experience (4)
Lecture—3 hours; term paper. Analytical approaches to understanding Japanese American history, culture and society. Offered in alternate years. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, VL, WC, WE.—*W.* Hamamoto

(change in existing course—eff. fall 16)

150C. Chinese American Experience (4)
Lecture/discussion—4 hours. Survey of the historical and contemporary experiences of Chinese in the United States, starting with the gold rush era and concluding with the present-day phenomenon of Chinese transnational movement to the United States and its diasporic significance. Offered in alternate years. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, VL, WC.—Ho

(change in existing course—eff. fall 16)

150D. Korean American Experience (4)
Lecture/discussion—4 hours. Interdisciplinary survey of the historical and contemporary experiences of Koreans in the United States from the late nineteenth century to the present. Offered in alternate years. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, WC.—Kim

(change in existing course—eff. fall 16)

150E. Southeast Asian American Experience (4)
Lecture/discussion—4 hours. 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: ArtHum or SocSci, Div | ACGH, AH or SS, DD, OL, WC, WE.—*S.* Valverde

(change in existing course—eff. fall 16)

150F. South Asian American History, Culture, & Politics (4)
Lecture/discussion—4 hours. 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, Div | ACGH, AH or SS, DD, OL, WE.—*W.* Maira

(change in existing course—eff. fall 16)

155. Asian American Legal History (4)
Lecture/discussion—4 hours. Legal history of Asian Americans, from the mid-19th century to present. Laws and administrative policies affecting Asian American communities, including those governing immigration, social and economic participation, WWII internment, and affirmative action. Offered irregularly. GE credit: SocSci | ACGH, DD, SS.

(change in existing course—eff. fall 16)

189A. Topics in Asian American Studies: History (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies; history. May be repeated for credit when topic differs. Offered irregularly. GE credit: SocSci | ACGH, DD, SS, WC.

(change in existing course—eff. fall 16)

189B. Topics in Asian American Studies: Culture (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies; culture. May be repeated for credit when topic differs. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS.

(change in existing course—eff. fall 16)

189C. Topics in Asian American Studies: Physical and Mental Health (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies. Health. May be repeated for credit when topic differs. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

189D. Topics in Asian American Studies: Policy and Community (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies: policy and community. May be repeated for credit when topic differs. Offered irregularly. GE credit: SocSci | ACGH, DD, SS.

(change in existing course—eff. fall 16)

189E. Topics in Asian American Studies: Comparative Racial Studies (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies; comparative race studies. May be repeated for credit when topic differs. Offered irregularly. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, OL, WE.

(change in existing course—eff. fall 16)

189F. Topics in Asian American Studies: Asian Studies and Asian American Studies (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies: asian and asian american studies. May be repeated for credit when topic differs. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

189G. Topics in Asian American Studies: Race, Class, Gender, and Sexuality (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies: race, class, gender, and sexuality. May be repeated for credit when topic differs. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

189H. Topics in Asian American Studies: Society and Institutions (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies. society and institutions. May be repeated for credit when topic differs. GE credit: ArtHum or SocSci | AH or SS.

(change in existing course—eff. fall 16)

189I. Topics in Asian American Studies: Politics and Social Movements (4)
Lecture—4 hours. Intensive treatment of a topic in Asian American Studies: politics and social movements. May be repeated for credit when topic differs. Offered irregularly. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, OL, WE.

(change in existing course—eff. fall 16)

194. Asian American Studies Capstone Course (4)
Lecture/discussion—4 hours; project; extensive writing. Open to junior or senior level standing in Asian American Studies or consent of instructor. Synthesis of the approaches and methods learned by students in Asian American Studies and development of specialization in their areas of interest. Development of a research proposal for thesis project.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 17)

195. Asian American Studies Senior Thesis Seminar (4)
Lecture/discussion—3 hours; project; extensive writing. Restricted to junior and senior level standing in Asian American Studies. Completion of ASA 194 required. Synthesis of the approaches and methods learned in Asian American Studies. Production of an original research paper on a topic of student's interest, building on the research proposal submitted in the capstone seminar.—*W, S. (W, S.)*

(change in existing course—eff. fall 16)

197T. Tutoring in Asian American Studies (1-5)
Tutoring—1-5 hours. Prerequisite: consent of instructor. Tutoring in lower division Asian American Studies courses in small group discussion. Weekly meetings with instructor. May be repeated for credit once for a given course and also for a different course. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. Primarily intended for upper division students. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

198F. Student Facilitated Course (1-4)
Student-facilitated (taught) course intended for upper division students. Offered irregularly. (P/NP grading only.)

(new course—eff. spring 16)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

199FA. Student Facilitated Course Development (1-4)
Under the supervision of a faculty member, an undergraduate student plans and develops the course they will offer under 98F/198F. Offered irregularly. (P/NP grading only.)

(new course—eff. spring 16)

199FB. Student Facilitated Teaching (1-4)
Prerequisite: course 199FA. Student facilitated. Under the supervision of a faculty member, an undergraduate student teaches a course under 98F/198F. Offered irregularly. (P/NP grading only.)

(new course—eff. spring 16)

Atmospheric Science

New and changed courses in Atmospheric Science (ATM)

Lower Division

10. Severe and Unusual Weather (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: high school physics. Introduction to physical principles of severe and unusual weather: flood, blizzards, thunderstorms, lightning, tornadoes, and hurricanes. Emphasis on scientific perspective and human context. Not open to students who have received credit for course 100. (Former course 100.) GE credit: SciEng, Wrt | QL, SE, SL, VL.—*F. W. (F, W.)* Chen, Grotjahn, Paw U
(change in existing course—eff. spring 15)

Upper Division

115. Hydroclimatology (3)
Lecture—3 hours. Prerequisite: course 60. Examination of climate as the forcing function for the hydrologic system. Emphasis on seasonal variations in the relationship between precipitation and evapotranspiration for meso-scale areas. Watershed modeling of floods and drought for evaluating the effects of climatic fluctuations. Offered irregularly. GE credit: SciEng | SE, SL.—*S. (S.)*
(change in existing course—eff. spring 15)

116. Climate Change (4)
Lecture—3 hours; extensive writing. Prerequisite: University Writing Program 1; consent of instructor. Climate trends and patterns spanning the recent past and the future. Emphasis on natural processes that produce climate variations and human influence on these processes. Evidence of climate change and the role of global climate models in understanding climate variability. Offered in alternate years. GE credit: SciEng | QL, SE, WE.—*(S.)* Anastasio
(change in existing course—eff. spring 15)

121A. Atmospheric Dynamics (4)
Lecture—3 hours; extensive problem solving. Prerequisite: course 120, Mathematics 21D, Physics 9B. Fundamental forces of atmospheric flow; noninertial reference frames; development of the equations of motion for rotating stratified atmospheres; isobaric and natural coordinate systems; geostrophic flow; thermal wind; circulation and vorticity. GE credit: SciEng | QL, SE.—*W. (W.)* Chen, Nathan, Ulrich
(change in existing course—eff. spring 15)

133. Biometeorology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: one course in a biological discipline and Mathematics 16B or consent of instructor. Atmospheric and biological interactions. Physical and biological basis for water vapor, carbon dioxide and energy exchanges with the atmosphere associated with plants and animals, including humans. Microclimate of plant canopies and microclimatic modification such as frost protection and windbreaks. GE credit: SciEng | QL, SE, SL, VL.—*W. (W.)* Paw U
(change in existing course—eff. spring 15)

149. Air Pollution (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21D, 22B; C- or better in Chemistry 2B; Atmospheric Science 121A or C- or better in Engineering 103. Physical and technical aspects of air pollution. Emphasis on geophysical processes and air pollution meteorology as well as physical and chemical properties of pollutants. (Same course as Civil and Environmental Engineering 149.) GE credit: SciEng | QL, SE, SL.—*F. (F.)* Cappa
(change in existing course—eff. spring 16)

150. Introduction to Computer Methods in Physical Sciences (4)
Lecture—3 hour; lecture/discussion—2 hours. Prerequisite: Mathematics 22B, Physics 9B, and a computer programming course such as Engineering Computer Science 30. Additional courses in fluid dynamics (course 121A or Engineering 103) and in Fourier transforms (Mathematics 118C or Physics 104A) are helpful, but not required. Computational techniques used in physical sciences. Integral and differential equation numerical solution: mainly finite differencing and spectral (Fourier transform) methods. Time series applications (time-permitting). Specific applications drawn from meteorology. Accelerated introduction to FORTRAN including programming assignments. Enrollment limited to 12, preference to Atmospheric Science majors. Offered irregularly. (P/NP grading only.) GE credit: SE.—*F. (F.)* Grotjahn
(change in existing course—eff. spring 15)

158. Boundary-Layer Meteorology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 121A. Dynamics of the atmosphere nearest the Earth's surface. Friction and heat transfer. Properties of turbulent flows; statistical and spectral techniques; use and interpretation of differential equations. Emphasis on the importance to weather, air pollution, and the world's oceans. Offered in alternate years. GE credit: SciEng | QL, SE, VL.—*(S.)* Faloona
(change in existing course—eff. spring 15)

Graduate

215. Advanced Hydroclimatology (3)
Lecture—3 hours. Prerequisite: course 115. Theoretical and applied aspects of energy and mass fluxes linking the earth's surface, atmosphere, and hydrologic system. Emphasis on regional scale analysis and modeling, spatial data representation, and climate change influences on precipitation and its hydroclimatic expression. Offered irregularly.—*S. (S.)*
(change in existing course—eff. spring 15)

231. Advanced Air Pollution Meteorology (3)
Lecture—3 hours. Prerequisites: Course 149A, 160 and one course in fluid dynamics. Processes determining transport and diffusion of primary and secondary pollutants. Models of chemical transformation, of the atmospheric boundary layer and of mesoscale wind fields, as applicable to pollutant dispersion problems. Offered irregularly.—*F. (F.)*
(change in existing course—eff. spring 15)

245. Climate Change, Water and Society (4)
Lecture—4 hours. Class size limited to 25 students. Integration of climate science and hydrology with policy to understand hydroclimatology and its impact upon natural and human systems. Assignments: readings, take-home examination on climate and hydrologic science, paper that integrates course concepts into a research prospectus or review article. (Same course as Hydrologic Sciences 245 and Ecology 245.)—*F. (F.)* Fogg, Lubell, Ullrich
(new course—eff. spring 15)

250. Meso-Scale Meteorology (3)
Lecture—3 hours. Prerequisite: graduate standing, course 150, a course in partial differential equations; or consent of instructor. The study of weather phenomena with horizontal spatial dimensions between 2.5 and 2500 kilometers. Methods of observational study and numerical modeling of the structure and temporal behavior of these weather systems. Offered in alternate years.—*(W.)* Chen
(change in existing course—eff. spring 15)

255. Numerical Modeling of the Atmosphere (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: course 121B and Engineering 5; course 150 recommended. Principles of numerical modeling of the dynamic, thermodynamic and physical processes of the atmosphere. Hands-on experiments on model development using the shallow water equations and the primitive equations. Operational forecast models. Offered in alternate years.—*W.* Chen
(change in existing course—eff. spring 15)

265. The Art of Climate Modeling (3)
Lecture—2 hours; laboratory—1 hour. Prerequisite: course 121A. Over the past fifty years, global models have given us incredible insight into the Earth system. This course provides an introduction to these models, with a focus on their design and the science questions they have been built to address. Offered irregularly.—*S. (S.)* Ullrich
(new course—eff. spring 16)

270A. Topics in Atmospheric Science: Meteorological Statistics (1-3)
Discussion—1-3 hours. Prerequisite: consent or instructor. Applications and concepts in meteorological statistics.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

270B. Topics in Atmospheric Science: Computer Modeling of the Atmosphere (1-3)
Discussion—1-3 hours. Prerequisite: consent or instructor. Applications and concepts in computer modeling of the atmosphere.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

270C. Topics in Atmospheric Science: Design of Experiments and Field Studies in Meteorology (1-3)
Discussion—1-3 hours. Prerequisite: consent or instructor. Applications and concepts in design of experiments and field studies in meteorology.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

270D. Topics in Atmospheric Science: Solar and Infrared Radiation in the Atmosphere (1-3)
Discussion—1-3 hours. Prerequisite: consent or instructor. Applications and concepts in solar and infrared radiation in the atmosphere.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

270E. Topics in Atmospheric Science: Aerosol and Cloud Physics (1-3)
Discussion—1-3 hours. Prerequisite: consent or instructor. Applications and concepts in aerosol and cloud physics.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

270F. Topics in Atmospheric Science: Atmospheric Chemistry (1-3)
Discussion—1-3 hours. Prerequisite: consent or instructor. Applications and concepts in atmospheric chemistry.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

270G. Topics in Atmospheric Science: General Meteorology (1-3)
Discussion—1-3 hours. Prerequisite: consent or instructor. Applications and concepts in general meteorology.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

290. Seminar (1)
Seminar—1 hour. Prerequisite: graduate standing in Atmospheric Science or related field. Current developments in selected areas of atmospheric research. Topics will vary according to student and faculty interests. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

291A. Research Conference in Atmospheric Science; Air Quality Meteorology (1-3)
Lecture/discussion—1-3 hours. Prerequisite: consent of instructor. Review and discussion of current literature and research in Air Quality Meteorology. May be repeated up to 6 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

291B. Research Conference in Atmospheric Science; Biometeorology (1-3)
Lecture/discussion—1-3 hours. Prerequisite: consent of instructor. Review and discussion of current literature and research in Biometeorology. May be repeated up to 6 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

291C. Research Conference in Atmospheric Science; Boundary Layer Meteorology (1-3)
Lecture/discussion—1-3 hours. Prerequisite: consent of instructor. Review and discussion of current literature and research in Boundary Layer Meteorology. May be repeated up to 6 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

291D. Research Conference in Atmospheric Science; Climate Change (1-3)
Lecture/discussion—1-3 hours. Prerequisite: consent of instructor. Review and discussion of current literature and research in Climate Change. May be repeated up to 6 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

291E. Research Conference in Atmospheric Science; General Meteorology (1-3)
Lecture/discussion—1-3 hours. Prerequisite: consent of instructor. Review and discussion of current literature and research in General Meteorology. May be repeated up to 6 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

291F. Research Conference in Atmospheric Science; Atmospheric Chemistry (1-3)
Lecture/discussion—1-3 hours. Prerequisite: consent of instructor. Review and discussion of current literature and research in Atmospheric Chemistry. May be repeated up to 6 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Avian Science

New and changed courses in Avian Science (AVS)

Lower Division

11. Introduction to Poultry Science (3)
Lecture—3 hours. The mosaic of events that have tied poultry science to other scientific disciplines and poultry to humans. Poultry science techniques and production methods from the time of domestication to the present. One field trip required. GE credit: SciEng, Wrt | SE.
(change in existing course—eff. spring 15)

14L. Management of Captive Birds (2)
Fieldwork—3 hours; lecture/discussion—1 hour. Prerequisite: consent of instructor. One weekly discussion and field trip to study practical captive management (housing, feeding, equipment, marketing, diseases). Visit facilities rearing birds such as commercial parrots, hobbyist exotics, ostrich, raptors, waterfowl, game birds, poultry and pigeons. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

15L. Captive Raptor Management (2)
Laboratory—3 hours; independent study—3 hours; one field trip. Hands-on experience handling birds of prey. Students are taught all of the skills required to handle and care for raptors, including their husbandry, biology, habitat requirements, cage design, veterinary care, rehabilitation methods, research potential and long-term care requirements. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

16LA. Raptor Migration and Population Fluctuations (2)
Fieldwork—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Identify raptors: study of effects of weather, crops, agricultural practices on fluctuations in raptor species and numbers. Familiarize with literature; design a project; survey study sites; collect, computerize, analyze data, compare with previous years. Species, observations, emphasis different each quarter. One Saturday field trip. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

16LB. Raptor Migration and Population Fluctuations (2)
Fieldwork—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Identify raptors: study of effects of weather, crops, agricultural practices on fluctuations in raptor species and numbers. Familiarize with literature; design a project; survey study sites; collect, computerize, analyze data, compare with previous years. Species, observations, emphasis different each quarter. One Saturday field trip. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

16LC. Raptor Migration and Population Fluctuations (2)
Fieldwork—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Identify raptors: study of effects of weather, crops, agricultural practices on fluctuations in raptor species and numbers. Familiarize with literature; design a project; survey study sites; collect, computerize, analyze data, compare with previous years. Species, observations, emphasis different each quarter. One Saturday field trip. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

Upper Division

100. Avian Biology (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, Animal Science 2 preferred. Biology of domesticated poultry, specifically chickens and turkeys. Avian genetics, immunology, reproduction, growth and development, broiler and layer management. GE credit: SciEng | SE.—*S. (S.)* Zhou
(change in existing course—eff. spring 16)

103. Avian Development and Genomics (3)
Lecture—3 hours. Prerequisite: Biological Sciences 1A and 1B, or Biological Sciences 2B. Unique features of avian development and genomics: Incubation; Staging; Egg Structure/Function; Fertilization; Pre-oviposital; Oviposition, Cold Torpor; Post-oviposital Development; Organogenesis, Growth; Sexual Differentiation; Extraembryonic Membranes; Mortality/Hatching; Genome Organization; Comparative Avian Genomics; Telomere Biology; Sex Chromosomes/Sex Determination; Advanced Technologies; Genome Manipulation; Mutations. GE credit: SciEng | SE.—*F. (F.)* Delany
(change in existing course—eff. spring 15)

115. Raptor Biology (3)
Lecture—3 hours. Prerequisite: Biological Sciences 1A or the equivalent. Study of birds of prey: classification, distribution, habits and habitats, migration, unique anatomical and physiological adaptations, natural and captive breeding, health and diseases, environmental concerns, conservation, legal considerations, rehabilitation, and falconry. Includes two Saturday field trips. Offered irregularly. GE credit: SciEng | SE.—*Su. (Su.)*
(change in existing course—eff. spring 15)

121. Avian Reproduction (2)
Lecture—2 hours. Prerequisite: Biological Sciences 1A, 1B. Breeding cycles and reproductive strategies, egg and sperm formation, incubation, sexual development, imprinting, hormonal control of reproductive behavior and song. Species coverage includes wild and companion birds. Course has a physiological orientation. GE credit: SciEng | SE, SL.
(change in existing course—eff. spring 15)

123. Management of Birds (3)
Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B. Captive propagation of birds, including reproduction, genetic management, health, feeding, artificial incubation, artificial insemination, and related legal aspects, including trade and smuggling. Emphasis on exotic species and the role of captive propagation in conservation. GE credit: SciEng | SE, SL, WE.
(change in existing course—eff. spring 15)

149. Egg Production Management (2)
Lecture—2 hours. Prerequisite: course 11 or the equivalent, or consent of instructor. Management of commercial table egg flocks as related to environment, nutrition, disease control, economics, housing, equipment, egg processing and raising replacement pullets. One Saturday field trip required. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

150. Nutrition of Birds (1)
Lecture—1 hour. Prerequisite: Animal Biology 103 (may be taken concurrently). Principles of nutrition specific to avian species, including feedstuffs, feed additives, nutrient metabolism, energy systems, and nutritional support of egg production and growth. Use of computers for feed formulation to support production. GE credit: QL, SciEng | SE.—Klasing
(change in existing course—eff. spring 15)

170. Advanced Avian Biology (4)
Lecture/discussion—3 hours; project—1 hour. Prerequisite: course 100 or Evolution and Ecology 137 or Wildlife, Fish, and Conservation Biology 111. Ecology, behavior, functional morphology and life-history evolution of birds. Emphasis on the importance of body size as a principle determinant of most aspects of avian performance from lifespan to reproduction and species abundance. Analytical synthesis and critical thought emphasized. GE credit: SciEng | SE.
(change in existing course—eff. spring 15)

190. Seminar in Avian Sciences (1)
Seminar—1 hour. Prerequisite: upper division standing in Avian Sciences and consent of instructor. May be repeated three times for credit. (P/NP grading only.)—*S. (S.)* Klasing
(change in existing course—eff. spring 15)

197T. Tutoring in Avian Sciences (1-3)
Tutorial—1-3 hours. Prerequisite: Avian Sciences or related major; advanced standing; consent of instructor. Tutoring of students in lower division avian sciences courses; weekly conference with instructors in charge of courses; written critiques of teaching procedures. (P/NP grading only.)
(change in existing course—eff. fall 14)

Graduate

203. Advanced Avian Development and Genomics (1)
Discussion—1 hour. Prerequisite: graduate standing; concurrent enrollment in course 103. In consultation with the instructor, students develop a lecture and associated instructional materials, i.e., lesson plan, including justification, reading and presentation and

evaluation aids. The topic must complement a topic covered in Avian Sciences 103. Offered irregularly.—*F. (F.)* Delany

(change in existing course—eff. spring 15)

290. Seminar (1)
Seminar—1 hour. Reports and discussions of recent advances and selected topics of current interest in avian genetics, physiology, nutrition, and poultry technology.—*F. (F.)* Klasing

(change in existing course—eff. spring 15)

297T. Supervised Teaching in Avian Sciences (1-4)
Tutoring—1-4 hours. Prerequisite: graduate standing and consent of instructor. Tutoring of students in lower, upper division, and graduate courses in Avian Sciences; weekly conference with instructor in charge of course; written critiques of teaching methods in lectures and laboratories. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

Biochemistry, Molecular, Cellular and Developmental Biology

New and changed courses in Biochemistry, Molecular, Cellular and Developmental Biology (BCB)

Graduate

210. Molecular Genetics and Genomics (3)
Lecture/discussion—3 hours. Prerequisite: Biological Sciences 101 and Molecular & Cellular Biology 121, or equivalent. Pass One restricted to graduate students. Emphasizes molecular genetic and genomic approaches to address fundamental biological questions. Introduces and emphasizes the strengths of prokaryotic and eukaryotic model systems and serves as building block for the BMCDB core courses, which use model systems to develop their themes.—*F. (F.)* Engebrecht

(new course—eff. fall 15)

211. Macromolecular Structure and Interactions (3)
Lecture—3 hours. Prerequisite: Biological Sciences 102, or the equivalent, or consent of instructor. Pass One restricted to graduate students. Conceptual and quantitative basis for macromolecular structurefunction relationships. Investigation of the paradigm form follows function. Review of key elements of protein, nucleic acid, and membrane structure. Exploration of specific macromolecular associations by analyzing chemical structure and physical-chemical behavior. No credit for students that have taken course 221A.—*F. (F.)* Baldwin, Segal, Wilson

(new course—eff. fall 14)

212. Cell Biology (3)
Lecture—3 hours. Prerequisite: Biological Sciences 104, or the equivalent, or consent of instructor. Pass One restricted to graduate students. Analysis of basic processes governing cell organization, division, and transport. Study of the integration and regulation of cell behavior in response to changes in cellular environment. No credit for students that have taken course 221D.—*W. (W.)* Al-Bassam, Kim, McNally, Powers

(change in existing course—eff. spring 15)

213. Developmental Biology (3)
Lecture—3 hours. Prerequisite: undergraduate biology course or consent of instructor. Pass One restricted to graduate students. Fundamental principles in embryonic development that guide application of modern cellular and genetic approaches to understand developmental mechanisms. Emphasis on experimental approaches used to critically address scientific questions.—*W. (W.)* Brady, Draper, Lott, Tucker

(change in existing course—eff. spring 15)

214. Molecular Biology (3)
Lecture—3 hours. Prerequisite: course 211, or equivalent, or consent of instructor. Pass One restricted to graduate students. Investigation of the basic cellular processes in prokaryotes and eukaryotes that govern the central dogma of molecular biology (DNA-RNA-protein). No credit for students that have taken course 221C.—*S. (S.)* Chedin, Fraser, Heyer

(change in existing course—eff. spring 15)

215. Graduate Reading Course (2)
Discussion—10 hours. Prerequisite: graduate standing or consent of instructor. Restricted to graduate students. Development of critical reading skills through study of major paradigm advances in specialized fields of biochemistry, molecular, cell, and developmental biology. Emphasis on active learning and student participation. Guided analysis of literature and major advances in field of study. May be repeated two times for credit when topic differs.—*S. (S.)* Chen, Fairclough, Genetos, Giulivi, Inoue, Vaughan

(change in existing course—eff. spring 15)

220L. Advanced Biochemistry Laboratory Rotations (5)
Laboratory—15 hours. Prerequisite: course 210 and 211 (may be taken concurrently) and 120L or the equivalent. Open to graduate students. Two five-week assignments in BMCDB research laboratories. Individual research problems with emphasis on methodological/procedural experience, experimental design, proposal writing and oral communication of results. May be repeated two times for credit.—*F, W. (F, S.)* Albeck, Baldwin, Haudenschild, Tian

(change in existing course—eff. spring 15)

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.—*(F.)* Draper

(change in existing course—eff. spring 15)

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.—*F.* Natzle, Rose

(change in existing course—eff. spring 15)

257. Cell Proliferation and Cancer Genes (3)
Lecture—1.5 hours; seminar—1.5 hours. Prerequisite: course 221C and 221D or equivalents. Genetic and molecular alterations underlying the conversion of normal cells to cancers, emphasizing regulatory mechanisms and pathways. Critical reading of the current literature and development of experimental approaches.—*F. (F.)* Carraway

(new course—eff. fall 15)

Biological Sciences

New and changed courses in Biological Sciences (BIS)

Lower Division

2A. Introduction to Biology: Essentials of Life on Earth (5)
Lecture—3 hours; discussion—2 hours. 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. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

2B. Introduction to Biology: Principles of Ecology and Evolution (5)
Lecture—3 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: grade of C- in 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. GE credit: SciEng | QL, SE, SL, VL.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

2C. Introduction to Biology: Biodiversity and the Tree of Life (5)
Lecture—4 hours; laboratory—3 hours. Prerequisite: course 1B or 2B completed with a C- or better. 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. GE credit: SciEng | OL, QL, SE, SL, VL.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

5. Exploring Biological Sciences (1)
Seminar—1 hour. Prerequisite: consent of instructor. Enrollment limited to first year CBS students. Introduction to biology at UC Davis through discussions with faculty and speakers from industry and medicine. (P/NP grading only.)—*F, W, S. (F, W, S.)* Hildreth

(new course—eff. fall 15)

10. Everyday Biology (4)
Lecture—3 hours; discussion—1 hour. Everyday biological concepts using contemporary readings for non-scientists. Key topics include: personal genomics; food and health; climate and evolution; brain biology and the law. Innovative projects apply biological concepts to current events. For students not specializing in biology. Not open for credit to students who have completed course 2A, or 2B, or 2C, or 10V or Nematology 10V or equivalent. GE credit: SciEng, Wrt | SE, SL, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

10V. General Biology (4)
(cancelled course—eff. spring 15)

11L. Basic Life Sciences Laboratory (1)
Laboratory—6 hours. Prerequisite: enrollment limited to BUSP students; consent of instructor required. Basic laboratory skills in life sciences research, including microbiology, molecular biology, and genetics. —*Su. (Su.)*

(change in existing course—eff. summer 14)

20Q. Modeling in Biology (2)
Lecture—1 hour; discussion—1 hour. Prerequisite: Mathematics 16B (may be taken concurrently). Introduction to the application of quantitative methods to biological problems. Students will use a mathematical software package to tackle problems drawn from all aspects of biology. Offered irregularly.—Mogilner, Sutter

(change in existing course—eff. spring 15)

92. Internship in Biological Sciences (1-12)
Internship—3-36 hours. Prerequisite: lower division standing; consent of instructor. Restricted to lower division standing. (P/NP grading only.)

(change in existing course—eff. fall 14)

99. Special Study for Undergraduates (1-5)
Prerequisite: lower division standing; consent of instructor. Restricted to lower division standing. (P/NP grading only.)

(change in existing course—eff. fall 14)

Upper Division

101. Genes and Gene Expression (4)
Lecture—4 hours. Prerequisite: course 2A and 2B; Chemistry 8A or 118A or 128A; Statistics 100 or 13 or 102 or 130A (Statistics 100 preferred). Nucleic acid structure and function; gene expression and its regulation; replication; transcription and translation; transmission genetics; molecular evolution. GE credit: SciEng | QL, SE, SL.—*F, W, S, Su. (F, W, S, Su.)* Brady, Comai, Dvorak, Engebrecht, Kliebenstein, Langley, Lott, Nord, Rodriguez, Ross-Iberra, Turelli

(change in existing course—eff. spring 15)

101D. Genes and Gene Expression Discussion (1)
Discussion—1 hour. Prerequisite: course 101 (concurrently); consent of instructor. Discussion and problem solving related to fundamental principles of classical and molecular genetics as presented in course 101. (P/NP grading only.)—*F, W, S. (F, W, S.)* Brady, Comai, Dvorak, Engebrecht, Kliebenstein, Langley, Lott, Nord, Rodriguez, Ross-Iberra, Turelli

(change in existing course—eff. spring 15)

102. Structure and Function of Biomolecules (3)
Lecture—3 hours. Prerequisite: course 1A or 2A; Chemistry 8B or 118B or 128B. Structure and function of macromolecules with emphasis on proteins, catalysis, enzyme kinetics, lipids, membranes, and proteins as machines. Only one unit of credit for students who have completed Animal Biology 102 & 1.5 units of credit for students who have completed Biological Science 105. GE credit: SciEng | QL, SE.—*F, W, S, Su. (F, W, S, Su.)* Cheng, Gasser, Hilt, Leal

(change in existing course—eff. spring 15)

103. Bioenergetics and Metabolism (3)
Lecture—3 hours. Prerequisite: course 102. Fundamentals of the carbon, nitrogen, and sulfur cycles in nature, including key reactions of biomolecules such as carbohydrates, amino acids, lipids, and nucleotides, and of energy production and use in different types of organisms. Principles of metabolic regulation. 1.5 units of credit for student who has completed course 105; 1 unit of credit if students who has completed Animal Biology 103. GE credit: SciEng | SE.—*F, W, S, Su. (F, W, S, Su.)* Callis, Fiehn, Hilt, Inoue, Zerbe

(change in existing course—eff. spring 15)

104. Cell Biology (3)
Lecture—3 hours. Prerequisite: course 101; 102 or 105. Membrane receptors and signal transduction; cell trafficking; cell cycle; cell growth and division; extracellular matrix and cell-cell junctions; cell development; immune system. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Carrasco, Dinesh-Kumar, S. Lin, B. Liu, McNally, Privalsky, Starr, Xu

(change in existing course—eff. spring 15)

105. Biomolecules and Metabolism (3)
Lecture—3 hours. Prerequisite: courses 1A, 1B, and 1C, or 2A, 2B, and 2C; 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 and one half units of credit for students who have completed course 102 or 103; no credit for students who have completed both course 102 and 103; one unit of credit for students who have completed Animal Biology 102 or 103; no credit for students who have completed both Animal Biology 102 and 103. GE credit: SciEng | SE, QL.—*F, W, S. (F, W, S.)* Hilt, Theg

(change in existing course—eff. spring 15)

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. GE credit: SciEng | OL, QL, SE, SL, VL, WE.—*S. (S.)* Morgan

(change in existing course—eff. spring 15)

122P. Population Biology and Ecology/ Advanced Laboratory Topics (5)
Laboratory—12 hours; discussion—1 hour. Prerequisite: course 122 concurrently. Residence at Bodega Marine Laboratory required. Training in scientific research, from hypothesis testing to publication, including methods of library research. Research related to topic covered in course 122. Final presentation both oral and written. See Bodega Marine Laboratory Program. GE credit: SciEng | SE, VL, WE.—*S. (S.)* Morgan

(change in existing course—eff. spring 15

123. Undergraduate Colloquium in Marine Science (1)
Seminar—1 hour. Prerequisite: enrolled student at the Bodega Marine Laboratory. Series of weekly seminars by recognized authorities in various disciplines of marine science from within and outside the UC system. Includes informal discussion with speaker. Course will be held at Bodega Marine Laboratory. (P/NP grading only.) (See above description for Bodega Marine Laboratory Program.)—*S. (S.)* Cherr, Morgan

(change in existing course—eff. spring 15)

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 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. GE credit: SciEng | OL, QL, SE, VL, WE.—*Su. (Su.)* Hill, Gaylord, Largier, Sanford

(change in existing course—eff. spring 15)

195A. Science Teaching Internship Program (4)
Lecture/discussion—2 hours; internship—6 hours. Prerequisite: upper division standing in a science major or consent of instructor. Major in science; junior or senior status (based on units); application and interview; class size limited to 24 students. Basic teaching techniques including lesson planning, classroom management, and presentation skills. Interns spend time in K-12 science classrooms working with a master teacher observing, assisting with labs and activities, managing students, and teaching lessons. (P/NP grading only.) Offered irregularly.

(change in existing course—eff. spring 15)

199. Special Study in Biological Sciences (1-5)
Prerequisite: upper division standing and consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)* Cherr, Morgan

(change in existing course—eff. spring 15)

Biophotonics

New and changed courses in Biophotonics (BPT)

Graduate

280. Biophotonics Internship (7-12)
(cancelled course—eff. spring 16)

290. Biophotonics Seminar (1)
Seminar—1 hour. Prerequisite: graduate standing or consent of instructor. Restricted to graduate standing. Presentation of current research in the area of biophotonics by experts in the field, followed by group discussions. May be repeated up to three times for credit. (S/U grading only.)—*F, W, S. (F, W, S.)* Yeh

(change in existing course—eff. fall 14)

Biophysics

New and changed courses in Biophysics (BPH)

Graduate

255. Biophotonics in Medicine and the Life Sciences (3)
Lecture/discussion—3 hours. Prerequisite: Physics 108 and Biology 101-105; Biomedical Engineering 202 highly recommended; graduate standing. Introduction to the science and technology of biomedical optics and photonics, with an overview of applications in medicine and the life sciences. Emphasis on research supported by the NSF Center for Biophotonics at UC Davis Medical Center. (Same course as Applied Science 255 and Biomedical Engineering 255.)—*W. (W.)* Chuang, Matthews

(change in existing course—eff. spring 15)

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 if topics differ. (S/U grading only.)—*F. (F.)*

(change in existing course—eff. fall 14)

Biostatistics

New and changed courses in Biostatistics (BST)

Graduate

290. Seminar in Biostatistics (1)
Seminar—1 hour. Restricted to graduate standing. Seminar on advanced topics in the field of biostatistics. Presented by members of the Biostatistics Graduate Group and other guest speakers. May be repeated for up to 12 units of credit. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 14)

Biotechnology

New and changed courses in Biotechnology (BIT)

Lower Division

1. Introduction to Biotechnology (4)
(cancelled course—eff. fall 14)

1Y. Introduction to Biotechnology (4)
Lecture—2 hours; web virtual lecture—1 hour; discussion—1 hour. Principles and technologies of biotechnology as applied to agriculture, the environment, and medicine. Business plans and presentation pitches for new biotechnology products. Bioinformatics approaches exploring genomic databases and DNA manipulations in silica. GE credit: SciEng | SE.—*S. (S.)* Dandekar, Yoder

(new course—eff. spring 14)

Upper Division

150. Applied Bioinformatics (4)
Lecture—2 hours; laboratory/discussion—2 hours. Prerequisite: Computer Science Engineering 10 or 15 or Plant Science 21; Biological Sciences 101 and 104; Plant Science 120 or Statistics 13 or Statistics 100. Limited enrollment. Concepts and programs needed to apply bioinformatics in biotechnology research. Sequence analysis and annotation and use of plant and animal databases for students in biological and agricultural sciences. Two units of credit for students who have completed Computer Science Engineering 124. GE credit: SciEng | SE, VL.—Runcie

(change in existing course—eff. spring 15)

171. Professionalism and Ethics in Genomics and Biotechnology (3)
lecture—1 hour; discussion—2 hours. Prerequisite: upper division standing in a natural science major. Real and hypothetical case studies to illustrate ethical issues in genomics and biotechnology. Training and practice in difficult ethical situations and evaluating personal and social consequences. GE credit: SciEng | SE, SL, WE.—*F, W, S. (F, W, S.)* Bennett, Bradford, Yoder

(change in existing course—eff. spring 15)

194H. Honors Thesis in Biotechnology (1-2)
Independent Study—3-6 hours. Prerequisite: senior standing in Biotechnology with 3.250 GPA or higher and completion of courses 188 and 189L. Independent study of selected topics under the direction of a member or members of the staff. Completion will involve the writing of a senior thesis. (Deferred grading only, pending completion of sequence.) (P/NP grading only.) GE credit: SciEng | SE, WE.—*F, W, S, Su. (F, W, S, Su.)* Yoder

(change in existing course—eff. winter 16)

Biotechnology; Design Emphasis

New and changed courses in Biotechnology; Design Emphasis (DEB)

Graduate

263. Biotechnology Fundamentals and Application (2)
Lecture—2 hours. Prerequisite: Biological Sciences 101, 102 and Microbiology 102 or consent of instructor; must be a graduate student in good standing. Fundamentals of molecular biology and chemical engineering involved in recombinant DNA technology. Topics: principles of rate processes of biological systems, optimization of bioreactors, and issues related to overexpression and production of recombinant molecules. Participation in student-directed team projects.—*W. (W.)* McDonald, Privalsky, Rodriguez, VanderGheynst

(new course—eff. winter 16)

Cell and Developmental Biology

New and changed courses in Cell and Developmental Biology (CDB)

Graduate

205. Topics in Cell Biology of the Cytoskeleton (2)
(cancelled course—eff. fall 14)

Cell Biology and Human Anatomy

New and changed courses in Cell Biology and Human Anatomy (CHA)

Upper Division

101. Human Gross Anatomy (4)
Lecture—4 hours. Prerequisite: Biological Sciences 2A; concurrent enrollment in Exercise Biology 106L or course 101L strongly recommended. Upper division students only; Pass One open to upper division Exercise Biology or Anthropology majors only; Pass Two open to Seniors in any major; open enrollment at the start of the quarter for upper division students in any major. Detailed study of the gross anatomical structure of the human body, with emphasis on function and clinical relevance to students entering health care professions. (Same course as Exercise Biology 106.) GE credit: SciEng | SE.—*W. (W.)* Gross

(change in existing course—eff. fall 14)

101L. Human Gross Anatomy Laboratory (3)
Laboratory—9 hours. Prerequisite: Biological Sciences 2A; must take Exercise Biology 106 or course 101 concurrently (or have already completed). Upper division students only; Pass One open to upper division Exercise Biology or Anthropology majors only; Pass Two open to Seniors in any major; open enrollment at the start of the quarter for upper division students in any major; mandatory attendance on first day of lab. Detailed study of prosected human cadavers in small group format with extensive hands-on experience. (Same course as Exercise Biology 106L.) GE credit: SciEng | SE.—*W. (W.)* Gross

(change in existing course—eff. fall 14)

Graduate

400. Developmental, Gross, and Radiologic Anatomy (7.5)
Lecture—3 hours; laboratory—5 hours. Prerequisite: consent of instructor. 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.)—*F, Su. (F. Su.)* Tucker

(change in existing course—eff. spring 15)

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.)—*F, Su. (F. Su.)* Beck

(change in existing course—eff. spring 15)

Chemistry

New and changed courses in Chemistry (CHE)

Lower Division

2A. General Chemistry (5)
Lecture—3 hours; laboratory/discussion—4 hours. Prerequisite: high school chemistry and physics strongly recommended; any one of the following: (A) SAT Mathematics score = 600+; (B) ACT Mathematics score = 27+; (C) AP Chemistry exam score of = 3+; (D) SAT Chemistry subject test score = 700+; (E) UC Davis Chemistry Placement Examination score = 24+ on first attempt; in lieu of A-E, either completion of ALEKS online Preparatory Chemistry course with 100% Pie Mastery or completion of Workload 41C with a grade of C or better (offered only in fall quarter to students who do not meet A-E). Periodic table, stoichiometry, chemical equations, physical properties and kinetic theory of gases, atomic and molecular structure and chemical bonding. Laboratory experiments in stoichiometric relations, properties and collection of gases, atomic spectroscopy, and introductory quantitative analysis. Not open for credit to students who have taken course 2AH. GE credit: SciEng | QL, SE, SL.—*F, W. (F, W.)*

(change in existing course—eff. fall 16)

2AH. Honors General Chemistry (5)
Lecture—3 hours; laboratory/discussion—4 hours. Prerequisite: high school chemistry and physics. Any ONE of the following: (A) SAT Mathematics score = 670+; (B) ACT Mathematics score = 30+; (C) AP Chemistry exam score = 4+; (D) SAT Chemistry subject test score = 700+; (E) UC Davis Chemistry Placement Examination score = 33+ on first attempt; (F) UC Davis Chemistry Placement Examination score = 30+ AND UC Davis Mathematics Placement Examination score = 45+, both on first attempts; consent of instructor. Limited enrollment course with a more rigorous treatment of material covered in course 2A. Students completing course 2AH can continue with course 2BH or 2B. Not open for credit to students who have taken course 2A. GE credit: SciEng | QL, SE, SL.—*F. (F.)*

(change in existing course—eff. fall 16)

2B. General Chemistry (5)
Lecture—3 hours; laboratory/discussion—4 hours. Prerequisite: C- or better in course 2A or 2AH. Continuation of course 2A. Condensed phases and intermolecular forces, chemical thermodynamics, chemical equilibria, acids and bases, solubility. Laboratory experiments in thermochemistry, equilibria, and quantitative analysis using volumetric methods. Not open for credit to students who have taken course 2B. GE credit: SciEng | QL, SE.—*W, S. (W, S.)*

(change in existing course—eff. fall 16)

2BH. Honors General Chemistry (5)
Lecture—3 hours; laboratory/discussion—4 hours. Prerequisite: course 2A with consent of instructor or course 2AH with a grade C or better; and Mathematics 21B (may be taken concurrently) or consent of instructor. Limited enrollment course with a more rigorous treatment of material covered in course 2B. Students completing course 2BH can continue with course 2CH or 2C. GE credit: SciEng | QL, SE, SL.—*W. (W.)*

(change in existing course—eff. fall 16)

2C. General Chemistry (5)
Lecture—3 hours; laboratory/discussion—4 hours. Prerequisite: C- or better in course 2B or 2BH. Kinetics, electrochemistry, spectroscopy, structure and bonding in transition metal compounds, application of principles to chemical reactions. Laboratory experiments in selected analytical methods and syntheses. Not open for credit to students who have taken course 2CH. GE credit: SciEng | QL, SE, SL.—*F, S. (F, S.)*

(change in existing course—eff. fall 16)

2CH. Honors General Chemistry (5)
Lecture—3 hours; laboratory—6 hours. Prerequisite: course 2B with consent of instructor or course 2BH with a grade of C or better; Mathematics 21C (may be taken concurrently) or consent of instructor.. Limited enrollment course with a more rigorous treatment of material covered in course 2C. Not open for credit to students who have taken course 2C. GE credit: SciEng | QL, SE, SL.—*S. (S.)*

(change in existing course—eff. fall 16)

3A. Chemistry for Life Sciences: Determining Structure and Predicting Properties (5)
Lecture—3 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: high school chemistry and physics strongly recommended; satisfactory score on the Chemistry and Mathematics Placement Examinations or satisfactory completion of the ALEKS Summer Chemistry Prep Course; a satisfactory grade in Workload 41C ('P' or 'C' or better) will suffice in lieu of a satisfactory Chemistry Placement Examination score. Concurrent enrollment with course 2A, 2B, 2C, 2AH, 2BH, 2CH prohibited; not open for enrollment to students who have completed CHE 2C or 2CH with a C- or better. Integrated General and Organic Chemistry intended for majors in the life sciences. Core concepts of chemical composition, structure and properties. Includes phase changes, separation methods, composition, spectroscopy, atomic and molecular structure, periodicity, bonding, charge distribution, intermolecular forces, and physical properties. Only 3 units credit for students who have completed course 2A or 2AH with a C- or better; only 1 unit of credit to students who have completed course 2B or CHE 2BH with a C- or better. GE credit: SciEng | QL, SE, SL.—*F, W. (F, W.)*

(new course—eff. fall 16)

3B. Chemistry for Life Sciences: Predicting and Characterizing Chemical Change (5)
Lecture—3 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: C- or better in course 3A; note: C- or better in course 2A or 2AH does not satisfy the prerequisite requirement. Concurrent enrollment with course 2A, 2B, 2C, 2AH, 2BH, 2CH prohibited. Continuation of course 3A covering core concepts of characterization of chemical processes and predicting chemical changes. Includes modeling chemical reactions, understanding proportions/stoichiometry, tracking energy, activation energy, reaction kinetics, thermodynamics, and equilibrium. Only 3 units credit for students who have completed course 2B or 2BH with a C- or better. GE credit: SciEng | QL, SE, SL.—*W. (W.)*

(new course—eff. winter 17)

3C. Chemistry for Life Sciences: Controlling Processes and Synthetic Pathways (5)
Lecture—3 hours; discussion—1 hour; laboratory—3 hours. Prerequisite: C- or better in course 3B; note: C- or better in course 2B or 2BH does not satisfy the prerequisite requirement. Concurrent enrollment with course 2A, 2B, 2C, 2AH, 2BH, 2CH prohibited. Continuation of course 3B covering core concepts of harnessing energy, controlling reaction extent, and organic chemistry synthetic pathways. Includes acids and bases, thermodynamics, chemical equilibria, organic chemistry terminology and mechanisms. Only 3 units credit for students who have completed course 2C or 2CH with a C- or better. GE credit: SciEng | QL, SE, SL.—*S. (S.)*

(new course—eff. spring 17)

8A. Organic Chemistry: Brief Course (2)
Lecture—2 hours. Prerequisite: C- or better in course 2B or 2BH. With course 8B, an introduction to the nomenclature, structure, chemistry, and reaction mechanisms of organic compounds. Intended for students majoring in areas other than organic chemistry. No credit to students who have completed courses 118A or 128A. GE credit: SciEng | SE.—*F, S. (F, S.)*

(change in existing course—eff. fall 16)

8B. Organic Chemistry: Brief Course (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 8A, 118A, or 128A. Laboratory concerned primarily with organic laboratory techniques and the chemistry of the common classes of organic compounds. Lecture portion a continuation of course 8A. Varying credit hours according to courses taken previously and corresponding expected workload for this course; full credit to students who complete course 118A or 128A; 3 units credit to students who have completed courses 128A and 129A (students who have completed course 129A are exempt from the laboratory portion of course 8B); 2 units credit to students who have completed 128B; 1 unit credit to students who have completed course 118B or courses 128B and 129A (students who have completed course 118B are exempt from the laboratory portion of course 8B). GE credit: SciEng | SE.—*F, W. (F, W.)*

(change in existing course—eff. fall 16)

10. Concepts of Chemistry (4)
Lecture—4 hours. Survey of basic concepts and contemporary applications of chemistry. Designed for non-science majors and not as preparation for Chemistry 2A. Not open for credit to students who have had Chemistry 2A; but students with credit for course 10 may take Chemistry 2A for full credit. GE credit: SciEng, Wrt | SE, SL.—*F. (F.)*

(change in existing course—eff. fall 14)

Upper Division

100. Environmental Water Chemistry (3)
Lecture—3 hours. Prerequisite: course 2C or 2CH. 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.—*W. (W.)* Casey

(change in existing course—eff. winter 16)

104. Forensic Applications of Analytical Chemistry (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: course 2C or 2CH. 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.—*F. (F.)* Land

(change in existing course—eff. winter 16)

105. Analytical and Physical Chemical Methods (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: course 110A (may be taken concurrently) or course 107B (may be taken concurrently). 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. GE credit: SciEng | QL, SE.—*F, S. (F, S.)*

(change in existing course—eff. spring 16)

107B. Physical Chemistry for the Life Sciences (3)
Lecture—3 hours. Prerequisite: course 107A. Continuation of course 107A. Continuation of course 107A. Kinetic theory of gases and transport processes in liquids. Chemical kinetics, enzyme kinetics and theories of reaction rates. Introduction to quantum theory, atomic and molecular structure, and spectroscopy. Application to problems in the biological sciences. GE credit: SciEng | SE.—*W, S. (W, S.)*

(change in existing course—eff. fall 16)

108. Molecular Biochemistry (3)
Lecture—3 hours. Prerequisite: course 118C or 128C. Pass One open to Chemistry majors. Chemical principles and experimental methods applied to the biological sciences to understand the molecular structure and function of proteins, nucleic acids, carbohydrates, and membrane lipids.—*S. (S.)* Ames, Fisher

(change in existing course—eff. winter 16)

118A. Organic Chemistry for Health and Life Sciences (4)
Lecture—3 hours; laboratory/discussion—1.5 hours. Prerequisite: course 2C or 2CH with a grade C- or higher. The 118A, 118B, 118C series is for students planning professional school studies in health and life sciences. A rigorous, in-depth presentation of basic principles with emphasis on stereochemistry and spectroscopy and preparations and reactions of nonaromatic hydrocarbons, haloalkanes, alcohols and ethers.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

118B. Organic Chemistry for Health and Life Sciences (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 118A or 128A. Continuation of course 118A, with emphasis on spectroscopy and the preparation and reactions of aromatic hydrocarbons, organometallic compounds, aldehydes and ketones.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

118C. Organic Chemistry for Health and Life Sciences (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 118B or courses 128B and 129A. Open to students changing from the Chemistry 128 course sequence only if they have completed prior organic laboratory work (at least course Chemistry 129A). Continuation of course 118B, with emphasis on the preparation, reactions and identification of carboxylic acids and their derivatives, alkyl and acyl amines, ß-dicarbonyl compounds, and various classes of naturally occurring, biologically important compounds.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

122. Chemistry of Nanoparticles (3)
Lecture—3 hours. Prerequisite: course 110C (may be taken concurrently) or 107B (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.—*S. (S.)* Osterloh
(change in existing course—eff. winter 16)

124A. Inorganic Chemistry: Fundamentals (3)
Lecture—3 hours. Prerequisite: course 2C or course 2CH. Symmetry, molecular geometry and structure, molecular orbital theory of bonding (polyatomic molecules and transition metals), solid state chemistry, energetics and spectroscopy of inorganic compounds. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

131. Modern Methods of Organic Synthesis (3)
Lecture—3 hours. Prerequisite: course 118C or 128C. Introduction to modern synthetic methodology in organic chemistry with emphasis on retrosynthetic analysis, reaction mechanisms, and application to multistep syntheses of pharmaceuticals and natural products. GE credit: SciEng | SE.—*F. (F.)*
(change in existing course—eff. fall 16)

145. Good Quality Practices (3)
Discussion—1 hour; laboratory—6 hours. Prerequisite: course 129B or 118B. Open to Chemistry and science majors. Preparation for work in GQP laboratories in both research and industry. Context within GQP-Good Quality Practices (GMP Good Manufacturing Practice, GCP Good Clinical Practices). Lab practice in GQP skills. GE credit: SciEng | SE.—*W, S. (W, S.)*
(new course—eff. winter 16)

194HA. Undergraduate Honors Research (2)
Independent study—2 hours. Prerequisite: open only to chemistry majors who have completed 135 units and who qualify for the honors program. Original research under the guidance of a faculty adviser, culminating in the writing of an extensive report. (Deferred grading only, pending completion of sequence.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HB. Undergraduate Honors Research (2)
Independent study—2 hours. Prerequisite: open only to chemistry majors who have completed 135 units and who qualify for the honors program. Original research under the guidance of a faculty adviser, culminating in the writing of an extensive report. (Deferred grading only, pending completion of sequence.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HC. Undergraduate Honors Research (2)
Independent study—2 hours. Prerequisite: open only to chemistry majors who have completed 135 units and who qualify for the honors program. Original research under the guidance of a faculty adviser, culminating in the writing of an extensive report. (Deferred grading only, pending completion of sequence.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Graduate

204. Mathematical Methods in Chemistry (3)
Lecture—3 hours. Prerequisite: course 110C. Graduate standing in Chemistry. Introduction to mathematical and numerical methods in chemistry. Real and complex functions. Methods of integration. Differential equations. Linear algebra and matrices. Special functions. Integral transforms. Statistics.—*F. (F.)*
(change in existing course—eff. fall 14)

209. Special Topics in Physical Chemistry (3)
Lecture—3 hours. Prerequisite: courses 210A and 211A. Graduate standing in Chemistry. Advanced topics in physical chemistry, biophysical chemistry or chemical physics chosen from areas of current research interest. May be repeated for credit when topic differs. Offered irregularly.
(change in existing course—eff. spring 15)

221A. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

221B. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

221C. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

221D. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

221E. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

221F. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

221G. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

221H. Special Topics in Organic Chemistry (3)
Lecture—3 hours. Selected topics of current interest in organic chemistry. Topics will vary each time the course is offered, and in general will emphasize the research interests of the staff member giving the course.—*F. (F.)*
(change in existing course—eff. summer 15)

231A. Organic Synthesis: Methods and Strategies (4)
Lecture—3 hours; lecture/discussion—3 hours. Prerequisite: course 128C or equivalent. Current strategies and methods in synthetic organic chemistry. Focus on construction of carbon frameworks, control of relative and absolute stereochemistry and retrosynthetic strategies. Use of databases and molecular modeling software in multistep strategies.—*W. (W.)*
(change in existing course—eff. winter 17)

231B. Advanced Organic Synthesis (3)
Lecture—3 hours. Prerequisite: course 231A. Current strategies and methods in synthetic organic chemistry. Continuation of course 231A. Organic synthesis of complex target molecules. Stereochemical considerations and asymmetric synthesis. Organometallics for selective transformations. Carbocyclic and heterocyclic ring formation.—*F, S. (F, S.)*
(change in existing course—eff. fall 16)

228E. Magnetochemistry (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: course 124A or 201 or an equivalent class from either Physics or Chemical Engineering and Materials Science. Covers the basic principles and concepts of magnetism, methods used for characterization of magnetic properties, as well as specific state-of-the-art magnetic materials and topics from the recent chemistry literature. Offered in alternate years.—*F. (F.)* Kovnir
(new course—eff. winter 16)

280. Seminar in Ethics for Scientists (2)
Seminar—2 hours. Restricted to 20 students; graduate standing in any department of science or engineering. Studies of topical and historical issues in the ethics of science, possibly including issues such as proper authorship, peer review, fraud, plagiarism, responsible collaboration, and conflict of interest. Limited enrollment. (Same course as Physics 280 and Engineering Chemical and Materials Science 280.) (S/U grading only.)—*S. (S.)*
(change in existing course—eff. fall 14)

294. Presentation of Chemistry Research (1)
Seminar—2 hours. Prerequisite: graduate standing. Restricted to graduate students in Chemistry who have not yet given their departmental presentation. Introduces first- and second-year Chemistry graduate students to the process of giving an effective research presentation. Advanced Ph.D. students give formal seminars describing the design and execution of their research projects. May be repeated three times for credit. (S/U grading only.)—*W, S. (W, S.)*
(change in existing course—eff. fall 14)

296. Research in Pharmaceutical Chemistry (6)
Laboratory—18 hours. Prerequisite: courses 130A and 130B, 135, and 233 (may be taken concurrently); consent of instructor. Restricted to students in the Integrated B.S./M.S. Program in Chemistry. Laboratory provides qualified graduate students with the opportunity to pursue original investigation in Pharmaceutical Chemistry and allied fields in order to fulfill the letter-graded research requirement of the Integrated B.S./M.S. Program in Chemistry (Pharma-

ceutical Chemistry Emphasis). May be repeated three times for credit when topic differs.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 14)

Chicana/o Studies

New and changed courses in Chicana/o Studies (CHI)

Lower Division

10. Introduction to Chicana/o Studies (4)
Lecture—3 hours; discussion—1 hour. Analysis of the situation of the Chicana/o (Mexican-American) people, emphasizing their history, literature, political movements, education and related areas. GE credit: Div, Wrt | ACGH, AH or SS, DD, OL, WE.—*F, S. (F, S.)* Jackson

(change in existing course—eff. spring 15)

23. Qualitative Research Methods (4)
Lecture/discussion—3 hours; discussion—1 hour. Dominant models of qualitative inquiry in educational and social science research as well as mestizo approaches to research with latinos. Emphasis given to choosing and designing culturally appropriate strategies to investigate latino health, education, social context, and policy issues. GE credit: SocSci | AH, OL, SS, WE.—*S. (S.)*

(change in existing course—eff. spring 15)

30. United States Political Institutions and Chicanas/os (4)
Lecture/discussion—3 hours; term paper. Overview of the major political institutions and ideologies of the United States and the Chicana/o people's historical and contemporary role in, effects from, and responses to them. Theory, method and critical analysis. Offered irregularly. GE credit: Div | ACGH, DD, OL, SS, WE.

(change in existing course—eff. spring 15)

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: SciEng, Div, Wrt | QL, SE, WC, WE.—de la Torre

(change in existing course—eff. spring 15)

65. New Latin American Cinema (4)
Lecture/discussion—2 hours; discussion—1 hour; film viewing—3 hour. Historical, critical, and theoretical survey of the cinemas of Latin America and their relationship to the emergence of U.S. Latino cinema. Emphasis on representation and social identity including gender, sexuality, class, race and ethnicity. GE credit: ArtHum, Div | AH, VL, WC, WE.—*W. (W.)* de la Mora

(change in existing course—eff. spring 15)

Upper Division

100. Chicana/Chicano Theoretical Perspective (4)
Lecture/discussion—3 hours; term paper. Prerequisite: courses 10 and 50. Critical examination of emerging Chicana/o Studies theoretical perspectives in light of contemporary intellectual frameworks in the social sciences, arts, and humanities. Includes analysis of practices of self-representation, and socio-cultural developments in the Chicana/o community. GE credit: ACGH, DD, SS, WC, WE.—*S. (S.)* Chabram, Zepeda

(change in existing course—eff. spring 15)

112. Globalization, Transnational Migration, and Chicana/o and Latina/o Communities (4)
Lecture—4 hours. Prerequisite: course 10. Chicana/o and Latina/o migration experiences within a global context. Topics include national and/or transnational migration in Mexico, Central America, and the United States. GE credit: SocSci, Div, Wrt | ACGH, DD, OL, SS, WE.—Flores, Deeb-Sossa

(change in existing course—eff. spring 15)

114S. Women of Color Reproductive Health and Gender Politics in a Cuba and the US (4)
Lecture/discussion—3 hours; term paper. Study of contemporary issues in reproductive health, reproductive politics, and gender politics both in Cuba and in the U.S., for women of color. Offered in alternate years. GE credit: SocSci | ACGH, DD, SS, WC, WE.—*W. (W.)* Deeb-Sossa

(new course—eff. spring 15)

123. Psychological Perspectives on Chicana/o and Latina/o Children and Adolescents (4)
Lecture—3 hours; term paper. Prerequisite: course 10 or 21. Restricted to upper division standing. Psychological and educational development of Chicano/Latino children and adolescents, with particular attention to the formation of ethnic, gender, class, race, and sexual identities. GE credit: SocSci, Div, Wrt | ACGH, DD, OL, SS, WE.—Flores

(change in existing course—eff. fall 14)

130. United States-Mexican Border Relations (4)
Lecture—3 hours; term paper. Prerequisite: upper division standing. Theories of U.S.-Mexican border relations, with an overview of the political, economic, and social relationships and an in-depth analysis of immigration issues, border industrialization, women's organizations, economic crises, and legal issues. GE credit: Div | ACGH, DD, SS, WE.—*F. (F.)* Chabram, Rosa

(change in existing course—eff. spring 15)

131. Chicanas in Politics and Public Policy (4)
Lecture/discussion—4 hours. Prerequisite: course 30 or Political Science 1. Historical and political analysis of Chicana/Latina political involvement and activities in the general political system, women's movement, Chicano movement, and Chicana movement. Course also examines the public policy process and the relationship of Chicanas/Latinas to public policy formation. Offered in alternate years. GE credit: SocSci, Div | ACGH, DD, SS, OL, WE.—Yeh

(change in existing course—eff. winter 15)

135S. 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. Offered irregularly. GE credit: OL, WC, WE.

(change in existing course—eff. spring 15)

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. Offered in alternate years. GE credit: SciEng | ACGH, DD, QL, SE. *S. (S.)*

(change in existing course—eff. spring 15)

141. Community-Based Participatory Research and Chicana/o and Latina/o Health (4)
Lecture/discussion—3 hours; term paper. Overview of CBPR, as well as methodological CBPR considerations in building community partnerships, community assessment, issue analysis, research planning, data gathering, and data sharing with Chicana/o and Latina/o communities in particular. GE credit: WE.—*F. (F.)* Flores, Deeb-Sossa

(new course—eff. spring 15)

150. The Chicana and Chicano Movement (4)
Lecture—3 hours; term paper. Development of the Chicano Movement within the context of the sociopolitical movements of the 1960's in a national and global perspective. Ideological/political perspectives and the implications for political strategies. GE credit: ArtHum, Div, Wrt | ACGH, AH or SS, DD, WC, WE.—*W. (W.)*

(change in existing course—eff. spring 15)

161. Queer Latinidad (4)
Lecture/discussion—3 hours; term paper or discussion. Introduction to queer Latina and Latino studies with a focus on Chicana and Chicano theory and cultural production. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*S. (S.)* de la Mora, Zepeda

(new course—eff. fall 15)

171. Mexican and Chicano Mural Workshop (4)
Studio—8 hours; independent study—1 hour. Prerequisite: course 70; consent of instructor. The Mural: a collective art process that empowers students and people through design and execution of mural paintings in the tradition of the Mexican Mural Movement; introduces materials and techniques. May be repeated one time for credit. (Same course as Art Studio 171.) GE credit: ArtHum | AH, VL.—*S.* Jackson, Montoya

(change in existing course—eff. spring 15)

172. Chicana/o Voice/Poster Silk Screen Workshop (4)
Studio—8 hours; independent study—1 hour. Prerequisite: course 70 or course 73 and consent of instructor. The poster as a voice art form used by Chicanas/os and other people of color to point to the defects of social and political existence and the possibility for change, from the Chicana/o artists' perspective. May be repeated one time for credit. GE credit: AH, OL, VL, WC.—*W.* Jackson

(change in existing course—eff. spring 15)

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. Offered irregularly.—de la Torre

(change in existing course—eff. spring 15)

182. Race and Juvenile Justice (4)
Lecture—4 hours. Prerequisite: course 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 or SocSci, Div, Wrt | ACGH, DD, OL, SS, WE.—Rojas
(change in existing course—eff. spring 15)

184. Latino Youth Gangs in Global Perspective (4)
Lecture—3 hours; term paper. Comparative analysis of Latino youth gangs in Europe, Latin America, and the United States. Social, economic, political, and cultural factors leading to youth gangs as well as the responses are considered within a global perspective. Not open for credit to students who have completed course 184S. Offered irregularly. GE credit: SocSci | ACGH, DD, OL, SS, WC, WE.
(change in existing course—eff. spring 15)

194HA. Senior Honors Research Project (2-5)
Independent study—6-15 hours. Prerequisite: senior standing in Chicana/o Studies major. Student is required to read, research, and write Honors Thesis on Chicana/o Studies topics. (Deferred grading only, pending completion of sequence.) GE credit: OL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HB. Senior Honors Research Project (2-5)
Independent study—6-15 hours. Prerequisite: senior standing in Chicana/o Studies major. Student is required to read, research, and write Honors Thesis on Chicana/o Studies topics. (Deferred grading only, pending completion of sequence.) GE credit: OL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HC. Senior Honors Research Project (2-5)
Independent study—6-15 hours. Prerequisite: senior standing in Chicana/o Studies major. Student is required to read, research, and write Honors Thesis on Chicana/o Studies topics. (Deferred grading only, pending completion of sequence.) GE credit: OL, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Graduate

230. Chicano/Latino Hispanic Politics (4)
Seminar—3 hours; term paper. Prerequisite: two undergraduate courses in Chicana/o Studies or consent of instructor. Examination of Chicano/Latino political experiences. Evaluate theories, ideology, and practice of Chicano politics. Brief history of Chicano/Latino/Hispanic political activity, comparisons among political modes, gendered politics, and understanding relationships among Chicano, Mexican, American and world politics. Offered irregularly.—Chabram
(change in existing course—eff. spring 15)

Chinese

New and changed courses in Chinese (CHN)

Lower Division

1. Elementary Chinese (5)
Lecture/discussion—5 hours. Prerequisite: no background in Chinese or placement exam or consent of instructor. Developing elementary level skills of listening, speaking, reading and writing in Mandarin Chinese in everyday communication settings. Introduction of fundamentals of pronunciation, grammar, and Chinese characters will be introduced. GE credit: ArtHum | AH, OL, WC.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

1A. Accelerated Intensive Elementary Chinese (15)
Lecture/discussion—15 hours. Prerequisite: no background in Chinese or placement exam or consent of instructor. Introduction and practice in contexts of pronunciation, writing system, basic grammar and vocabulary as basis of communicative competency in Mandarin Chinese within a special nine-week intensive course which combines courses 1, 2 and 3. Not open for credit to students who have completed course 1, 2, or 3. GE credit: ArtHum | AH, OL, WC.—*Su. (Su.)*
(change in existing course—eff. fall 16)

1BL. Accelerated Written Chinese I (5)
Lecture—5 hours. Prerequisite: placement exam or consent of instructor. Trainings on all the communicative skills of listening, speaking, reading, and writing for students who already have elementary level ability to understand or speak Mandarin Chinese. Emphases on standard Mandarin pronunciation, Chinese characters, and discourse level conversations. Not open for credit to students who have completed course 8. GE credit: ArtHum | AH, OL, WC.—*F. (F.)*
(change in existing course—eff. fall 16)

1CN. Mandarin for Cantonese Speakers I (5)
Lecture—5 hours. Prerequisite: placement exam or consent of instructor. Training in spoken Mandarin, particularly in the phonetic transcription system known as pinyin, for students who already read and write Chinese. Not open for credit to students who have completed course 7. GE credit: ArtHum | AH, OL, WC.
(change in existing course—eff. fall 16)

2. Elementary Chinese (5)
Lecture/discussion—5 hours. Prerequisite: course 1 or placement exam or consent of instructor. Continuation of elementary level skill development in listening, speaking, reading and writing Mandarin Chinese in everyday communication settings. Continued introduction of basic vocabulary and characters as well as core grammar, and further train pronunciation. GE credit: ArtHum | AH, OL, WC.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

2BL. Accelerated Written Chinese II (5)
Lecture—5 hours. Prerequisite: course 1BL or placement exam or consent of instructor. Further trainings on all the communicative skills of listening, speaking, reading, and writing for students that already have elementary level ability to understand or speak Mandarin Chinese. Emphases on standard Mandarin pronunciation, Chinese characters, and discourse level conversations. Not open for credit to students who have completed course 18. GE credit: ArtHum | AH, OL, WC.—*W. (W.)*
(change in existing course—eff. spring 16)

2CN. Mandarin for Cantonese Speakers II (5)
Lecture—5 hours. Prerequisite: course 1CN or placement exam or consent of instructor. Continuation of course 1CN. Continuation of course 1CN. Training in spoken Mandarin for students who can already read and write Chinese. Not open for credit to students who have completed course 17. GE credit: ArtHum | AH, OL, WC.
(change in existing course—eff. spring 16)

3. Elementary Chinese (5)
Lecture/discussion—5 hours. Prerequisite: course 2 or placement exam or consent of instructor. Continuation of elementary level skill development in listening, speaking, reading and writing Mandarin Chinese in everyday communication settings. Continued introduction of basic vocabulary and characters as well as core grammar, and further train pronunciation. GE credit: ArtHum | AH, OL, WC.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

3BL. Accelerated Written Chinese III (5)
Lecture—5 hours. Prerequisite: course 2BL or placement exam or consent of instructor. Continuation of course 2BL with further trainings on all the communicative skills of listening, speaking, reading, and writing with emphases on standard Mandarin pronunciation, Chinese characters, and discourse level conversations in more communication settings. Not open for credit to students who have completed course 28. GE credit: ArtHum | AH, OL, WC.—*S. (S.)*
(change in existing course—eff. spring 16)

3CN. Mandarin for Cantonese Speakers III (5)
Lecture—5 hours. Prerequisite: course 2CN or placement exam or consent of instructor. Continuation of course 2CN. Prepares students for entering upper division courses in Chinese. Not open for credit to students who have completed course 27. GE credit: ArtHum | AH, OL, WC.
(change in existing course—eff. spring 16)

4. Intermediate Chinese (5)
Lecture/discussion—5 hours. Prerequisite: course 3; or placement exam or consent of instructor. Continuation of intermediate-level communication skills in spoken and written Mandarin, based on language skills developed in course 3. GE credit: ArtHum | AH, OL, WC.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

4A. Accelerated Intensive Intermediate Chinese (15)
Prerequisite: course 3 or 1A; or placement exam or consent of instructor. 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. GE credit: ArtHum | AH, OL, WC.—*F. (F.)*
(change in existing course—eff. spring 16)

5. Intermediate Chinese (5)
Lecture/discussion—5 hours. Prerequisite: course 4; or placement exam or consent of instructor. Training continues at intermediate-level in spoken and written Chinese in cultural contexts, based on language skills developed in course 4. GE credit: ArtHum | AH, OL, WC.—*W. (W.)*
(change in existing course—eff. spring 16)

6. Intermediate Chinese (5)
Lecture/discussion—5 hours. Prerequisite: course 5; or placement exam or consent of instructor. Intermediate-level training in spoken and written Chinese in cultural contexts, based on language skills developed in course 5. GE credit: ArtHum | AH, OL, WC.—*S. (S.)*
(change in existing course—eff. spring 16)

7. Chinese Business Culture (4)
Lecture/discussion—4 hours. Prerequisite: consent of instructor. Open to non-heritage students who have no prior knowledge of, or background in, the Chinese language; anyone who has taken Chinese language classes before or after being enrolled at UC Davis, or anyone who is currently enrolled in a Chinese language class, or who speaks any Mandarin or Chinese dialect (e.g., Cantonese), cannot take the course for credit without the instructor's permission. Introduction to business culture of China. Basic con-

versation and Romanization of Chinese words. GE credit: ArtHum or SocSci, Div | AH or SS, OL, WC.—Yeh

(change in existing course—eff. summer 15)

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 | AH, WC.—Chen

(change in existing course—eff. summer 15)

11. Great Books of China (in English) (4)
Lecture—3 hours; discussion—1 hour. Selected readings in English translation are supplemented with background information on periods, authors and the interrelationships of culture, literature and social change. Methods of analysis are introduced and applied in class discussions. GE credit: ArtHum, Div, Wrt | AH, WC.—Halperin

(change in existing course—eff. summer 15)

50. Introduction to the Literature of China and Japan (4)
Lecture/discussion—4 hours. Methods of literary analysis and their application to major works from the various genres of Chinese and Japanese literature (in translation), including film. East Asian cultural traditions will also be introduced. (Same course as Japanese 50.) GE credit: ArtHum, Div, Wrt | AH, WC.—Gundry

(change in existing course—eff. summer 15)

Upper Division

100A. Chinese Intellectual Traditions: Daoist Traditions (4)
Lecture/discussion—4 hours. Prerequisite: 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. (Same course as Religious Studies 175A) GE credit: ArtHum, Div, Wrt | AH, WC.—Halperin

(change in existing course—eff. spring 16)

100B. Confucian Traditions (4)
Lecture/discussion—4 hours. Key aspects of the Confucian tradition in dynastic China. Major themes addressed include ritual, classical studies, and Confucian influences on the Chinese family and state. GE credit: ArtHum | AH, WC.—Halperin

(new course—eff. fall 14)

101. Chinese Film (4)
Lecture/discussion—3 hours; film viewing—3 hours. English language survey of Chinese film, from its inception to the end of the twentieth century. Chinese films as important texts for understanding national, transnational, racial, gender, and class politics of modern China. (Same course as Cinema & Technocultural Studies 147A.) GE credit: ArtHum, Div | AH, VL, WC.—Chen

(change in existing course—eff. spring 16)

102. Chinese American Literature (in English) (4)
Lecture—3 hours; term paper or discussion—1 hour. 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 | AH, WC.—Chen

(change in existing course—eff. spring 16)

103. Modern Chinese Drama (4)
Lecture—3 hours; term paper or discussion—1 hour. 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 | AH, VL, WC.—Chen

(change in existing course—eff. spring 16)

104. Modern Chinese Fiction (in English) (4)
Lecture—3 hours; term paper or discussion—1 hour. 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 | AH, WC.—Chen

(change in existing course—eff. fall 16)

105. Western Influences on Twentieth-Century Chinese Literature (in English) (4)
Lecture—3 hours; discussion—1 hour. Introduction of Western literary thought into modern China, the experimentation with Western literary forms and techniques, and the development of Marxism in contemporary literary writing. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC.

(change in existing course—eff. spring 16)

106. Chinese Poetry (in English) (4)
Lecture—3 hours; discussion—1 hour. Organized topically and chronologically, the lyric tradition is explored from the dawn of folk songs down to modern expressions of social protest. Topics include friendship, love, oppression, war, parting, death, ecstasy and beauty. All readings are in English. GE credit: ArtHum, Div, Wrt | AH, WC.—Yeh

(change in existing course—eff. spring 16)

107. Traditional Chinese Fiction (in English) (4)
Lecture—3 hours; discussion—1 hour. English-language course studying the dawn of Chinese fiction and its development down to modern times. Combines survey history with close reading of representative works such as The Story of the Stone and famous Ming-Qing short stories. GE credit: GE credit: ArtHum, Div, Wrt | AH, WC.—Halperin, He

(change in existing course—eff. spring 16)

108. Poetry of China and Japan (in English) (4)
Lecture—3 hours; discussion—1 hour. A comparative approach to Chinese and Japanese poetry, examining poetic practice in the two cultures; includes a general outline of the two traditions, plus study of poetic forms, techniques, and distinct treatments of universal themes: love, nature, war, etc. (Same course as Japanese 108.) GE credit: ArtHum, Div, Wrt | AH, WC.—Yeh

(change in existing course—eff. winter 15)

109A. Topics in Chinese Literature; Crime and Punishment (in English) (4)
Lecture—3 hours; discussion—1 hour. Topics in Chinese literature; crime and punishment. GE credit: ArtHum, Div, Wrt | AH, WC.—Chen, Halperin, Yeh

(change in existing course—eff. spring 16)

109C. Topics in Chinese Literature; Women Writers (in English) (4)
Lecture—3 hours; discussion—1 hour. Topics in Chinese literature; women writers. GE credit: ArtHum, Div, Wrt | AH, WC.—Chen, Halperin, Yeh

(change in existing course—eff. spring 16)

109D. Topics in Chinese Literature; The Knight-Errant (in English) (4)
Lecture—3 hours; discussion—1 hour. Topics in Chinese literature; the knight-errant. GE credit: ArtHum, Div, Wrt | AH, WC.—Chen, Halperin, Yeh

(change in existing course—eff. spring 16)

109E. Topics in Chinese Literature; The City in Fiction (in English) (4)
Lecture—3 hours; discussion—1 hour. Topics in Chinese literature; the city in fiction. GE credit: ArtHum, Div, Wrt | AH, WC.—Chen, Halperin, Yeh

(change in existing course—eff. spring 16)

109G. Topics in Chinese Literature; The Literature of Twentieth-Century Taiwan (in English) (4)
Lecture—3 hours; discussion—1 hour. Topics in Chinese literature; the literature of twentieth-century Taiwan. GE credit: ArtHum, Div, Wrt | AH, WC.—Chen, Halperin, Yeh

(change in existing course—eff. spring 16)

109H. Topics in Chinese Literature; Popular Literature (in English) (4)
Lecture—3 hours; discussion—1 hour. Topics in Chinese literature; popular literature. GE credit: ArtHum, Div, Wrt | AH, WC.—*(S.)* Chen, Halperin, Yeh

(change in existing course—eff. spring 16)

109I. Topics in Chinese Literature; Scholar & The Courtesan (in English) (4)
Lecture—3 hours; discussion—1 hour. Topics in Chinese literature; the scholar and the courtesan. GE credit: ArtHum, Div, Wrt | AH, WC.—Chen, Halperin, Yeh

(change in existing course—eff. spring 16)

110. Great Writers of China: Texts and Context (in English) (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Examination of major theoretical concepts and interpretive methods in the study of literature by using examples from the Chinese tradition; discussions of classical and modern works with an emphasis on the relations between literature, author, society, and culture. GE credit: ArtHum, Div, Wrt | AH, WC.—Yeh, He

(change in existing course—eff. spring 16)

111. Modern Chinese: Reading and Discussion (12)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 6 or placement exam or consent of instructor. Building on Chinese 6/3BL, further development of communication skills in Modern Standard Mandarin-speaking environments. Reading of dialogues/articles pertaining to contemporary China. GE credit: ArtHum | AH, OL, WC.—*F. (F.)*

(change in existing course—eff. spring 16)

111A. Intensive Third-Year Chinese (12)
Lecture/discussion—13.3 hours. Prerequisite: Not open to students who have completed course 111, 112, or 113. Nine-week intensive summer course combines courses 111, 112, and 113. Training at intermediate-high and advanced-low level in spoken and written Chinese in cultural and communicative contexts based on language skills developed in course 6. GE credit: ArtHum | AH, OL, WC.—*Su. (Su.)*

(change in existing course—eff. spring 16)

112. Modern Chinese: Reading and Discussion (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 111 or placement exam or consent of instructor. Continuation of course 111. Further development of communication skills in Modern Standard Mandarin-speaking environments. Reading dialogues/articles pertaining to contemporary China issues and discuss ethical, moral, aesthetic, social, and cultural concerns. Studying strategies for moving between simplified and traditional Chinese characters. GE credit: ArtHum | AH, OL, WC.—*W. (W.)*

(change in existing course—eff. spring 16)

113. Modern Chinese: Reading and Discussion (4)
Lecture—3course 112 or placement exam or consent of instructor 112. Continuation of course 112, further developing communication skills in Modern Standard Mandarin-speaking environments. Read dialogues/articles pertaining to contemporary China issues and discuss ethical, moral, aesthetic, social, and cultural concerns. Study strategies for moving between simplified and traditional Chinese characters. GE credit: ArtHum | AH, OL, WC.—*S. (S.)*
(change in existing course—eff. spring 16)

114. Introduction to Classical Chinese (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 112 or equivalent language proficiency; consent of instructor. Introduction to the language in which, until the twentieth century, most official, documentary, scholarly, and belle-lettristic Chinese literature was written. GE credit: ArtHum | AH, WC.—*F, S. (F, S.)* Halperin, He
(change in existing course—eff. spring 16)

115. Introduction to Classical Chinese II (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 114 or consent of instructor. Continuation of enhancing classical Chinese reading skills with literature ranging from the prose found in Han dynasty historical works, Six Dynasties anecdotal literature, and Tang occasional texts, as well as the poetic shi and fu genres. GE credit: ArtHum | AH, WC.—Halperin, He
(change in existing course—eff. spring 16)

116. Introduction to Classical Chinese III (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 115 or consent of instructor. Translations of extended readings in the original sources and brief analyses of syntax. These sources will include texts written by well-known figures from the eighth through fifteenth centuries, composing in a wide variety of genres. GE credit: ArtHum | AH, WC.—Halperin, He
(change in existing course—eff. spring 16)

120. Advanced Chinese (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 113 or placement exam or consent of instructor. Evaluation of readings from various genres (literature, newspapers, TV and movies, etc.) develop advanced reading, writing, aural comprehension, and formal/professional speech skills in Mandarin Chinese. Chinese society/cultural studies, especially those sociocultural issues reflected in the language used in learning materials. May be repeated one time for credit. Course material is different for each quarter of an academic year. Students may repeat course one time but repeat class cannot be for the same quarter taken in a previous academic year. GE credit: ArtHum | AH, OL, WC.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130. Readings in Traditional Chinese Fiction (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 111 or equivalent language proficiency. Examination of representative works of traditional Chinese fiction popular from the 12th Century until the 17th and 18th centuries. Translations in English of the Chinese texts will be available to students as reference. May be repeated one time for credit. GE credit: ArtHum | AH, VL, WC.—He
(change in existing course—eff. spring 16)

131. Readings in Traditional Chinese Poetry (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 111 or equivalent language proficiency; consent of instructor. Traditional Chinese poetry from its beginnings to the golden ages of Tang and Song, surveying forms and poets that best reveal the Chinese poetic sensibility and the genius of the language of Chinese poetry. GE credit: ArtHum | AH.—Yeh
(change in existing course—eff. spring 16)

132. Readings in Modern Chinese Poetry (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 111 or equivalent language proficiency; consent of instructor. Chinese poetry from the Literary Revolution of 1917 to the present, surveying works that embody exciting innovations and reflect the modernity of twentieth-century Chinese society and culture. GE credit: ArtHum | AH, WC.—Yeh
(change in existing course—eff. spring 16)

133. Readings in Modern Chinese Prose and Drama (4)
Lecture—4 hours. Prerequisite: course 111 or equivalent language proficiency. Literary works and scholarly essays on selected topics of Chinese prose and drama, development of a deep understanding of Chinese culture and society through sophisticated reading materials of these two important genres of the modern period. Conducted in Chinese. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC.—Chen
(change in existing course—eff. spring 16)

134. Chinese Film in Chinese Language (4)
Lecture—3 hours; film viewing—3 hours. Prerequisite: course 111 or equivalent language proficiency. Chinese placement exam. Chinese film and scholarly essays on Chinese cinema and film history. Develop a deep understanding of Chinese culture and society through viewing and studying Chinese films in the Chinese language. GE credit: ArtHum or SocSci | AH or SS, OL, VL, WC.—Chen
(change in existing course—eff. spring 16)

150. Fifth-Year Chinese: Selected Topics in Chinese Language, Literature, and Culture (4)
Lecture/discussion—4 hours. Prerequisite: course 120 or placement exam or consent of instructor. Examination of literary works and scholarly essays on selected topics of Chinese culture and society. Development of a deep understanding of Chinese culture and society through sophisticated Chinese speaking and writing exercises. May be repeated three times for credit when topic differs. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, OL, WC, WE.—Chu, He, Yeh
(change in existing course—eff. spring 16)

160. The Chinese Language (4)
Lecture/discussion—4 hours. Prerequisite: course 6 or 3BL or 3CN or 4A (can be concurrent) or placement exam or consent of instructor; Linguistics 1 recommended. Evaluation of the Chinese language viewed in its linguistic context, synchronically and diachronically. Historical phonology, classical and literary language, rise of written vernacular, descriptive grammar of modern standard Chinese, dialectal variation, and sociolinguistic factors. GE credit: ArtHum | AH, WC.—Chu
(change in existing course—eff. spring 16)

194H. Special Study for Honors Students (1-5)
Independent study—3-15 hours. Prerequisite: senior standing and qualification for the Chinese honors program; consent of instructor. Guided research, under the direction of a faculty member, leading to a senior honors thesis on a topic in Chinese literature, civilization, or language studies. May be repeated up to eight units for credit. (P/NP grading only.) GE credit: ArtHum | AH, WC, WE. —*F, W, S. (F, W, S.)*
(new course—eff. fall 14)

197T. Tutoring in Chinese (1-5)
Tutoring—1-5 hours. Prerequisite: consent of Department. Leading of small voluntary discussion groups affiliated with one of the Department's regular courses. May be repeated for credit, but only 2 units may be applied to the minor. (P/NP grading only.)—*F, W, S. (F, W, S.)* Chu
(change in existing course—eff. spring 16)

Professional

396. Teaching Assistant Training Practicum (1-4)
Prerequisite: consent of instructor; graduate standing. Any course taught by a graduate student under the direction of the Director. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)* Chu
(change in existing course—eff. spring 16)

Cinema & Technocultural Studies

New and changed courses in Cinema & Technocultural Studies (CTS)

Lower Division

40A. Media History 1, Guttenberg to Oppenheimer (4)
Lecture—3 hours; discussion—1 hour; film viewing—2 hours; extensive writing. History of Media to 1945, with particular focus on mechanically reproduced mass media technologies including the printing press, the newspaper, photography, cinema, radio and early computing technology. Analysis of inter-related cultural and political topics. (Same Course As: Science and Technology Studies 40A.) GE credit: ArtHum or SocSci | AH or SS, OL, VL, WE.—*F. (F.)*
(new course—eff. fall 14)

40B. Media History 2 1945-Present (4)
Lecture—3 hours; discussion—1hour; film viewing—2 hours; extensive writing. Prerequisite: course 40A. History of media from 1945 to present, with particular focus on the development of the computer, digital network and internet technologies in the context of other media infrastructures like radio, television and satellite networks. Analysis of inter-related cultural/political topics. (Same course as Science & Technology Studies 40B.) GE credit: ArtHum or SocSci | AH or SS, OL, VL, WE.—*F. (F.)*
(new course—eff. winter 15)

41A. History of Cinema from 1895 to 1945 (4)
Lecture—2 hours; discussion—1 hour; film viewing—3 hours; extensive writing. Examination of the cultural context of the emergence of cinema. Discussion of cinema as a product of the age of industrialization and conquest, as well as an element of urban culture, and mass transportation. GE credit: ArtHum | AH, OL, VL, WC, WE.
(new course—eff. fall 14)

41B. History of Cinema from 1945 to the present (4)
Lecture—2 hours; discussion—1 hour; film viewing—3 hours; extensive writing. Examination of cinema in the postwar period. Study of world cinema trends and the economic and socio-political conditions enabling innovative work in the film industry. GE credit: ArtHum | AH, OL, VL, WC, WE.
(new course—eff. fall 14)

Upper Division

124E. Costume Design for Film (4)
Lecture/discussion—4 hours. Prerequisite: for Dramatic Art majors; Dramatic Art 24 or 124D or consent of instructor. Theory and practice of the art and business of film costume design. Script analysis, cos-

tume research, developing design concepts, budgeting, and current production practices and methods. Execution of designs for period and contemporary films. Viewing of current films. (Same course as Dramatic Art 124E.) GE credit: ArtHum | AH, OL, VL.—*W. (W.)* Morgan

(new course—eff. winter 14)

148B. Japanese Literature on Film (4)
Lecture/discussion—3 hours; film viewing—3 hours. 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. (Same course as Japanese 156.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*(S.)* Sorensen

(new course—eff. winter 16)

162. Surveillance Technologies and Social Media (4)
Lecture—3 hours; film viewing—3 hours; term paper. Prerequisite: Technocultural Studies 1 or course 20. Study of the ubiquitous presence of CCTV, face recognition software, global tracking systems, biosensors, and data mining practices that have made surveillance part of our daily life. Exploration of the boundary between security and control, information and spying. (Same course as Science & Technolody Studies 162.) Offered in alternate years. GE credit: ACGH, AH or SS, OL, VL, WE.—Ravetto

(change in existing course—eff. winter 15)

172. Video Games and Culture (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: Technocultural Studies 1 or English 3 or Science and Technology Studies 1 or equivalent. Critical approaches to the study of video games, focusing on formal, historical, and cultural modes of analysis. History of software and hardware in North American and global contexts. Relations of games to society, politics, economics, literature, media, and the arts. (Same course as Science and Technology Studies 172 and English 172.) GE credit: ArtHum or SocSci | ACGH, AH or SS, VL.

(change in existing course—eff. spring 15)

174. Acting for Camera (4)
Lecture/laboratory—6 hours. Prerequisite: consent of instructor. Analysis and practice of acting skills required for camera work and digital media. May be repeated eight times for credit when instructor differs. (Same course as Dramatic Art 174.)—*S. (S.)* Anderson

(change in existing course—eff. summer 15)

Classics

New and changed courses in Classics (CLA)

Lower Division

1. The Ancient Near East and Early Greece: 3000-500 B.C.E. (4)
Lecture—3 hours; discussion—1 hour. Introduction to the literature, art, and social and political institutions of ancient Mesopotamia, Egypt, Palestine, and early Greece from 3000 to 500 B.C.E. GE credit: ArtHum, Wrt | AH, WC, WE.—Brelinski

(change in existing course—eff. spring 15

2. Ancient Greece and the Near East: 500 to 146 B.C.E. (4)
Lecture—3 hours; term paper. Introduction to the literature, art and thought and the political and social institutions and values of Greece and its eastern Mediterranean neighbors—the Persians, Egyptians, and Judeans. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. spring 15)

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 | AH, WC, WE.—Stem

(change in existing course—eff. spring 15

4. Late Antiquity (4)
Lecture—3 hours; discussion—1 hour. History and culture of the Roman and Byzantine empires from the third to the eighth century. Transformation of the classical Mediterranean world through political and cultural interactions, rise of Christianity and Islam, beginning of the medieval period in Europe. GE credit: ArtHum | AH, WC, WE.—*F, W. (F, W.)* Albu, Chin

(new course—eff. fall 16)

10. Greek, Roman, and Near Eastern Mythology (3)
Lecture—3 hours. Examination of major myths of Greece, Rome, and the Ancient Near East; their place in the religion, literature and art of the societies that produced them; their subsequent development, influence and interpretation. GE credit: ArtHum | AH, VL, WC.—Rundin, Seal, Stem, Uhlig

(change in existing course—eff. spring 15)

10Y. Greek, Roman, and Near Eastern Mythology—Hybrid (3)
Lecture—2 hours; web virtual lecture—1 hour. Prerequisite: course 3 (required concurrently) or consent of instructor. Examination of major myths of Greece, Rome, and the Ancient Near East; their place in the religion, literature and art of the societies that produced them; their subsequent development, influence and interpretation. GE credit: ArtHum | AH, VL, WC.—*F, W, S. (F, W, S.)* Brelinski, Rundin, Seal, Stem, Uhlig

(new course—eff. winter 16)

15. Women in Classical Antiquity (4)
Lecture/discussion—3 hours; term paper. Lives and roles of women and men in ancient Greece and Rome. Readings from history, philosophy, medical and legal documents, literature and myth. Offered irregularly. GE credit: ArtHum | AH, VL, WC, WE.—Popescu, Seal

(change in existing course—eff. spring 15)

20. Pompeii AD 79 (4)
Lecture—3 hours; term paper. Roman life in an urban community at the time of the eruption of Vesuvius. Slide presentations of the archeological evidence will be supplemented by selected readings from Petronius' *Satyricon* and other ancient authors. GE credit: ArtHum, Wrt | AH, VL, WC, WE.

(change in existing course—eff. spring 15

25. The Classical Heritage in America (4)
Lecture/discussion—3 hours; term paper. Classical heritage in the New World, with emphasis on the United States from its colonial past to the present day. The reception of Greco-Roman thought and values as expressed in art, architecture, education, law, government, literature, and film. Offered irregularly. GE credit: ArtHum, Wrt | ACGH, AH, WE.

(change in existing course—eff. spring 15)

30F. Greek and Latin Elements in English Vocabulary (3)
Lecture—3 hours. Restricted to incoming freshmen. Knowledge of Latin and Greek not required. Elements of Greek and Latin vocabulary for increased understanding of English word formation and improved ability to understand and retain unfamiliar words. Emphasis on Greek and Latin elements but other languages not neglected. Not open for credit to students who have completed course 30. GE credit: ArtHum | AH.—*F. (F.)* Albu, Brelinski, Popescu, Rundin

(change in existing course—eff. spring 15)

31. Greek and Latin Elements in Technical Vocabulary (3)
Lecture—3 hours. Knowledge of Greek and Latin not required. Elements of Greek and Latin vocabulary to increase understanding of English word formation in medical, scientific and technical terminology and improve ability to understand and retain unfamiliar terms. GE credit: ArtHum | AH.

(change in existing course—eff. spring 15)

50. The Rise of Science in Ancient Greece (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Mathematics 16A or the equivalent. Study of the emergence of scientific rationality in ancient Greece and its political and social context; concentration on four areas: mathematics, medicine, cosmology, and psychology. Reading from the Presocratics, Hippocrates, Plato, Aristotle, and Hellenistic philosophers. GE credit: ArtHum, Wrt | AH, WC, WE.—Webster

(change in existing course—eff. spring 15)

51. Ancient Medicine (4)
Lecture—3 hours; discussion—1 hour. Medicine in ancient Greece and Rome; physiological conceptions of the body within scientific and social frameworks; exploration of sanitation technology and health in antiquity; medical treatment of the female body; medicine and the economy. (Same course as Science and Technology Studies 51.) Offered in alternate years. GE credit: AH, WC, WE.—Webster

(new course—eff. winter 16)

Upper Division

101A. Topics in Ancient Mediterranean Civilizations (4)
Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Topics may be ordered by time or place (e.g. Hellenistic Egypt) or by theme or genre (e.g. slavery in the ancient world). May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Albu

(change in existing course—eff. spring 16)

101B. Topics in Greek Civilization (4)
Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Topics may be ordered by time or place (e.g. the world of Homer) or by theme or genre (e.g. the Greek art of war). May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Albu, Webster

(change in existing course—eff. fall 16)

101C. Topics in Roman Civilization (4)
Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Topics may be ordered by time or place (e.g. Julius Caesar and his age) or by theme or genre (e.g. gladiators: blood in the arena). May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Albu

(change in existing course—eff. fall 16)

101D. Topics in Classical Receptions (4)
Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Topics in classical reception from late antiquity to the present. Topics may be ordered by time or place (e.g. the classical tradition in Washington, D.C.) or by theme or genre (e.g. cinematic rep-

resentations of the ancient world). May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Albu

(change in existing course—eff. fall 16)

101E. Topics in Ancient Science (4)

Lecture/discussion—3 hours; term paper. Prerequisite: course 50 or 51, or by consent of instructor. Topics may be ordered by discipline (e.g. ancient medicine), historical figure (e.g. Galen) or topic (e.g. science and the economy). May be repeated two times for credit when topic differs. Offered irregularly. GE credit: AH, WE.—Webster

(new course—eff. spring 16)

102. Film and the Classical World (4)

Lecture—3 hours; film viewing—2.5 hours. Prerequisite: a lower division Classics course or consent of instructor. The Classical World as portrayed in films. Viewings and discussions of modern versions of ancient dramas, modern dramas set in the Ancient Mediterranean world, and films imbued with classical themes and allusions. Supplementary readings in ancient literature and mythology. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Albu

(change in existing course—eff. spring 16)

105. Theory and Practice of Greek and Roman Mythology (4)

Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Thematically focused study of mythological narratives. Emphasis on the historical development of myths and the variety of theoretical approaches for the study of myth. GE credit: ArtHum | AH, WE.—*F, W, S. (F, W, S.)* Uhlig

(change in existing course—eff. spring 16)

110. Origins of Rhetoric (4)

Lecture—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Issues in the development of rhetoric from its origins in ancient Greece to A.D. 430. Special attention to works of Plato, Aristotle, Cicero, and Quintilian. Role of grammar and rhetoric in schools of Roman Empire. The Christian rhetoric of Saint Augustine. Not open for credit to students who have completed Rhetoric and Communication 110 or Communication 110. (Former course Rhetoric and Communication 110.) GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

120. Greek and Roman Historiography (4)

Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Survey of Greek and Roman historical writing in English translation. Authors to be read may include Herodotus, Thucydides, Sallust, Livy, and Tacitus. Focus on the development of historical writing as a literary genre. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Seal

(change in existing course—eff. spring 16)

125. Roman Political Thought (4)

Lecture—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Survey of Roman thinking about politics, as expressed both in formal theorizing and in a variety of other contexts, including oratory, historiography, and epic. Study of Roman political reflection in its historical, cultural, and literary context. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Seal

(change in existing course—eff. fall 16)

140. Homer and Ancient Epic (4)

Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Reading of the classical epics of Homer (Iliad, Odyssey) and Virgil (Aeneid) in English. Discussion of techniques of composition, the beliefs and values of their respective societies, and the generic tradition of ancient epic. GE credit: ArtHum, Wrt | AH, WC, WE.—*F, W, S. (F, W, S.)* Brelinski, Popescu

(change in existing course—eff. fall 16)

141. Greek and Roman Comedy (4)

Lecture—3 hours; conference—1 hour. Prerequisite: a lower division Classics course or consent of instructor. Readings in Aristophanes, Menander, Plautus, and Terence; lectures on the development of ancient comedy. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Popescu

(change in existing course—eff. fall 16)

142. Greek and Roman Novel (4)

Lecture—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Examination of the ancient Greek romances and their development into the grotesque realism of Petronius' Satyricon, and the religious mysticism of Apuleius' The Golden Ass. GE credit: ArtHum, Wrt | AH, WC, WE.—*S. (S.)* Popescu

(change in existing course—eff. spring 16)

143. Greek Tragedy (4)

Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Reading in English of selected plays of Aeschylus, Sophocles, and Euripides. Discussion of the development and influence of Athenian tragedy. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Popescu

(change in existing course—eff. spring 16)

150. Socrates and Classical Athens (4)

Lecture/discussion—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Study of the major sources of our knowledge of Socrates, assessment of his role in the politics and culture of ancient Athens, his method of teaching, and his place in Western thought. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Seal

(change in existing course—eff. spring 16)

171. Mediterranean Bronze Age Archaeology (4)

Lecture—3 hours; extensive writing. Prerequisite: a lower division Classics course or consent of instructor. Archaeological monuments of the ancient Near East, including Egypt and Mesopotamia, and of Greece and Crete during the Bronze Age. Special emphasis on the problems of state formation and on the co-existence and collapse of Bronze Age societies. GE credit: ArtHum, Div, Wrt | AH, WC.—*F, W, S. (F, W, S.)* Roller

(change in existing course—eff. spring 16)

172A. Early Greek Art and Architecture (4)

Lecture—3 hours; term paper. Examination of the origin and development of the major monuments of Greek art and architecture from the eighth century to the mid-fifth century B.C. (Same course as Art History 172A.) GE credit: ArtHum, Wrt | AH, VL, WE.—Roller

(change in existing course—eff. spring 15)

172B. Later Greek Art and Architecture (4)

Lecture—3 hours; term paper. Study of the art and architecture of later Classical and Hellenistic Greece, from the mid-fifth century to the first century B.C. (Same course as Art History 172B.) GE credit: ArtHum, Wrt | AH, VL.—Roller

(change in existing course—eff. spring 15)

173. Roman Art and Architecture (4)

Lecture—3 hours; term paper. Art and architecture of Rome and the Roman Empire, from the founding of Rome through the fourth century C.E. (Same course as Art History 173.) GE credit: ArtHum, Wrt | AH, VL, WE.—Roller

(change in existing course—eff. spring 15)

174. Greek Religion and Society (4)

Lecture—3 hours; term paper. Prerequisite: a lower division Classics course or consent of instructor. Cults, festivals, and rituals of Greek religious practice and their relationship to Greek social and political institutions, and to Greek private life. Includes discussion of major sanctuaries at Olympia, Delphi, Athens, and others. GE credit: ArtHum, Wrt | AH, WC.—*F, W, S. (F, W, S.)* Roller

(change in existing course—eff. spring 16)

175. Architecture and Urbanism in Mediterranean Antiquity (4)

Lecture—3 hours; extensive writing. Prerequisite: a lower division course (except 30, 31); Art History 1A recommended. Architecture and urban development in the ancient Near East, Greece, and Rome. Special emphasis on the social structure of the ancient city as expressed in its architecture, and on the interaction between local traditions and the impact of Greco-Roman urbanism. (Same course as Art History 175.) GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—Roller

(change in existing course—eff. spring 15)

190. Senior Seminar (4)

Seminar—3 hours; term paper. Prerequisite: completion of one upper division course in Latin, Greek or Hebrew or consent of instructor. Advanced interdisciplinary study of a problem in the ancient Mediterranean world using the techniques of history, archaeology, art history and philology. May be repeated for credit with consent of instructor. GE credit: ArtHum, Wrt | AH, WE.

(change in existing course—eff. spring 15)

194HA. Special Study for Honors Students (3)

Discussion—1 hour; independent study; term paper. Prerequisite: admission to the honors program and consent of faculty member supervising honors thesis. Directed reading, research and writing culminating in the completion of a senior honors thesis under the direction of faculty adviser. (Deferred grading only, pending completion of sequence. P/NP grading only.) GE credit: AH.—*F. W. (F, W.)*

(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (3)

Discussion—1 hour; independent study; term paper. Prerequisite: admission to the honors program and consent of faculty member supervising honors thesis. Directed reading, research and writing culminating in the completion of a senior honors thesis under the direction of faculty adviser. (Deferred grading only, pending completion of sequence. P/NP grading only.) GE credit: AH.—*W, S. (W, S.)*

(change in existing course—eff. summer 15)

Graduate

200A. Approaches to the Classical Past (4)

Seminar—3 hours; term paper. Prerequisite: graduate student status or consent of instructor. Survey of major areas of classical scholarship, with special emphasis on the continuing impact of Mediterranean antiquity on later literature, history, art, and culture.—*F, W, S. (F, W, S.)* Albu

(change in existing course—eff. spring 16)

200B. Approaches to the Classical Past (4)

Independent study—4 hours. Prerequisite: course 200A and graduate student status or consent of instructor. Restricted to graduate students. Research project on major area of Classical scholarship, with special emphasis on the continuing impact of Mediterranean antiquity on later literature, history, art, and culture.—*F, W, S. (F, W, S.)* Albu

(change in existing course—eff. spring 16)

201. Introduction to Classical Philology (4)
Seminar—3 hours; term paper. Survey of major contemporary areas of classical scholarship with special attention devoted to current problems in literary and textual criticism.
(change in existing course—eff. spring 15)

202. Homer (4)
Seminar—3 hours; term paper. Readings in the Iliad and Odyssey: the origins and transmission of the poems.
(change in existing course—eff. spring 15)

203. Vergil (4)
Seminar—3 hours; term paper. Reading of selected books of the Bucolics, Georgics, and Aeneid. Emphasis will be placed on the study of Vergilean poetic language.
(change in existing course—eff. spring 15)

204. Greek and Roman Comedy (4)
Seminar—3 hours; term paper. Historical and critical problems in Aristophanes or New Comedy. May be repeated for credit.
(change in existing course—eff. spring 15)

205. Latin Lyric and Elegy (4)
Seminar—3 hours; term paper. Critical examination of the works of Catullus, Horace, or Propertius. May be repeated for credit.
(change in existing course—eff. spring 15)

206. Greek Historiography (4)
Seminar—3 hours; term paper. Development of historical writing in Greece. May be repeated for credit.
(change in existing course—eff. spring 15)

207. Greek Drama (4)
Seminar—3 hours; term paper. Literary and philological analysis of the plays of Euripides, Sophocles, or Aeschylus. May be repeated for credit.
(change in existing course—eff. spring 15)

Clinical Research

New and changed courses in Clinical Research (CLH)

Graduate

202. Introduction to Clinical Epidemiology and Study Design (3)
Lecture—25 hours; discussion—10 hours. Prerequisite: completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DNS in nursing; application and acceptance into the Clinical Research Graduate Group, (K30) program, or other SOM/CTSC training programs. 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. (Formerly Medical Sciences 462CR.) (S/U grading only.)—*Su. (Su.)* McCurdy, Romano
(change in existing course—eff. spring 15)

203. Methods in Clinical Research (3)
Lecture—4 hours; discussion—1 hour; independent study—10 hours. Prerequisite: completed one of the following degrees: MD, DDS, DMD, OD, ND, DO, PharmD, DVM, PhD or DNS in nursing; application and acceptance into the Clinical Research Graduate Group, K30 program or other SOM training programs; consent of instructor. Overview of major approaches to clinical research, including health services research techniques, informatics, GCRC, and preclinical methodologies to enhance clinical projects. Overview of UCD clinical research support infrastructure. Methodologies applicable to clinical research and its multi-disciplinary perspective. (S/U grading only.)—*Su. (Su.)* Schweitzer
(change in existing course—eff. spring 15)

204. The Ethics of Research (1)
Lecture—3 hours. Prerequisite: consent of instructor. Priority given to those with acceptance into the Clinical Research Graduate Group, K12, T32 or other SOM/CTSC training program. Acquire information about ethical responsibilities; Explore major questions in ethics; Apply ethical principles, concepts and values; Gain an appreciation of the role of trust in scientific research. Recommend three quarters of CLH204. Must enroll in Fall to continue through Spring. (S/U grading only.)—*F, W, S. (F, W, S.)* Yarborough
(change in existing course—eff. fall 16)

207. Team Science (1)
Lecture/discussion—1 hour. Prerequisite: participation in CTSC Research Education and Training Programs, or consent of instructor. Restricted to 25 students. Today's scientific challenges necessitate cross-disciplinary engagement and high collaboration levels. This course offers guidance on how best to engage in team science to pursue complex questions, work effectively with team members, and produce high impact research that meets society's needs. (S/U grading only.) —*S. (S.)* Crumley, Meyers
(new course—eff. winter 15)

208. Introduction to Grant Writing, I (2)
Lecture/discussion—2 hours; extensive writing. First in a two-quarter series. Scholars are encouraged to enroll in both classes. The two-course sequence provides training in practical aspects of competitive grant writing. The focus is NIH, but information will apply to other funding agencies. (S/U grading only.)—*F. (F.)* Chedin, Guo, Ozonoff
(new course—eff. fall 14)

210Y. Principles and Methods of Comparative Effectiveness Research (4)
Web virtual lecture—4 hours; discussion—2 hours; project—6 hours; web electronic discussion. Prerequisite: familiarity with research methodology, and a course in introductory statistics; consent of instructor. Provides an introduction to Comparative Effectiveness Research (CER) and methods for conducting CER. (S/U grading only.)—*S. (S.)* Fancher, Kravitz, Leigh, Melnikow, Romano, Tancredi
(new course—eff. winter 15)

211. Critical Assessment of the Biomedical Literature (1)
Lecture/discussion—1 hour. Prerequisite: consent of instructor. Exposes students to topical issues and controversies in the design of interdisciplinary translational research, with an emphasis on critical assessment of the biomedical and health sciences literature. The course extends students' knowledge of study design through practical application. May be repeated three times for credit. (S/U grading only.)—*F, W, S. (F, W, S.)* Bold, Franks, Lane, Romano
(new course—eff. fall 16)

212. Introduction to Stem Cell Biology (3)
Lecture/discussion—1 hour. Prerequisite: consent of instructor. Introduction to Stem Cell Biology. Each week will focus on different aspects of stem cells, including general concepts, stem cells in lower organisms, embryonic stem cells and cellular reprogramming. Open to graduate students with a fundamental knowledge of cell biology. —*F. (F.)* Fierro
(new course—eff. spring 16)

245. Biostatistics for Biomedical Science (4)
Lecture—4 hours. Prerequisite: course 244 or Public Health Sciences 244 or the equivalent; consent of instructor. Analysis of data and design of experiments for laboratory data. (Same course as Public Health Sciences 245.)—*W. (W.)* Kim
(new course—eff. spring 15)

246. Biostatistics for Clinical Research (4)
Lecture—4 hours. Prerequisite: course 245 or Public Health Sciences 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. (Same course as Public Health Sciences 246.) May be repeated for credit. Offered in alternate years.—*W.* Qi
(new course—eff. winter 15)

247. Statistical Analysis for Laboratory Data (4)
Lecture—4 hours. Prerequisite: course 245 or Public Health Sciences 245. Statistical methods for experimental design and analysis of laboratory data including gene expression arrays, RNA-Seq, and mass spec. (Same course as Public Health Sciences 247.)—*(S.)* Rocke
(new course—eff. spring 15)

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.)—*Su. (Su.)* Knowlton, Robbins, Stevenson
(change in existing course—eff. fall 14)

Communication

New and changed courses in Communication (CMN)

Lower Division

1. Introduction to Public Speaking (4)
Lecture—2 hours; discussion—2 hours. Practice in the preparation and delivery of speeches based on contemporary principles and strategies of informing and persuading audiences. GE credit: Wrt | OL, WE.—*F, W, S. (F, W, S.)* Shubb
(change in existing course—eff. winter 15)

10Y. Introduction to Communication (4)
Web virtual lecture—3 hours; discussion—1 hour. Basic principles of communication and communication processes; models of communication; foundations of empirical research in communication; contexts of communication and communication research including interpersonal, intercultural, news, entertainment, mediated, and others. GE credit: SocSci | SS.—*F, W, S, Su. (F, W, S, Su.)* Taylor
(new course—eff. winter 15)

12Y. Data Visualization in the Social Sciences (4)
Lecture—2 hours; laboratory—1.5 hours; web virtual lecture—1.5 hours. Introduction to quantitative data across the social sciences (Communications, Political Science, Psychology, Sociology, and other disciplines). Transforming data, describing data, producing graphs, visual reasoning, and interpreta-

tions. (Same course as Sociology 12Y, Political Science 12Y, Psychology 12Y.) GE credit: QL, VL.—*F, W, S. (F, W, S.)* Cross

(new course—eff. spring 16)

76. Video Games and Virtual Environments (4)

Lecture—3 hours; discussion—1 hour. Impact of video games on players and society. Topics include motivations for playing games; cognitive, emotional, and behavioral effects, including violence and addiction; interpersonal and group processes in online games; virtual communities; and video games for education. GE credit: SocSci | SS, VL.—*F. (F.)* Peña

(change in existing course—eff. summer 15)

98. Directed Group Study (1-5)

Prerequisite: consent of instructor. Restricted to lower division students. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 14)

Upper Division

102. Empirical Methods in Communication (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Statistics 13 or equivalent. Social scientific research methods commonly employed in Communication. Topics include research design, measurement, sampling, questionnaire construction, survey research, experimental design, evaluation research, content analysis and qualitative field methods. GE credit: SocSci | QL, SS.—*F, W, S. (F, W, S.)* Bell, Palomares, Yegiyan

(change in existing course—eff. winter 15)

103. Gender Differences in Communication (4)

(cancelled course—eff. summer 15)

110. Communication Networks (4)

Lecture/discussion—4 hours. Theoretical approaches to communication networks, practical applications of network studies, and network analysis tools. Topics include friendship, political discussion, social support, organizational, social media, and disease transmission networks. Impact of emerging technologies on network creation, maintenance, and expansion. GE credit: SocSci | SS.—*F. (F.)* Barnett, Shen

(new course—eff. fall 14)

111. Gender Differences in Communication (4)

Lecture—4 hours. Pass One open to Communication majors only. Examination of communication differences between men and women as sources of male/female stereotypes, misunderstandings, dilemmas, and difficulties (real and imagined). Treatment of genders as cultures. Topics include male/female differences in discursive practices and patterns, language attitudes, and relationship dynamics. Not open for credit to students who have taken Communication 103. GE credit: SocSci | DD, SS.—*F. W. (F, W.)* Palomares

(new course—eff. fall 15)

112. Theories of Persuasion (4)

Lecture/discussion—4 hours. Pass One open to Communication majors only. Theories and models of persuasion that account for the effects of source, channel and audience factors on message recipients. Examination of message strategies for altering attitudes and gaining compliance. Contexts of application include interpersonal relationships, advertising, politics, and health. Not open for credit to students who have taken Communication 152. GE credit: SocSci | SS.—*F. W. (F, W.)* Bell, Puckering

(new course—eff. fall 15)

114. Communication and Cognition (4)

Lecture—4 hours. Pass One open to Communication majors only. Relationship between communication and cognition in interpersonal and mediated contexts. Models of discourse comprehension and production, the influence of language attitudes on social judgments, and the effects of information processing on decision making are explored. Not open to students who have completed course 138. GE credit: SocSci | SS.—*S. (S.)* Yegiyan

(change in existing course—eff. fall 15)

120. Interpersonal Communication (4)

Lecture—4 hours. Pass One open to Communication majors only. Theories and principles of interpersonal communication related to perception, verbal and nonverbal channels, mutual understanding, and relationship development. Communication processes in face-to-face and technologically-mediated encounters. Consideration of different relationship contexts, including friendships, dating and family relationships, and the workplace. Not open for credit to students who have completed course 134. GE credit: SocSci | SS.—*F, W, S. (F, W, S.)* Feng, Puckering

(new course—eff. winter 16)

121. Language Use in Conversation (4)

Lecture/discussion—4 hours. Pass One open to Communication majors only. Examination of how people use language in social interaction, how they exchange meaning during conversation, and how their use of language plays a central role in turn-taking, speech acts, attitude formation, figurative speech, politeness, and other aspects of conversation. Not open for credit to students who have taken course 105. GE credit: SocSci | SS.—*F, W. (F, W.)* Palomares

(new course—eff. spring 16)

122. Nonverbal Communication (4)

Lecture—4 hours. Pass One open to Communication majors only. Examination of the interaction between nonverbal communication and verbal communication channels in influencing outcomes in interpersonal relationships. Underlying functions served by nonverbal communication are considered. Not open for credit to students who have completed course 135. GE credit: SocSci | SS.—*W, S. (W, S.)* Puckering

(new course—eff. fall 15)

123. Intercultural Communication (4)

Seminar—3 hours; term paper. Pass One open to Communication majors only. Major concepts and theories of intercultural communication. Topics include cultural similarities and differences in verbal and nonverbal communication; dimensions of cultural variations, barriers to intercultural communication, and intercultural communication competence. Not open for credit to students who have taken course 137. GE credit: SocSci | SS.—*S. (S.)* Feng

(new course—eff. winter 16)

130. Group Communication (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Statistics 13 or equivalent. Communication processes in the development and maintenance of effective groups and teams in organizations. Examination of both face-to-face and computer-mediated group interaction. Topics include group development, power, norms, cohesion, decision making, problem solving, creativity, conflict management, working remotely, and leadership. GE credit: SocSci | SS.—*F. (F.)*

(new course—eff. fall 14)

131. Strategic Communication in Public Relations (4)

Lecture/discussion—4 hours. Pass One open to Communication majors only. Principles, evolution, and professional practice of public relations. Planning and execution of effective, ethical communication strategies and campaigns. Distribution of messages through traditional and new media, including social media. Cultivation of relationships between organizations and their publics. Crisis communication management. GE credit: SocSci | SS.—*F. (F.)* Barnett

(new course—eff. fall 15)

134. Interpersonal Communication (4)

(cancelled course—eff. winter 16)

135. Nonverbal Communication (4)

(cancelled course—eff. fall 15)

136. Organizational Communication (4)

Lecture—4 hours. Pass One open to Communication majors only. Organizational communication theory and practice is examined with an emphasis on the use of effective communication strategies for achieving organizational goals. GE credit: SS.—*F, W, Su. (F, W, Su.)* Barnett, Hamilton

(change in existing course—eff. spring 16)

137. Intercultural Communication (4)

(cancelled course—eff. winter 16)

138. Communication and Cognition (4)

(cancelled course—eff. summer 15)

140. Introduction to Mass Communication (4)

Lecture/discussion—4 hours. History of mass media and media research traditions. Organization and economics of the media industry. Media policy, law, regulation and ethics. Impact of the media on individuals and society. Traditional, new and emerging communication technologies. GE credit: SocSci | SS.—*F, W, S, Su. (F, W, S, Su.)* Cho, Taylor, Yegiyan

(change in existing course—eff. fall 16)

141. Media Effects: Theory and Research (4)

Lecture/discussion—4 hours. Prerequisite: course 140. Pass One open to Communication majors only. Social scientific studies of the effects of mass media messages on audience members' actions, attitudes, beliefs, and emotions. Topics include the cognitive processing of media messages, television violence, political socialization, cultivation of beliefs, agenda-setting, and the impact of new technologies. GE credit: SocSci | SS.—*W, S. (W, S.)* Cho, Taylor

(change in existing course—eff. fall 16)

142. News Policies, Practices and Effects (4)

Lecture—4 hours. Prerequisite: course 102 (or equivalent course in research methods), course 140. Pass One open to Communication majors only. Exploration of processes and constraints in the gathering, editing, and reporting of news. Examination of studies on the effects of news, contemporary challenges to news reporting presented by new technologies, and the relationship of news to other social institutions. GE credit: SocSci | ACGH, SS.—*F, W, S. (F, W, S.)* Theobald

(change in existing course—eff. fall 16)

143. Analysis of Media Messages (4)

Lecture/discussion—3 hours; term paper. Prerequisite: course 102 (or equivalent course in research methods), course 140. Pass One open to Communication majors only. Examination of alternative approaches to the analysis, interpretation, and evaluation of media messages, including those disseminated through broadcasting, print, and new technologies. GE credit: SocSci, Wrt | ACGH, SS, Wrt.—*F, W, S. (F, W, S.)* Cho

(change in existing course—eff. fall 16)

144. Media Entertainment (4)

Lecture/discussion—3 hours; term paper. Prerequisite: course 102 (or equivalent course in research methods), course 140. Pass One open to Communication majors only. Effects and appeal of media entertainment, emphasizing emotional reactions. Topics include key concepts of entertainment

research such as mood management, and the respective features and emotional/social-psychological effects of genres such as comedy, mystery, thriller, sports, music, horror, and erotica. GE credit: SocSci | SS, WE.—*S. (S.)* Taylor

(change in existing course—eff. fall 16)

145. Political Communication (4)

Lecture/discussion—4 hours. Prerequisite: course 102 or equivalent course in research methods and course 140. Pass One open to Communication majors only. Discussion of theories and research on the relationships among the mass media, citizens, and politics, production of political news, campaign strategies, and citizens' attitudes and behaviors Provides frameworks for mediated politics, the news, and elite discourse and campaign messages. Offered irregularly. GE credit: SocSci | ACGH, SS.—Cho

(change in existing course—eff. fall 16)

146. Communication Campaigns (4)

Lecture/discussion—4 hours; term paper. Pass One open to Communication majors only. Strategic uses of media and interpersonal communication channels in health, environmental advocacy, and political campaigns. Emphasis on general principles relevant to most campaign types, including public information, social marketing, and media advocacy campaigns. GE credit: SocSci | SS.—*S. (S.)* Barnett, Theobald

(change in existing course—eff. fall 16)

148. Contemporary Trends In Media (4)

Lecture/discussion—4 hours. Pass One open to Communication Major only. Global trends in media, including media and globalization, impacts of the new media economy, media and security, and effects of ownership on media content and culture. Offered irregularly. GE credit: SocSci | SS.—Barnett, Theobald

(change in existing course—eff. fall 16)

152. Theories of Persuasion (4)

(cancelled course—eff. fall 15)

165. Media and Health (4)

Lecture/discussion—4 hours. Prerequisite: course 102 or equivalent course in research methods. Content and effects of health messages in news, entertainment, and advertising. Topics include health news reporting; portrayals of disease, disability, death and health-related behaviors; representations of health professionals; promotion of drugs and other health products; tobacco and alcohol advertising. GE credit: SocSci | SS.—*S. (S.)* Bell, Taylor

(change in existing course—eff. fall 16)

170. Digital Technology and Social Change (4)

Lecture/discussion—4 hours. Conceptual understanding of how digital communication technologies transform our lives through social media, mobile connectivity, globalization, and big data. Contexts of application include education, health, entrepreneurship, democracy, and poverty. GE credit: SocSci | SS.—*S. (S.)* Hilbert, Theobald

(change in existing course—eff. spring 16)

170V. Digital Technology and Social Change (4)

Web virtual lecture—3 hours; web electronic discussion—1 hour. Conceptual understanding of how digital technologies transform our lives, through social media, mobile connectivity, globalization, big data, and artificial intelligence. Context of course include education, health, entrepreneurship, democracy, among others. Not open for credit to students who have completed course 170. GE credit: SocSci | SS.—*F, W, S, Su. (F, W, S, Su.)* Hilbert

(new course—eff. winter 16)

172. Computer-Mediated Communication (4)

Lecture/discussion—4 hours. Pass One open to Communication majors only. Theories and research pertaining to how people use technologies for interpersonal purposes. Impression formation, self-presentation, long-distance romantic relationships, online dating, deception, anonymity, maintaining friendships, and transmitting emotions in online contexts. GE credit: SocSci | SS.—*S. (S.)* Peña

(change in existing course—eff. summer 16)

174. Social Media (4)

Lecture—4 hours. Application of theories of communication to the study and design of social media. Examination of social media in various contexts such as health, political movements, and collaboration. Topics include motivations for membership, participation, virality, social-technical capital, and privacy. GE credit: SocSci | SS.—*W, S. (W, S.)* Shen

(new course—eff. fall 14)

176. Video Games Theory and Research (4)

Lecture/discussion—2 hours; laboratory/discussion—2 hours. Prerequisite: course 102 or an equivalent research methods course. Communication theory and research on the uses and effects of video games. Research methods available for investigating game use and the impact of games on behavior. Application of those methods in a research project. GE credit: SS.—*W. (W.)* Peña

(new course—eff. fall 16)

189A. Proseminar in Social Interaction (4)

Seminar—3 hours; term paper. Prerequisite: course 101, 102, 136; consent of instructor. Open to Communication majors only. Reading, discussion, research, and writing on a selected topic in the specialty of social interaction. Potential topics include relationship initiation, maintenance, and deterioration; communication failure; nonverbal communication; conversational management; semantics and pragmatics of languages; and family/marital communication. May be repeated for credit when topic differs. Offered in alternate years. GE credit: SocSci, Wrt | SS, WE.—*S.* Feng, Palomares

(change in existing course—eff. summer 15)

192. Internship in Communication (1-12)

Internship—3-36 hours. Prerequisite: communication majors who have completed 20 units of upper division communication courses; consent of instructor. Open to Communication majors only. Supervised work experience requiring the application of communication principles and strategies or the evaluation of communication practices in a professional setting. Relevant experiences include public relations, advertising, sales, human resources, health promotion, political campaigns, journalism, and broadcasting. May be repeated up to 6 units of credit. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

Graduate

202. Communication Theory Construction (4)

Seminar—4 hours. Prerequisite: consent of instructor; graduate standing. Alternative meta-theoretical perspectives for theory generation in communication inquiry. Processes of construct explication, operationalization and theory construction. Emphasis on the critique of extant communication theories and the development of theory construction skills. Offered irregularly.—*S.* Barnett

(change in existing course—eff. summer 15)

203. Scientific Methods for Communication (4)

Seminar—3 hours; term paper. Prerequisite: 201, 202, Psychology 204A, 204B or equivalent. Social scientific research methods commonly employed in Communication. Topics include research design measurement sampling questionnaire construction survey research experimental design evaluation research content analysis and qualitative field methods.—*S. (S.)* Palomares, Yegiyan

(change in existing course—eff. summer 15)

222. Risk Communication (4)

Seminar—4 hours. Prerequisite: graduate standing; consent of instructor. Theories and models of individual risk information processing. Media depictions of threats and risk-related information and their potential effects on audiences. Implications for the design and implementation of messages concerning threat and risk. Offered irregularly.—*S. (S.)*

(change in existing course—eff. summer 15)

230. Social Interaction Theory and Research (4)

Seminar—4 hours. Prerequisite: graduate standing; consent of instructor. Survey of theories and research on social interaction and interpersonal communication. Covers communication codes, individual differences in communication, communication and relationship development, family communication, conflict, cognitive and emotional processes underlying social interaction, social influence, intercultural communication, and nonverbal behavior.—*W. (W.)* Feng, Palomares

(change in existing course—eff. summer 15)

234. Intercultural Communication (4)

Seminar—3 hours; term paper. Restricted to graduate standing. Theories and research on intercultural communication. Topics include national, racial, and ethnic similarities and differences in communication practices; cultural beliefs and values; identity and conflict; and technological influences on intercultural communication. Methodological issues in intercultural communication research are also examined. Offered in alternate years.—*(S.)* Peña

(change in existing course—eff. spring 16)

245. The Political Economy of Urban and Regional Development (4)

(cancelled course—eff. fall 14)

251. Digital Technology and Social Change (4)

Seminar—3 hours; term paper. Conceptual, theoretical, and international consideration of how digital communication technologies transform social organization and development. Topics include social media, big data, political revolutions, e-democracy, digital divide, e-education, e-health, entrepreneurship, public policies, poverty reduction, technological innovations, microfinance, and entertainment. Offered in alternate years.—*(W.)* Hilbert

(change in existing course—eff. spring 15)

253. Negotiation (4)

(cancelled course—eff. fall 14)

255. Social Media (4)

Seminar—3 hours; term paper. Theoretical, conceptual and analytic issues pertaining to social media research. Topics include motivation, participation, virality, and social-technical capital. Examination of social media in various contexts. Introduction to online behavioral data collection and analysis methods. Offered in alternate years.—*F.* Shen

(new course—eff. fall 14)

256. Communication Perspective on Video Games (4)

Seminar—3 hours; term paper. Review of theory and research on the uses and effects of video games and virtual environments developed for entertainment and education. Study of the research methods available for documenting and measuring game use and effects on behavior. Offered in alternate years.—*S.* Peña, Shen

(change in existing course—eff. summer 15)

259. Cognitive Approaches to Media (4)
Seminar—3 hours; term paper. Restricted to graduate standing. Interdisciplinary examination of cognitive approaches to mediated communication. Application of studies on mediated message processing, cognitive and emotional information processing, psychophysiology, and neuroscience to mass communication. Review of media research and methods on attention, memory, motivation, and limited capacity. Offered in alternate years.—*W.* Yegiyan

(new course—eff. fall 14)

260. Communication Applications (2-4)
(cancelled course—eff. fall 14)

270. Diffusion of Innovations (4)
Seminar—3 hours; term paper. Communication processes by which information and innovations spread through social systems. Models of diffusion, including spatial, network, time dependent, semantic and cognitive frameworks. Impact of communication technologies on diffusion. Practical application of diffusion models in a variety of contexts. Offered in alternate years.—*W.* Barnett, Hilbert

(new course—eff. spring 15)

271. Communication Networks (4)
Seminar—3 hours; term paper. Theoretical, conceptual, and analytic issues pertaining to network perspectives on communicating and organizing. Consideration of both structural and dynamic features of communication networks. Examination of the impact of emerging technologies on communication networks. Introduction to network analysis software.—*S. (S.)* Barnett, Shen

(new course—eff. fall 14)

280. Special Topics in Social Interaction (4)
Seminar—4 hours. Prerequisite: graduate standing; consent of instructor. Reading, discussion, research, and writing on a selected topic in the specialty of social interaction. May be repeated for credit when topic differs. Offered irregularly.—*S.* Feng, Palomares

(change in existing course—eff. summer 15)

Community and Regional Development

New and changed courses in Community and Regional Development (CRD)

Lower Division

2. Ethnicity and American Communities (4)
Lecture—3 hours; discussion—1 hour; extensive writing; term paper. Historical and cultural survey of the role of various ethnic groups in the development of American communities. Examines ethnicity as a cultural factor, ethnicity as power and issues related to selected American ethnic groups. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.—*F, S. (F, S.)* Lippin

(change in existing course—eff. summer 15)

Upper Division

118. Technology and Society (4)
Lecture—3 hours; discussion—1 hour; extensive writing; term paper. Prerequisite: course 1 or 2 or Sociology 1 or Anthropology 2. Impact of technology on labor relations, employment, industrial development and international relations. Internal relations of technology development and deployment. GE credit: SocSci | SS, WC, WE.—*F. (F.)* Kenney

(change in existing course—eff. fall 16)

140. Dynamics of Regional Development (4)
Lecture—4 hours; extensive writing; term paper; project. Prerequisite: course 1 or 2 or Sociology 1 or Anthropology 2. Industrial cluster formation and institutions. Technology, labor relations and interfirm linkages in global value chains. California and other regions are used as case studies. GE credit: SocSci | SS, WE.—*W. (W.)* Kenney

(change in existing course—eff. fall 16)

141. Organization of Economic Space (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or 2 or Sociology 1 or Anthropology 2. Globalization and technological restructuring of economic activity focusing on new spatial patterns of production and circulation and their implications for workers, communities and societies, both in the U.S. and around the globe. GE credit: SocSci | SS, WC, WE.—*F. (F.)* Benner

(change in existing course—eff. fall 16)

142. Rural Change in the Industrialized World (4)
Lecture—3 hours; discussion—1 hour; extensive writing; term paper. Prerequisite: course 1 or 2 or Sociology 1 or Anthropology 2. Geography of rural environment with emphasis on rural restructuring. Demographics, community, economy, governance, agriculture, and environmental conservation in rural areas of industrialized world. Case studies from and comparisons drawn between North America, Europe, Australia, New Zealand, and Japan. GE credit: SocSci | SS, WE.—*W. (W.)* Galt

(change in existing course—eff. fall 16)

147. Community Youth Development (4)
Lecture/discussion—4 hours; project; extensive writing or discussion; term paper. Community influences on youth well-being, youth as agents of community change, and policies to support healthy communities for young people. Special emphasis on disparities in youth well-being related to race, class, immigration status, gender, sexual-orientation. Offered in alternate years. GE credit: SocSci, Div, Wrt | DD, OL, SS, VL, WE.—*S. (S.)* London

(change in existing course—eff. fall 16)

149. Community Development Perspectives on Environmental Justice (4)
Lecture/discussion—4 hours; extensive writing or discussion; project; term paper. Environmental justice social movements; inequitable distribution of pollution on low-income communities of color; histories, policies, and innovations associated environmental justice movements in the United States and around the world. Offered in alternate years. GE credit: SocSci, Div, Wrt | DD, OL, SS, VL, WE.—*S. (S.)* London

(change in existing course—eff. fall 16)

151. Community Field Research: Theory and Analysis (4)
Lecture—4 hours; extensive writing; project. Prerequisite: course 1; any upper division Community and Regional Development course is recommended. Emphasis on the design and analysis of community research considering the relationship between theory and practice. Study of community research methods, including structural analysis, elite interviewing, and ethnographic approaches. Course requires design and completion of field research project. GE credit: SocSci, Div, Wrt | ACGH, DD, OL, SS, VL, WE.—*S. (S.)* Tarallo

(change in existing course—eff. fall 16)

152. Community Development (4)
Lecture—4 hours. Prerequisite: course 1 or 151 or Sociology 2 or Anthropology 2 or Asian American Studies 100 or Chicana/o Studies 132 or African American & African Studies 101. Introduction to principles and strategies of community organizing and development. Examination of non-profit organizations, citizen participation, approaches to reducing poverty, community needs assessment, and regional development strategies. GE credit: SocSci, Wrt | ACGH, DD, SS, WC, WE.—*F. (F.)* Hirtz

(change in existing course—eff. fall 16)

153A. International Community Development: Asia (4)
Lecture—4 hours. Prerequisite: course 1 or Anthropology 2 or International Agricultural Development 10 or Sociology 1 or 2 or Political Science 1. Examination and analysis of community development efforts in Japan and the impact of global forces in different settings. Alternative strategies with emphasis on self-reliance and locally controlled development. Course is based in Kyoto, Japan, and includes field trips. GE credit: SocSci, Div | OL, SS, VL, WC, WE.—*Su. (Su.)* Fujimoto, Wiener

(change in existing course—eff. fall 16)

153B. International Community Development: Europe (4)
Lecture—4 hours. Prerequisite: course 1 or 2 or Anthropology 2 or International Agricultural Development 10 or Sociology 1 or 2 or Political Science 1. Examination and analysis of community development efforts in Europe and the impact of global forces in different settings. Alternative strategies with emphasis on self-reliance and locally controlled development. Course is based in Freiburg, Germany, and includes field trips to France and Switzerland. GE credit: SocSci, Div | SS, WC.—*Su. (Su.)* Hirtz

(change in existing course—eff. fall 16)

153C. International Community Development: Africa (4)
Lecture—2 hours; fieldwork—2 hours. Prerequisite: course 1 or 2 or Anthropology 2 or International Agricultural Development 10 or Sociology 1 or 2 or Political Science 1. Examination and analysis of community development efforts in Africa and the impact of global forces in urban and rural settings. Focus on strategies that promote self-reliance and locally controlled development. Course based in South Africa, includes field trips. GE credit: SocSci, Div | SS, WC.—*Su. (Su.)* Benner

(change in existing course—eff. fall 16)

154. Social Theory and Community Change (4)
Lecture/discussion—4 hours; course 1 or Sociology 1 or Anthropology 2. Comparative overview of the dominant social science paradigms for the study of community development and change. Among the paradigms discussed are functionalism, conflict theory/Marxism, structuralism, methodological individualism, reflexive modernity. GE credit: SocSci, Div, Wrt | ACGH, DD, OL, SS, VL, WC, WE.—*F, W. (F, W.)* Hirtz

(change in existing course—eff. fall 16)

156. Community Economic Development (5)
Lecture—4 hours; laboratory—2 hours. Prerequisite: course 152 or Plant Sciences 21 or Engineering Computer Sciences 15; consent of instructor. How low income communities work together to improve their economic well-being, increase their control over their economic lives, and build community power and decision-making. Includes techniques to analyze community economic potential and identification of appropriate intervention tools. Group project. GE credit: SocSci | QL, SS, WE.—*W. (W.)* Benner

(change in existing course—eff. fall 16)

157. Politics and Community Development (4)
Lecture—4 hours. Analyzes political, economic and sociocultural forces shaping the form and function of local communities in the U.S. Considers theories of the state, the community and social change and case studies of actual community development in comparative historical perspective. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

158. Small Community Governance (4)
Lecture/discussion—3 hours; fieldwork—3 hours. Prerequisite: course 1 or Sociology 1 or Political Science 1. Governing institutions and political processes in rural and small urban places. Local government organization, community autonomy, leadership, political change, policy development, and select policy issues including public finance. Field research on political processes or policy issues in select communities. Offered in alternate years.—*S. (S.)* Hirtz

(change in existing course—eff. fall 16)

162. People, Work and Technology (4)
Lecture—4 hours. Prerequisite: course 1 or Sociology 1 or Anthropology 2; upper division standing recommended. Restricted to upper division standing. Analysis of the relationship between work, technology, and human experience. Theories of the causes and consequences of labor process change; impacts of race/ethnicity, class, gender, and citizenship status on work; responses of workers, communities, and policy-makers to workplace changes.—*F, W. (F, W.)* Visser

(change in existing course—eff. fall 16)

164. Theories of Organizations and Their Roles in Community Change (5)
Lecture—4 hours; laboratory—2 hours. Prerequisite: course 1 or 2 or Sociology 1 or Anthropology 2; Statistics 13 or 13V or Sociology 46B. Planned change within and through community organizations. Private voluntary organizations, local community associations, and local government. Relationship between community organizations and social capital. Collaborative original data gathering and professional report writing. GE credit: SocSci | ACGH, DD, OL, SS, VL, WE.—*W. (W.)* Hirtz

(change in existing course—eff. fall 16)

171. Housing and Social Policy (4)
Lecture—4 hours; term paper. Social impact, economics, and politics of housing in the United States. Special attention given to federal, state, and local policy and program strategies to produce and preserve affordable housing and inclusive neighborhoods.—*S. (S.)* Wiener

(change in existing course—eff. fall 16)

172. Social Inequality: Issues and Innovations (4)
Lecture/discussion—4 hours; extensive writing; term paper; project. Prerequisite: course 1 or 2 or Sociology 1 or Anthropology 2; upper division standing recommended. Focus on the dimensions, causes, and means of alleviating social inequality in the U.S. Examination and analysis of major theories and forms (class, race/ethnicity, gender, and citizenship status) of inequality. Policy-based and grassroots approaches to change.—*S. (S.)* Visser

(change in existing course—eff. fall 16)

176. Comparative Ethnicity (4)
Lecture—4 hours; term paper. Prerequisite: course 1 or 2 or Sociology 1 or Anthropology 2 and upper division standing recommended. Role of ethnicity in shaping social systems and interaction. Analytical approaches to and issues arising from the study of ethnicity, through utilization of data from a range of different societies. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WC, WE.—*S. (S.)* Guarnizo

(change in existing course—eff. fall 16)

194HA. Special Study for Honors Students (4)
Independent study—3 hours; seminar—1 hour; project; term paper. Prerequisite: completion of 135 units at the time of enrollment; GPA 3.500 in the major; GPA 3.300 in overall standing; completion of at least four upper division courses; agreement of a faculty member to serve as thesis adviser; consent of instructor. Community and Regional Development Honors is a program of direct reading, research and writing culminating in the preparation of a Senior Honors Thesis under the direction of a faculty adviser. (Deferred grading only, pending completion of sequence.)—*F. W. (F, W.)* Hirtz

(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (4)
Independent study—3 hours; seminar—1 hour; project; term paper. Prerequisite: completion of 135 units at the time of enrollment; GPA 3.500 in the major; GPA 3.300 in overall standing; completion of at least four upper division courses; agreement of a faculty member to serve as thesis adviser; consent of instructor. Community and Regional Development Honors is a program of direct reading, research and writing culminating in the preparation of a Senior Honors Thesis under the direction of a faculty adviser. (Deferred grading only, pending completion of sequence.)—*F. W. (F, W.)* Hirtz

(change in existing course—eff. summer 15)

Graduate

241. The Economics of Community Development (4)
Seminar—4 hours. Prerequisite: graduate standing. Economic theories and methods of planning for communities. Human resources, community services and infrastructure, industrialization and technological change, and regional growth. The community's role in the greater economy. (Same course as Geography 241.) Offered irregularly.—Kenney

(change in existing course—eff. summer 15)

242. Community Development Organizations (4)
Seminar—4 hours. Prerequisite: course 240. Class size limited to 15 students. Theory and praxis of organizations with social change agendas at the community level. Emphasis on non-profit organizations and philanthropic foundations.—*S. (S.)* Hirtz

(change in existing course—eff. fall 14)

242S. Community Development Organizations (International) (4)
Fieldwork—10 hours; lecture—5 hours; workshop—5 hours. Prerequisite: course 240. Class size limited to 10 students. Theory and praxis of organizations with social change agendas at the community level. Emphasis on local governance, non-profit organizations and philanthropic foundations at an international level. Limited enrollment.—*Su. (Su.)* Hirtz

(change in existing course—eff. fall 14)

247. Transformation of Work (4)
Lecture/discussion—4 hours. Prerequisite: graduate standing in history or social science degree program or consent of instructor. Exploration of the ways that the experience, organization, and systems of work are being reconfigured in the late twentieth century. The impacts of economic restructuring on local communities and workers.—*F. (F.)* Visser

(change in existing course—eff. summer 15)

248B. Social Policy, Welfare Theories and Communities II (2)
Seminar—2 hours. Prerequisite: graduate standing. Concurrent enrollment in course 248A. Analysis of a specific set of social issues within the U.S./California context. Issues may include poverty, hunger, housing, health, family, disability, economic opportunity, affirmative action orientations, gender, old age, or special social groups. Offered in alternate years.—Hirtz

(change in existing course—eff. winter 15)

249. Media Innovation and Community Development (4)
Seminar—4 hours. Restricted to graduate students. Role of innovative media in communities and social change. Studies historical, practical and theoretical issues involving media in community organizing, social justice movements, democracy initiatives, and economic justice.—*S. (S.)*

(change in existing course—eff. fall 14)

293. Community Development Graduate Proseminar (1)
Lecture/discussion—1 hour. Prerequisite: enrollment in Community Development graduate group. Restricted to first year Community Development graduate students only. Introduction to graduate training in Community Development. Seminar designed to introduce students entering graduate work in the Community Development Graduate Group to its ongoing activities. (S/U grading only.)—*F. (F.)* Galt

(change in existing course—eff. fall 14)

Comparative Literature

New and changed courses in Comparative Literature (COM)

Lower Division

1. Major Books of Western Culture: The Ancient World (4)
Lecture/discussion—4 hours. Prerequisite: completion of Entry Level Writing Requirement. Introduction, through class discussion and frequent written assignments, to some of the major books of western civilization such as The Odyssey, Aeneid, Bible, and Augustine's Confessions. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. summer 15)

2. Major Books of Western Culture: From the Middle Ages to the Enlightenment (4)
Lecture/discussion—4 hours. Prerequisite: completion of Entry Level Writing Requirement. Introduction to the methods of inquiry applied to critical reading and the practice of writing. Focus on texts from the European Middle Ages to the eighteenth century; critical analysis of the historical-cultural developments in this period. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. summer 15)

3. Major Books of Western Culture: The Modern Crisis (4)
Lecture/discussion—4 hours. Prerequisite: completion of Entry Level Writing Requirement. Introduction, through class discussion and frequent written assignments, to the major literature and thought of the late eighteenth to the mid-twentieth century. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. summer 15)

4. Major Books of the Contemporary World (4)
Lecture/discussion—4 hours. Prerequisite: completion of entry level writing requirement. Comparative study of selected major Western and non-Western texts composed in the period from 1945 to the present. Intensive focus on writing about these texts, with frequent papers written about these works. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.

(change in existing course—eff. spring 16)

5. Fairy Tales, Fables, and Parables (4)
Lecture—3 hours; discussion—1 hour. An introduction to fairy tales, fables, and parables as recurrent forms in literature, with such readings as tales from Aesop and Grimm, Chaucer and Shakespeare, Kafka and Borges, Buddhist and Taoist parables, the Arabian Nights, and African American folklore. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Schildgen, Sharlet

(change in existing course—eff. summer 15)

6. Myths and Legends (4)
Lecture—3 hours; discussion—1 hour. Introduction to the comparative study of myths and legends, excluding those of Greece and Rome, with readings from Near Eastern, Teutonic, Celtic, Indian, Japanese, Chinese, African and Central American literary sources. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

7. Literature of Fantasy and the Supernatural (4)
Lecture—3 hours; discussion—1 hour. The role of fantasy and the supernatural in literature: tales of magic, hallucination, ghosts, and metamorphosis, including diverse authors such as Shakespeare, P'u Sung-Ling, Kafka, Kawabata, Fuentes, and Morrison. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

8. Utopias and their Transformations (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. A consideration, in literary works from different ages, of visionary and rational perceptions of a lost paradise, Golden Age, or Atlantis—and of the inhuman nightmares that can result from perversions of the utopian dream of perfection. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. spring 16)

9. The Short Story and Novella (4)
Lecture/discussion—3 hours; term paper. An introduction to shorter forms of prose fiction by major authors of different countries, with special emphasis on the modern period. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

10A. Master Authors in World Literature; Gilgamesh, Ramayana, Beowulf, Nibelungenlied (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Gilgamesh, Ramayana, Beowulf, Nibelungenlied. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10B. Master Authors in World Literature; Metamorphoses, Decameron, Arabian Nights, Canterbury Tales (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Metamorphoses, Decameron, Arabian Nights, Canterbury Tales. (P/NP grading only.)
(change in existing course—eff. summer 15)

10C. Master Authors in World Literature; Chanson de Roland, El Cid, Igor's Campaign, Morte D'Arthur (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Chanson de Roland, El Cid, Igor's Campaign, Morte D'Arthur. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10D. Master Authors in World Literature; Sakuntala, Tristan and Isolde, Aucassin and Nicolette, Gawain and the Green Knight (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Sakuntala, Tristan and Isolde, Aucassin and Nicolette, Gawain and the Green Knight. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10E. Master Authors in World Literature; Swift, Rabelais, La Celestina, Simplicissimus (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Swift, Rabelais, La Celestina, Simplicissimus. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10F. Master Authors in World Literature; Cervantes, Saikaku, Fielding, Voltaire (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Cervantes, Saikaku, Fielding, Voltaire. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10G. Master Authors in World Literature; Machiavelli, Shakespeare, Lope de Vega/Calderón, Molière/Racine, Lessing/Schiller (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Machiavelli, Shakespeare, Lope de Vega/Calderón, Molière/Racine, Lessing/Schiller. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10H. Master Authors in World Literature; Goethe, Byron, Stendhal, Pushkin, Lermontov (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Goethe, Byron, Stendhal, Pushkin, Lermontov. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10I. Master Authors in World Literature; Hoffmann, Gogol, Poe, Hawthorne, Maupassant, Chekhov, Melville (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Hoffmann, Gogol, Poe, Hawthorne, Maupassant, Chekhov, Melville. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10J. Master Authors in World Literature; Flaubert, Twain, Turgenev, Galdós, Ibsen (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Flaubert, Twain, Turgenev, Galdós, Ibsen. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10K. Master Authors in World Literature; Balzac, Dostoevski/Tolstoi, Hardy, Shaw, Strindberg (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Balzac, Dostoevski/Tolstoi, Hardy, Shaw, Strindberg. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10L. Master Authors in World Literature; Unamuno, Svevo, Conrad, Gide, Kafka, Faulkner (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Unamuno, Svevo, Conrad, Gide, Kafka, Faulkner. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10M. Master Authors in World Literature; Rilke/Yeats, Joyce/Woolf, Mann/Céline, Bulgakov/Tanizaki, O'Neill/Brecht, Lorca/Pirandello (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Rilke/Yeats, Joyce/Woolf, Mann/Céline, Bulgakov/Tanizaki, O'Neill/Brecht, Lorca/Pirandello. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

10N. Master Authors in World Literature; Camus/Sartre, García Márquez/Grass, Borges/Sarraute, Bellow/Nabokov, Beckett/Pinter, Genet/Dürrenmatt (2)
Lecture/discussion—1 hour. Limited enrollment. Designed primarily to acquaint the non-literature major with a cross-section of writings by the world's most important authors; readings in English translation. Content alternates among the following segments: Camus/Sartre, García Márquez/Grass, Borges/Sarraute, Bellow/Nabokov, Beckett/Pinter, Genet/Dürrenmatt. May be repeated for credit in different subject area. (P/NP grading only.)
(change in existing course—eff. summer 15)

11. Travel and the Modern World (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: completion of entry level writing requirement. Examination of travel as a quintessential human activity and experience of global modernity and cross-cultural encounters from the 18th to the 21st century with an emphasis on German-speaking culture. Travelogues, literature, art, memoirs, and films in English translation. (Same course as German 11.) GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*F, W, S. (F, W, S.)* Zhang
(new course—eff. spring 16)

12. Introduction to Women Writers (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of entry level writing requirement. Survey of fiction, drama, and poetry by women writers from all continents. Concerns of women compared in light of their varied social and cultural traditions. Literary analysis of voice, imagery, narrative strategies and diction. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Lokke
(change in existing course—eff. spring 16)

13. Dramatic Literature (3)
Lecture—3 hours. Prerequisite: completion of entry level writing requirement. Introduction, through careful reading of selected plays, to some of the major forms of Western drama, from the earliest tragedies of ancient Greece to the contemporary American theater. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. spring 16)

14. Introduction to Poetry (3)
Lecture/discussion—3 hours. Prerequisite: completion of entry level writing requirement. Comparative study of poetry in a variety of lyric and other poetic forms from different historical periods and different linguistic, national, and cultural traditions. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. spring 16)

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 | AH, WC, WE.
(change in existing course—eff. summer 15)

24. Animals in Literature (4)
Lecture—3 hours; term paper or discussion. Prerequisite: completion of Entry Level Writing Requirement. Study of literary texts from various periods and cultures whose theme is the representation of animals. GE credit: ArtHum | AH, WC, WE.—Schiesari
(change in existing course—eff. summer 15)

25. Ethnic Minority Writers in World Literature (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: ELWR (Entry Level Writing Requirement). Consideration of a broad range of writers who speak from an ethnic perspective different from the nominally or politically dominant culture of their respective countries and who explore the challenges faced by characters significantly affected by their ethnic minority status. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

53A. Literature of East Asia (4)
Lecture—3 hours; term paper. Introduction to representative masterpieces of East Asia with readings from such works as The Story of the Stone, The Peach Blossom Fan, T'ang and Sung poetry, classical Japanese poetry, drama, and travel diaries, and The Tale of Genji. GE credit: ArtHum, Div, Wrt | AH, OL, WC, WE.
(change in existing course—eff. summer 15)

53B. Literature of South Asia (4)
Lecture—3 hours; term paper. Introduction to representative masterpieces of South Asia with readings from such works as the Mahabharata and Ramayana, The Cloud Messenger, Shakuntala, The Little Clay Cart, and the stories and poems of both ancient and modern India and Southeast Asia. GE credit: ArtHum, Div, Wrt | AH, OL, WC, WE.—Schildgen
(change in existing course—eff. summer 15)

53C. Literatures of the Islamic World (4)
Lecture—3 hours; term paper. Introduction to classical Islamic culture through translations of literature primarily from Arabic and Persian, as well as other languages. Topics include the concept of the self, society and power, spirituality, the natural world, the cosmos, and the supernatural. GE credit: ArtHum, Div, Wrt | AH, OL, WC, WE.—Sharlet
(change in existing course—eff. summer 15)

90X. Lower Division Seminar (1-2)
Seminar—1-4 hours. Prerequisite: consent of instructor. Examination of a special topic in a small group setting.
(change in existing course—eff. summer 15)

98. Directed Group Study (1-5)
Restricted to lower division students. (P/NP grading only.)
(change in existing course—eff. summer 15)

99. Special Study for Undergraduates (1-5)
(P/NP grading only.)
(change in existing course—eff. summer 15)

Upper Division

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, Wrt | AH, VL, WC, WE.—Lu
(change in existing course—eff. summer 15)

110. Hong Kong Cinema (4)
Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: upper-division standing, or consent of instructor. Hong Kong cinema, its history, industry, styles, genres, directors, and stars. Special attention to its polyglot, multicultural, transnational, colonial, and postcolonial environment. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.Lu
(change in existing course—eff. summer 15)

120. Writing Nature: 1750 to the Present (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Study of representations, descriptions, and discussions of humankind's problematical relationship with the non-human world in texts written in a variety of European and American traditions between 1750 and the present. GE credit: ArtHum, Wrt | AH, WC, WE.—*S. (S.)*
(change in existing course—eff. spring 16)

135. Women Writers (4)
Lecture/discussion—3 hours; term paper. An exploration of women's differing views of self and society as revealed in major works by female authors of various times and cultures. Readings, principally of fiction, will include such writers as Lady Murasaki, Mme de Lafayette, and Charlotte Bronte. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Lokke, Schiesari
(change in existing course—eff. summer 15)

138. Gender and Interpretation in the Renaissance (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Critical analysis of Renaissance texts with primary focus on issues such as human dignity, education and gender politics; "high" and "low" culture and its relation to literary practices. (Same course as Italian 141.) GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Schiesari
(change in existing course—eff. fall 16)

139. Shakespeare and the Classical World (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Shakespeare's representations of the classical world in the light of selected ancient texts and Renaissance conceptions of Antiquity, with special attention to the depiction of politics and history. GE credit: ArtHum | AH, WC, WE.—Schein
(change in existing course—eff. spring 16)

140. Thematic and Structural Study of Literature (4)
Lecture/discussion—3 hours; term paper. Interpretation of selected works illustrating the historical evolution of themes, as well as of formal and structural elements. May be repeated for credit when substance of course varies. GE credit: ArtHum, Wrt | AH, WE.
(change in existing course—eff. summer 15)

141. Introduction to Comparative Critical Theory (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Introduction to comparative critical theory and its use for interpreting literary texts, film, and media forms in global culture. (Same course as Critical Theory 101.) GE credit: ArtHum, Wrt | AH, WC, WE.—*S. (S.)* Larsen
(change in existing course—eff. fall 16)

142. Critical Reading and Analysis (4)
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Close reading of selected texts; scrutiny of very limited amount of material, with attention to the problems of texts in translation. GE credit: ArtHum | AH, WC, WE.
(change in existing course—eff. summer 15)

144. The Grotesque (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Study of the "grotesque" in selected texts from the Renaissance to the 20th century, with attention to the "grotesque" as a means of social, cultural, and political commentary, as well as of aesthetic innovation. Offered in alternate years. GE credit: ArtHum, Wrt | AH, WC, WE.—*S. (S.)*
(change in existing course—eff. spring 16)

145. Representations of the City (4)
Lecture—2 hours; discussion—1 hour; writing. Exploration of the representation of the city in major translated literary texts from a variety of literary traditions and periods. Emphasis on the diversity of urban experience in literature. Topics include public and private space, memory, and gender. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Radwan, Sharlet
(change in existing course—eff. summer 15)

146. Myth in Literature (4)
Lecture—3 hours; term paper. Prerequisite: course 6 recommended. Comparative study of different versions of one or more central myths, with attention to their cultural settings, artistic and literary forms of representation, as well as to their psychological dimensions. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

147. Modern Jewish Writers (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Problems of the modern Jewish experience from the perspective of the writer's construction of the self in relation to the future and to the non-Jew. Draws upon Russian, German, Yiddish, and American traditions. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. spring 16)

148. Mystical Literatures of South Asia and the Middle East (4)
Lecture/discussion—3 hours; term paper. Exploration of the comparative mystical literatures of major religious traditions, with a focus on those produced in South Asia and the Middle East, although including other traditions. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Venkatesan
(change in existing course—eff. summer 15)

151. Colonial and Postcolonial Experience in Literature (4)
Lecture—3 hours; term paper. Prerequisite: completion of entry level writing requirement. A literary introduction to the cultural issues of colonialism and postcolonialism through reading, discussing and writing on narratives which articulate diverse points of view. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Larsen
(change in existing course—eff. spring 16)

152. Literature of the Americas (4)
Lecture/discussion-3 hours; term paper. Prerequisite: completion of entry level writing requirement. Study of the 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. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. fall 16)

152S. Literature of the Americas (Taught in Latin America) (4)
Lecture/discussion—6 hours; term paper; fieldwork—6 hours. Prerequisite: completion of entry level writing requirement. 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. Course taught abroad. May be repeated one time for credit. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—Larsen
(change in existing course—eff. fall 16)

153. The Forms of Asian Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Introduction to distinctive Asian literary forms, such as haiku, noh, the Chinese novel and tale, through reading of major works. Comparison with Western genres and study of native and Western critical traditions. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. fall 16)

154. African Literature (4)
Lecture—3 hours; term paper. Prerequisite: completion of Entry Level Writing Requirement (ELWR). Colonial and post-colonial sub-Saharan African literature and the African oral traditions from which it emerged. Genres and themes of African literature from the nineteenth century to the present. GE credit: ArtHum | AH, OL, WC, WE.—Adejunmobi
(change in existing course—eff. summer 15)

155. Classical Literatures of the Islamic World 600-1900 (4)
Lecture—3 hours; term paper. Major texts from Arabic, Persian, Ottoman Turkish and Urdu literature with attention to historical and cross-cultural context. Includes epic, romance, various genres of lyric poetry, fairy tales, historical and religious stories, mystical and philosophical narratives, and essays. GE credit: ArtHum, Div, Wrt | AH, OL, WC, WE.—Sharlet
(change in existing course—eff. summer 15)

156. The Ramayana (4)
Lecture—3 hours; term paper. Exploration of the Indian epic, Ramayana, through the lens of literature, performance, and visual art. Emphasis on the text's diversity and its contemporary global relevance. Topics include Ramayanas in Southeast Asia, and in various South Asian diaspora communities. (Same course as Religious Studies 158.) GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Venkatesan
(change in existing course—eff. summer 15)

157. War and Peace in Literature (4)
Lecture/discussion—3 hours; term papers. Prerequisite: course 1, 2, or 3, or consent of instructor. Through study of a few major works from Western and non-Western literature the course seeks to illuminate the way in which literature from antiquity to the present has dealt with the antinomy peace/war through the ages. GE credit: ArtHum, Wrt | AH, WC, WE.—Radwan
(change in existing course—eff. summer 15)

158. The Detective Story as Literature (4)
Lecture—3 hours; term paper. Study of the origins, literary and social background, development and implications of the literature of detection in a comparative context. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

159. Women in Literature (4)
Lecture—3 hours; term paper. Prerequisite: course 1, 2, 3, or 4 or the equivalent recommended. Portrayals of women in literature, comparing selected heroines who represent a particular theme, period, or genre. Texts range around the globe and from ancient to modern works, such as Lysistrata, Emma, Hedda Gabler, The Makioka Sisters, and Top Girls. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

160A. The Modern Novel (4)
Lecture/discussion—3 hours; term paper. The changing image of man and his world as seen in novels by such writers as Joyce, Proust, and Mann. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

160B. The Modern Drama (4)
Lecture/discussion—3 hours; term paper. Readings in representative authors such as Ibsen, Strindberg, Chekhov, Pirandello and Brecht. GE credit: ArtHum, Wrt | AH, WC, WE.—Finney
(change in existing course—eff. summer 15)

161A. Tragedy (4)
Lecture/discussion—3 hours; term paper. Persistent and changing aspects of the tragic vision in literature from ancient times to the present. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

161B. Comedy (4)
Lecture/discussion—3 hours; term paper. Comic attitudes towards life in literary works of different ages. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

162. Writing Love and War in South Asia (4)
Lecture—3 hours; term paper. Comparative study of the themes and motifs of love and war in the literature of South Asia. Includes a discussion of Sanskrit epics, classical erotic court poetry, medieval heroic poetry, mystical compositions and colonial and postcolonial fiction. GE credit: ArtHum | AH, WC, OL, WE.—Venkatesan
(change in existing course—eff. summer 15)

163. Biography and Autobiography (4)
Lecture/discussion—3 hours; term paper. Portrayals of a human life in biographies and/or autobiographies of different countries and ages. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

164A. The European Middle Ages (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. 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 | AH, WC, WE.—Schildgen
(change in existing course—eff. spring 16)

164B. The Renaissance (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. 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 | AH, WC, WE.—Schiesari
(change in existing course—eff. spring 16)

164C. Baroque and Neoclassicism (4)
Lecture/discussion—3 hours; term paper. Readings in major authors such as Calderón, Corneille, Pascal, Racine, Milton, and Grimmelshausen, with consideration of the tension between the expansive energies of the "baroque" and the restraints of dogma and reason. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

164D. The Enlightenment (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. 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. GE credit: ArtHum, Wrt | AH, WC, WE.—Uhlig
(change in existing course—eff. spring 16)

165. Caribbean Literatures (4)
Lecture/discussion—4 hours. Prerequisite: completion of entry level writing requirement. Comparative approach to the multi-lingual, multi-cultural literatures of the Caribbean. Works from English, French, and Spanish speaking regions with special attention to problems of identity, diaspora and resistance, class, gender, race. Not open for credit to students who have completed course 165S. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. fall 16)

165S. Caribbean Literatures (4)
Lecture/discussion—4 hours. Prerequisite: upper division standing. Comparative approach to the multi-lingual, multi-cultural literatures of the Caribbean. Works from English, French, and Spanish speaking regions with special attention to problems of identity, diaspora and resistance, class, gender, race. Taught at the University of Havana, Cuba. Not open for credit to students who have completed course 165. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

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 | AH, WC, WE.—Sharlet
(change in existing course—eff. summer 15)

166A. The Epic (4)
Lecture/discussion—3 hours; term paper. Study of various forms of epic poetry in both the oral and literary traditions. May be repeated for credit in different subject area. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

166B. The Novel (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. The novel as global genre: picaresque, epistolary, Bildungsroman, historical novel, contemporary forms. May be repeated one time for credit. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. spring 16)

167. Comparative Study of Major Authors (4)
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Pivotal works of artists in the Western mainstream, such as Dante, Shakespeare, Cervantes, Goethe, Tolstoi, Proust, and Joyce. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

168A. Romanticism (4)
Discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Introduction to the Romantic movement with emphasis upon Romantic concepts of the self, irony, love, the imagination and artistic creativity, and the relationship of the individual to nature and society. GE credit: ArtHum, Wrt | AH, WC, WE.—Lokke
(change in existing course—eff. spring 16)

168B. Realism and Naturalism (4)
Discussion—3 hours; term paper. Prerequisite: consent of instructor. Novels and plays by Dickens, Zola, Flaubert, Dreiser, Ibsen, and Strindberg investigate marriage and adultery, the city and its perils, the hardships of industrialization, the war between the sexes, the New Woman, and other 19th-century themes. Offered in alternate years. GE credit: ArtHum, Wrt | AH, WC, WE.—Finney
(change in existing course—eff. summer 15)

169. The Avant-Garde (4)
Lecture/discussion—3 hours; term paper. Studies in movements such as surrealism, expressionism and the absurd. GE credit: ArtHum, Wrt | AH, WE.
(change in existing course—eff. summer 15)

170. The Contemporary Novel (4)
Lecture—3 hours; term paper. Study of important novels from different parts of the world, including Asia, Africa, Latin America, Europe, and the United States, in the period from the Second World War to the present. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

172. A Story for a Life: The Arabian Nights (4)
Lecture/discussion—3 hours; term paper. In-depth exploration of The Arabian Nights, the best-known work of pre-modern Arabic literature and a major work of world literature. Analysis of the work in its historical context and in comparison to other frame tales in world literature. (Same course as Arabic 140 and Middle East/South Asia Studies 121C.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Radwan, Sharlet
(new course—eff. winter 16)

175. Shahnameh: The Persian Book of Kings (4)
Lecture/discussion—3 hours; term paper. In-depth analysis of the Persian Book of Kings (Shahnameh) by Abu al-Qasim Ferdowsi (d. 1020 CE) in its historical context with a comparative perspective on the role of this work in Persian and world literature. (Same course as Middle East/South Asian Studies 121A.) GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Anooshahr, Sharlet
(change in existing course—eff. summer 15)

180. Selected Topics in Comparative Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of Subject A requirement and at least one course in literature. Study of a selected topic or topics appropriate to student and faculty interests and areas of specialization of the instructor. May be repeated one time for credit when the topic differs. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. summer 15)

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 when topic differs. Offered irregularly. GE credit: ArtHum, Wrt | AH, WC, WE.—*Su*.
(change in existing course—eff. summer 15)

192. Internship in Comparative Literature (1-12)
Internship—1-12 hours. Prerequisite: completion of 84 units; consent of instructor. Restricted to Comparative Literature majors. Internships in fields where students can practice their skills. May be repeated up to 12 units for credit. (P/NP grading only.)
(change in existing course—eff. summer 15)

194H. Special Study for Honors Students (1-5)
Independent study—1-5 hours. Prerequisite: open only to majors of senior standing who qualify for honors program. Guided research, under the direction of a faculty member approved by the Program Director, leading to a senior honors thesis on a comparative topic. May be repeated for credit. (P/NP grading only.) GE credit: AH, WE.
(change in existing course—eff. summer 15)

195. Seminar in Comparative Literature (4)
Seminar—3 hours; term paper. Prerequisite: senior standing as a Comparative Literature major or minor or consent of instructor. Open only to Comparative Literature majors or minors in or consent of instructor. Advanced study of selected topics and texts in Comparative Literature, with explicit emphasis on the theoretical and interpretive approaches that define Comparative Literature as a discipline and distinguish it from other literary disciplines. Required for the major. GE credit: ArtHum | AH, WE.
(change in existing course—eff. summer 15)

197T. Tutoring in Comparative Literature (1-5)
Discussion—2-4 hours. Prerequisite: upper division standing with declared major in Comparative Literature. Tutoring in undergraduate courses including leadership in small voluntary discussion groups affiliated with current courses offered by Comparative Literature. May be repeated for credit for a total of 6 units. (P/NP grading only.)
(change in existing course—eff. summer 15)

198. Directed Group Study for Advanced Undergraduates (1-5)
(P/NP grading only.)
(change in existing course—eff. summer 15)

199. Special Study for Advanced Undergraduates (1-5)
(P/NP grading only.)
(change in existing course—eff. summer 15)

Graduate

210. Topics and Themes in Comparative Literature (4)
Discussion—3 hours; term paper. Prerequisite: graduate standing in Comparative Literature, English, or a foreign-language literature, or consent of instructor. Comparative, interpretive study of the treatment of specific topics and themes in literary works from various periods, societies, and cultures, in light of these works' historical and sociocultural contexts. May be repeated for credit when topic differs.
(change in existing course—eff. summer 15)

214. Approaches to Lyric Poetry (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Analysis and interpretation of poetic texts in different historical periods and national literatures, with consideration of major theoretical developments in the understanding of poetic discourse. Offered irregularly.—Schiesari
(change in existing course—eff. summer 15)

215. Forms of the Spiritual Quest (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor; knowledge of at least one foreign language. An exploration, culminating in a research paper, of changing forms of the quest for transcendence in different cultures, mainly in major works of Western literature, but also in other traditions and from the perspectives of other disciplines. Offered irregularly.
(change in existing course—eff. summer 15)

220. Literary Genres (4)
Discussion—3 hours; term paper. Prerequisite: graduate standing in Comparative Literature, English, or a foreign-language literature, or consent of instructor. Comparative literature of major works in a particular genre from various linguistic, national, and cultural traditions, with particular attention to historical developments within the genre and to genre theory. May be repeated for credit when topic differs. Offered irregularly.
(change in existing course—eff. summer 15)

238. Gender and Interpretation (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Study of how literary texts from different periods, societies, and cultures represent gender roles and gender hierarchy, building on recent work on gender in anthropology, literature, psychology, and women's studies. Offered irregularly.
(change in existing course—eff. summer 15)

250. Comparative Psychology (4)
(cancelled course—eff. fall 15)

250A. Research in Primary Literature (4)
Project. Individually guided research in the primary literature of concentration, under the supervision of a faculty member culminating in a conference paper. Required of M.A. and Ph.D. candidates.
(change in existing course—eff. summer 15)

250B. Research in Second Literature (4)
Project. Individually guided research in the secondary literature of concentration, under the supervision of a faculty member, culminating in a paper. Required of Ph.D. candidates.
(change in existing course—eff. summer 15)

250C. Research in Third Literature or Special Topic (4)
Conference—1 hour; term paper; independent study—8 hours. Individually guided research, under the supervision of a faculty member, in the third literature of concentration or on a special topic culminating in a paper. Required of Ph.D. candidates.
(change in existing course—eff. winter 16)

250D. Dissertation Prospectus (4)
Independent study. Individually guided writing of the dissertation prospectus under supervision of a faculty member. Must be taken prior to completion of the qualifying exam. Required of Ph.D. candidates. Offered irregularly. (S/U grading only.)—
(change in existing course—eff. summer 15)

255. Proseminar: Comparative Literature: Past, Present, Future (4)
Lecture/discussion—3 hours; term paper. Prerequisite: graduate standing. Restricted to graduate students. History, theory, and methodology of comparative literature. Issues of national literature, world literature, and comparative literature. Relation of comparative literature to other disciplines and

diverse expressions. Discussion of current problems in teaching and research in comparative literature. Required for MA/PhD.—*F, S. (F, S.)*

(change in existing course—eff. winter 16)

260. Contexts of the 19th-Century Novel (4)

Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Development in 19th-century history, culture, and society in relation to major trends in the 19th-century novel. Offered irregularly.

(change in existing course—eff. summer 15)

297. Directed Independent Study in Primary, Secondary, or Third Literature (4)

Conference—1 hour; term paper; independent study—8 hours. Prerequisite: consent of instructor. Restricted to graduate students. Directed Independent Study in Primary, Secondary, or Third Literature culminating in term paper. Only for languages with no graduate course offerings. May be repeated for credit when no seminars are available and topic differs.—*F, W, S. (F, W, S.)*

(new course—eff. spring 16)

298. Directed Group Study (1-5)

Prerequisite: graduate standing. (S/U grading only.)

(change in existing course—eff. summer 15)

299. Individual Study (1-12)

(S/U grading only.)

(change in existing course—eff. summer 15)

299D. Special Study for the Doctoral Dissertation (1-12)

(S/U grading only.)

(change in existing course—eff. summer 15)

Professional

390. Teaching Comparative Literature in College (4)

Lecture—2 hours; discussion—2 hours. Prerequisite: appointment as a Comparative Literature Associate Instructor or consent of instructor. Restricted to graduate students. Discussion of the theory and practice of teaching composition at the college level in a department of comparative literature in relation to the major cultural and social developments and with specific application to the introductory courses 1, 2, 3, 4. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

392. Teaching Internship in Comparative Literature (2)

Discussion—2 hours. Restricted to graduate students. Regular consultations between the student instructor teaching Comparative Literature courses and a supervisor. Specifically designed for first-time TAs in COM 5, 6, 7, and 10. Instruction in the teaching of writing in a literature course, grading of papers, leading discussions. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

396. Teaching Assistant Training Practicum (1-4)

Prerequisite: graduate standing. May be repeated for credit. (S/U grading only.)

(change in existing course—eff. summer 15)

Critical Theory

New and changed courses in Critical Theory (CRI)

Upper Division

101. Introduction to Critical Theoretical Approaches to Literature and Culture (4)

Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Introduction to critical theory and its use for interpreting literary texts, film, and media forms in our present global culture. (Same course as Comparative Literature 141.) GE credit: ArtHum, Wrt | AH, WC, WE.—*S. (S.)*

(change in existing course—eff. fall 16)

Graduate

200A. Approaches to Critical Theory (4)

Seminar—3 hours; term paper. Prerequisite: graduate standing in a participating program. Restricted to Graduate students. Critical overview of modern theoretical texts; e.g., semiotics, hermeneutics, deconstruction, social and cultural critique, feminist theory, psychoanalysis.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

200B. Problems in Critical Theory (4)

Seminar—3 hours; term paper. Prerequisite: graduate student standing. Restricted to Graduate students. Focused study of a particular critical theoretical approach, school or perspective. Topics may include but are not limited to: critical approaches to the study of literature, culture, film, historiography, visual culture, the body, and aesthetics. May be repeated for credit when topic differs and with consent of instructor.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

200C. History of Critical Theory (4)

Seminar—3 hours; term paper. Prerequisite: graduate student standing. Restricted to Graduate students. Critical analysis and discussion of pretwentieth century theories of literary and cultural criticism. Topics may include but are not limited to: ancient and early modern philosophy; nature and culture in the Renaissance; theories of Mimesis from antiquity to the Renaissance. May be repeated for credit when topic differs and with consent of instructor.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

201. Critical Theory Special Topics (4)

Seminar—3 hours; term paper. Prerequisite: graduate student standing. Application of theoretical principles to one specific research topic. May be repeated for credit with consent of instructor when topic differs.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

202. Visual Culture (4)

Lecture/discussion—4 hours. Restricted to Graduate student standing. Analysis of image production in the contemporary world (photography, film, television, advertising, etc.) and their effects on individual subjectivities and collective social identities. Offered irregularly.—*W. (W.)*

(change in existing course—eff. spring 16)

298. Directed Group Study (1-5)

Prerequisite: consent of instructor. Restricted to Graduate student standing.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

299. Individual Study (1-12)

Prerequisite: graduate student standing. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

Cultural Studies

New and changed courses in Cultural Studies (CST)

Graduate

270A. Individually Guided Research in Cultural Studies (4)

Discussion—1 hour; independent study—2 hours; extensive writing. Prerequisite: course 200C, 250, consent of instructor. Individually guided research, under the supervision of a faculty member, on a Cultural Studies topic related to the student's proposed dissertation project to produce a dissertation prospectus.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

270B. Individually Guided Research in Cultural Studies (4)

Discussion—1 hour; independent study—2 hours; extensive writing. Prerequisite: course 200C, 250, consent of instructor. Individually guided research, under the supervision of a faculty member, on a Cultural Studies topic related to the student's proposed dissertation project to produce a dissertation prospectus.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

270C. Individually Guided Research in Cultural Studies (4)

Discussion—1 hour; independent study—2 hours; extensive writing. Prerequisite: course 200C, 250, consent of instructor. Individually guided research, under the supervision of a faculty member, on a Cultural Studies topic related to the student's proposed dissertation project to produce a dissertation prospectus.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

Davis Honors Challenge

New and changed courses in Davis Honors Challenge (HNR)

Upper Division

194. Honors Seminar (3)

Seminar—3 hours. Prerequisite: consent of instructor. Open only to students in the Davis Honors Challenge. Team-based work on actual problems drawn from the public or private sector. Focus on critical thinking and analytical interpretation, oral and written communication skills, and development of practical solutions to real-world problems. GE credit: Wrt.—*W, S. (W, S.)*

(change in existing course—eff. winter 15)

Design

New and changed courses in Design (DES)

Lower Division

14. Design Drawing (4)

Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 (may be taken concurrently); 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 given 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. GE credit: ArtHum | AH, VL.—*F, W, S, Su. (F, W, Su.)* McNeil

(change in existing course—eff. fall 16)

15. Form and Color (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 (may be taken concurrently) or consent of instructor. Priority given to Design majors. Understanding color, form and composition as ways of communicating design concepts and content. Color theory, color mixing, interaction of color. Design principles and elements. Gestalt theory. Explores a variety of materials, media and presentation techniques. GE credit: ArtHum | AH, VL.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

16. Graphic Design and Computer Technology (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 (may be taken concurrently) or consent of instructor. Priority given to Design students. Introduction to digital tools with emphasis on graphic design including theory, practice and technology. Includes principles of color, resolution, pixels, vectors, image enhancement, layout, visual organization, visual hierarchy, typography. GE credit: ArtHum | AH, VL.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

21. Drafting and Perspective (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 (may be taken concurrently) or consent of instructor. Priority given to Design majors. Introduction to mechanical drafting, including scaled drawing, orthogonal projection, isometric, axonometric and perspective. Includes basic rendering techniques. GE credit: ArtHum | AH, VL.—*F, Su. (F, Su.)* Kessler

(change in existing course—eff. fall 16)

31. Photography for Designers (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Pass One priority given to Design majors. Visual communication and digital imaging techniques using black and white, and color. Critical analysis of photographs and the role of photography in society combining theoretical perspectives with practical applications. Explore use and meaning of single, sequence, and single composite images. GE credit: ArtHum | AH, VL.—*F, W. (F, W.)* Drew

(change in existing course—eff. fall 16)

37. Coding for Designers (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Pass One priority to Design majors. Programming concepts and skills as applied for visual design. Algorithm-based design and development, flowcharts, pseudo-code, entry level scripting or programming. Principles of coding, logic, syntax, structure. Analysis of historical examples of code-based design. Development, iteration, presentation of design projects. GE credit: VL.—*F, Su. (F, Su.)* Drew

(change in existing course—eff. fall 16)

50. Introduction to Three-Dimensional Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 or consent of instructor. Priority given to Design majors. Design concept development and detailing as it relates to the making of objects, structures and models using form, scale and materials. Product design and rapid prototyping methods using a range of techniques for advancing the design process. GE credit: ArtHum | AH, VL.—*F, W, S, Su. (F, W, S, Su.)* Snyder

(change in existing course—eff. fall 16)

70. Introduction to Textile Design Structures (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 (may be taken concurrently) or consent of instructor. 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. GE credit: ArtHum | AH, VL.—*F. (F.)*

(change in existing course—eff. fall 16)

77. Introduction to Structural Design for Fashion (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 (may be taken concurrently) or consent of instructor. Priority given to Design majors. 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. GE credit: ArtHum | AH, VL.—*F, W. (F, W.)*

(change in existing course—eff. fall 16)

Upper Division

107. Advanced Structural Design for Fashion (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority given 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. GE credit: ArtHum | AH, VL.—*S. (S.)*

(change in existing course—eff. fall 16)

115. Letterforms and Typography (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority given to Design majors. Fundamentals of letterforms and typography. Characteristics of typefaces; formatting and composition of type. Principles of legibility, visual hierarchy, grid systems, and the integration of type and image. Not available for credit to students who have completed course 22. GE credit: ArtHum | AH, VL.—*F, W, S, Su. (F, W, S, Su.)* Verba

(change in existing course—eff. fall 16)

116. Visual Communication: Graphic Design Studio (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 115 or consent of instructor. Priority given to Design majors. Multiple, conceptually-linked assignments focusing on the fundamental choices designers make in translating concepts into effective graphic form. Problem finding and analysis of audience needs. Design process from research and initial concepts to project prototypes. Not open for credit to students who have completed course 152 or 152A. GE credit: ArtHum | AH, VL.—*W, S, Su. (W, S, Su.)* Verba

(change in existing course—eff. fall 16)

117. Interactive Media I (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority to Design majors. Practice of creating interactive visual media for network-based applications and principles of human computer interaction. Responsive design. User-centered research, information architecture, interface and interaction. Analysis of usability. Development and presentation of design production materials and completed interactive projects. GE credit: ArtHum | AH, VL.—*W, S, Su.* (W, S, Su.) Drew

(change in existing course—eff. fall 16)

127B. Studio Practice in Sustainable Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, 127A or consent of instructor. Priority to Design majors. 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. Field trips required. GE credit: ArtHum | AH, VL.—*S. (S.)* Savageau

(change in existing course—eff. fall 16)

131. Global Fashion and Product Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority given to Design 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. Offered irregularly. GE credit: ArtHum | AH, VL.—Avila

(change in existing course—eff. fall 16)

132A. Textile Design: Woven Structures (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority given to Design majors. Foundation course in handwoven textile structure and design, emphasizing yarn identification, basic drafting, basic weaves and their derivatives explored in context of original color effects and yarn combinations. May be repeated one time for credit with consent of instructor. Offered irregularly. GE credit: ArtHum | AH, VL.—Avila

(change in existing course—eff. fall 16)

132B. Loom-Constructed Textile Design (4)
Studio—4 hours, lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 132A or consent of instructor. Priority to Design majors. Intermediate level study of complex fabric structure with emphasis on pattern in relation to surface, dimension, and material. May be repeated one time for credit with consent of instructor. Offered irregularly. GE credit: ArtHum | AH, VL.—Avila

(change in existing course—eff. fall 16)

134A. Introduction to Interior Design—Residential (4)
Studio—4 hours, lecture/discussion—2 hours. Prerequisite: course 1, 21 or 150A or consent of instructor. Priority to Design majors. Introduction to the theory and practice of interior design with focus on residential spaces. Basic methods of design conceptualization, development, and presentation. GE credit: ArtHum | AH, VL.—*F. (F.)* Kessler

(change in existing course—eff. fall 16)

134B. Introduction to Interior Design—Commercial and Technical Spaces (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, 21 or 150A or consent of instructor. Pass One priority given to Design majors. Introduction to the theory and practice of interior design with focus on small commercial and technical spaces. Archetypal spaces, non-residential building systems, ADA accessibility, design programming and research methods. GE credit: ArtHum | AH, VL.—*F, W, S. (F, W, S.)* Kessler

(change in existing course—eff. fall 16)

135A. Furniture Design and Detailing (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority given to Design majors. Development of designs for contemporary furniture. Consideration of behavioral and physical requirements,

cultural and historic expression, and structural and aesthetic qualities. Process includes research, drawings, and construction of scale models. Required field trip. GE credit: ArtHum | AH, VL.—*W. (W.)* Kessler

(change in existing course—eff. fall 16)

135B. Furniture Design and Prototyping (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority given to Design majors. Design and construction of full size prototype furniture based on preliminary work completed in course 135A. Material technology, construction methods, and finishes discussed. Development of shop drawings and furniture construction. Required field trip. Offered irregularly. GE credit: ArtHum | AH, VL.

(change in existing course—eff. fall 16)

136A. Lighting Technology and Design (4)
Laboratory—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority to Design majors. Introduction to lighting design and technology. Understanding the role of lighting and vision in the development of functional and aesthetically pleasing environments. GE credit: ArtHum | AH, VL—*F. (F.)* Siminovitch

(change in existing course—eff. fall 16)

136B. Designing with Light—Industrial Design (4)
Laboratory—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 136A or consent of instructor. Priority 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. Industrial design projects explore lighting effects, light distribution characteristics, and luminaire design. GE credit: ArtHum | AH, VL.—*W. (W.)* Siminovitch

(change in existing course—eff. fall 16)

137A. Daylighting and Interior Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority to Design majors. Emphasis on understanding the effect of daylight on the perception of interior designs as well as on vision, luminous and thermal comfort, health and energy efficiency. GE credit: ArtHum | AH, VL.—*F. (F.)* Papamichael

(change in existing course—eff. fall 16)

137B. Daylighting Design Studio (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority to Design majors. Introduction to daylighting through observation of its effects on interior designs using scale models of interior designs of choice and photographing them outdoors and in CLTC's Heliodon to understand year-round performance. GE credit: ArtHum | AH, VL.—*S. (S.)* Papamichael

(change in existing course—eff. fall 16)

138. Materials and Methods in Interior Design (4)
Lecture/discussion—3 hours; project—1 hour. Prerequisite: course 1 or consent of instructor. Priority to Design majors. Introduction to the finish materials used for interior design with special emphasis on sustainable and recycled products. Performance factors, relative costs and energy impacts, installation conditions and construction details, and design potential for a full range of interior materials. Offered in alternate years. GE credit: ArtHum | AH, VL, WE.

(change in existing course—eff. fall 16)

142A. World Textiles: Eastern Hemisphere (4)
Lecture—4 hours. Prerequisite: course 1; Art History 1A, 1B, 1C, or 1D recommended. Social contexts, meanings, aesthetics, stylistic developments, and methods significant in eastern hemisphere textiles. Emphasis on Japan, China, Indonesia, Oceania, Southern and Central Asia, Africa. Offered irregularly. GE credit: ArtHum, Div | AH.—Savageau

(change in existing course—eff. fall 16)

142B. World Textiles: Western Hemisphere (4)
Lecture—4 hours. Prerequisite: course 1, Art History 1A, 1B, or 1C recommended. Social context, aesthetics, stylistic developments and methods significant in western hemisphere textiles. Emphasis on the Middle East, Europe, and the Americas up to contemporary times. Two required field trips. GE credit: ArtHum, Div | AH.—Rivers

(change in existing course—eff. fall 16)

143. History of Fashion (4)
Lecture—3 hours; discussion—1 hour. Priority to Design majors. History of fashion design from the earliest times to the present focusing on the ancient Middle East and Common Era North America and Europe. Emphasis on aesthetic, functional, social, economic, political and cultural aspects of clothing and personal adornment. GE credit: ArtHum | AH, VL.—*W. (W.)* Avila

(change in existing course—eff. fall 16)

144. History of Interior Architecture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or consent of instructor. Pass One priority to Design majors. Thematic survey of interior architecture. Emphasis on dwellings in their cultural settings and development of modern interior design theories. Interiors considered in relation to buildings' exteriors, sites, and uses. Offered in alternate years. GE credit: ArtHum | AH, WE.—Housefield

(change in existing course—eff. fall 16)

145. History of Visual Communication (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or consent of instructor. Priority to Design majors. Historical developments of visual communication, concentrating on the technological and aesthetic development of graphic design; origins and manifestations of current issues in visual communication; provide framework for analysis of current and future trends in visual communication. GE credit: ArtHum | AH, VL, WE.—*F, S. (F, S.)* Drew

(change in existing course—eff. fall 16)

150A. Computer-Assisted Drawing for Designers (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: courses 1, (14 or 21), 15, 16 or consent of instructor; 21 preferred. Priority given 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. GE credit: ArtHum | AH, VL.—*F, W. (F, W.)*

(change in existing course—eff. fall 16)

150B. Computer-Assisted Presentations for Interior Architecture (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 150A or consent of instructor; 21 recommended. Priority given to Design majors. Computer-assisted architectural presentation including the development of complex 3D models, techniques of photo-realistic rendering and computer simulation of movement through architectural and interior space. Offered irregularly. GE credit: ArtHum | AH, VL.—*S. (S.)*

(change in existing course—eff. fall 16)

151. Type in Motion (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: courses 1, (14 or 21), 15, 16 or consent of instructor; course 115 recommended. Priority given to Design majors. Fundamentals of creating motion-based, screen-based typography. Consideration of narrative structures, movement assemblage, and other visual languages, synthesized within a nuanced understanding of typography within digital space. GE credit: ArtHum | AH, VL.—*F. (F.)* Drew

(change in existing course—eff. fall 16)

154. Visual Communication: Message Campaign Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 115, 116 or consent of instructor. Priority given to Design majors. Principles and application of visual design strategies for projects that address a broad public audience. Emphasis on design for social awareness/interaction/benefit. Creation of public visual-media campaign. Not open for credit to students who have completed course 152B. GE credit: ArtHum | AH, VL.—*S. (S.)* Verba

(change in existing course—eff. fall 16)

155A. Pattern, Form and Surface (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 115 or consent of instructor. Experimental approaches to formmaking through an examination of pattern, form, and surface in historical and contemporary contexts. Explorations of alternative design processes, methods, and materials that open up new possibilities for content creation and invention in design practice. GE credit: VL.—*W. (W.)* Verba

(change in existing course—eff. fall 16)

157. Interactive Media II (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, (37 or 111) and 117 or consent of instructor. Priority 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. GE credit: ArtHum | AH, VL.—*S. (S.)* Drew

(change in existing course—eff. fall 16)

159. Design for Understanding (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 115, 116 or consent of instructor; course 117 recommended. Pass One open to Design majors. Principles of effective information display including aspects of language, structure, legibility, sequencing, and context. Analysis of historical examples of typographic, diagrammatic, and cartographic excellence. User-centered research. Development and presentation of iterative design prototypes. Design that informs, connects, and inspires. Offered in alternate years. GE credit: ArtHum | AH, VL.—*S. (S.)* Verba

(change in existing course—eff. fall 16)

160. Textile Surface Design: Patterns and Resists (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, or consent of instructor. Use of traditional and contemporary processes to create images and patterns on fabric using a variety of dyes, including direct applications, bound and mechanical resists. Emphasis on individual exploration and interpretation of processes and techniques. May be repeated for credit one time with consent of instructor. GE credit: ArtHum | AH, VL.—*S. (S.)* Avila

(change in existing course—eff. fall 16)

161. Textile Surface Design: Screen and Digital Printing (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15 and 16. Design of textiles and screen printing on fabrics; soft-product development; integration of hand-produced and digitally generated imagery on cloth. GE credit: ArtHum | AH, VL.—*F. (F.)* Avila

(change in existing course—eff. fall 16)

170. Experimental Fashion & Textile Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. Priority to Design majors. Experimental approaches to fashion and textile design. Emphasis on developing conceptual ideas and translating them into one-of-a-kind garments and soft products. Exploration of a variety of current topics including sustainability, pattern design, new technologies, and social activism. May be repeated one time for credit with consent of instructor. GE credit: ArtHum | AH, VL.—*Su. (Su.)* Avila

(change in existing course—eff. fall 16)

171. Fashion Drawing: Technical and Illustration (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor. 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. GE credit: ArtHum | AH, VL.—*F, S. (F, S.)* Avila

(change in existing course—eff. fall 16)

177. Computer-Assisted Fashion Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 and 77 or consent of instructor. Priority to Design majors for industry and personal expression with emphasis on computer-assisted design applications. Field trip required. GE credit: ArtHum | AH, VL.—*F. (F.)* Avila

(change in existing course—eff. fall 16)

179. Fashion Design: Signature Collection (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16, 77, (107 or 177) or consent of instructor. Priority to 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. Not open for credit to students who have taken more than 8 units of course 191A. May be repeated one time for credit. GE credit: ArtHum | AH, VL.—*W. (W.)* Avila

(change in existing course—eff. fall 16)

180A. Advanced Interior Design: Institutional Spaces (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1 and (21 or 150A) or consent of instructor. Priority 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. GE credit: ArtHum | AH, VL.—*F, W. (F, W.)* Kessler

(change in existing course—eff. fall 16)

180B. Advanced Interior Architecture (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 134A, (134B or 180A) or consent of instructor. Priority to Design majors. Advanced problems in interior architectural design emphasizing space planning for corporate and institutional environments. Field trips required. GE credit: ArtHum | AH, VL.—*W, S. (W, S.)* Kessler

(change in existing course—eff. fall 16)

185. Exhibition Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor; 150A recommended. Priority to Design majors. Design of cultural and commercial exhibition environments, including exhibition development and object selection, spatial planning and architectural finishes, object placement and staging, interpretive strategies, exhibition and promotional graphics. GE credit: ArtHum | AH, VL.—*F. (F.)* McNeil

(change in existing course—eff. fall 16)

186. Environmental Graphic Design (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, (14 or 21), 15, 16 or consent of instructor; course 115 recommended. Priority 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. GE credit: ArtHum | AH, VL.—*W. (W.)* McNeil

(change in existing course—eff. fall 16)

187. Narrative Environments (4)
Studio—4 hours; lecture/discussion—2 hours. Prerequisite: course 1, 14 or 21, 15, 16 and 185 or 186 or consent of instructor. Design of storytelling environments and multi-sensory experiences for cultural, commercial, entertainment and public spaces. Interpretive planning and design for specific exhibit audiences. Manipulation of objects and the communication of complex ideas in the exhibition environment. GE credit: ArtHum | AH, VL.—*S, Su. (S, Su.)* McNeil

(change in existing course—eff. fall 16)

190. Proseminar (1)
Seminar—1 hour. Prerequisite: design major or consent of instructor. Philosophies of design explored through discussion and presentation of research results. May be repeated three times for credit when topic differs. (P/NP grading only.)

(change in existing course—eff. fall 14)

191A. Workshops in Design (4-12)
Seminar—1 hour; studio or field experience—3 hours per unit (units determined by instructor and student); field trip. Prerequisite: course 14, 15; upper division standing and consent of instructor. Faculty initiated workshops featuring advanced studies and applications of original work in Design: Costume. Letter grading by contract. Field trips included. Credit limited to 12 units in one section or a combination of sections.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 15)

191B. Workshops in Design (4-12)
Seminar—1 hour; studio or field experience—3 hours per unit (units determined by instructor and student); field trip. Prerequisite: course 14, 15; upper division standing and consent of instructor. Faculty initiated workshops featuring advanced studies and applications of original work in Design: Environment. Letter grading by contract. Field trips included. Credit limited to 12 units in one section or a combination of sections.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 15)

191C. Workshops in Design (4-12)
Seminar—1 hour; studio or field experience—3 hours per unit (units determined by instructor and student); field trip. Prerequisite: course 14, 15; upper division standing and consent of instructor. Faculty initiated workshops featuring advanced studies and applications of original work in Design: Graphics. Letter grading by contract. Field trips included. Credit limited to 12 units in one section or a combination of sections.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 15)

191D. Workshops in Design (4-12)
Seminar—1 hour; studio or field experience—3 hours per unit (units determined by instructor and student); field trip. Prerequisite: course 14, 15; upper division standing and consent of instructor. Faculty initiated workshops featuring advanced studies and applications of original work in Design: Textiles. Letter grading by contract. Field trips included. Credit limited to 12 units in one section or a combination of sections.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 15)

192. Internship (1-6)
Internship—3-18 hours. Prerequisite: completion of 84 units and consent of instructor. Enrollment limited to 3 units per quarter or 6 units per IV session. Supervised internship, off and on campus, in areas of design including environmental, costume, textile, museum, display and interior design. (P/NP grading only.)

(change in existing course—eff. fall 14)

194HA. Special Study for Honors Students (3)
Independent study—9 hours. Prerequisite: qualification for Letters and Science Honors Program; senior standing; approval of Design Honors Program proposal by the Curriculum Committee and major adviser; consent of instructor. Limited enrollment. Preparation and presentation of a culminating project. Supervision of an instructor in one of the creative or scholarly areas of Design. (Deferred grading only, pending completion of sequence.)—*W. (W.)*

(change in existing course—eff. fall 14)

Graduate

225. Studio Practice in Design (4)
Studio—3 hours. Prerequisite: course 221. Restricted to graduate standing in Design or consent of instructor. Students work together on a collective project to experience the multiple phases of design through an iterative process. Design projects will be geared towards relevance in contemporary social, cultural and political contexts. May be repeated two times for credit.—*W. (W.)*

(change in existing course—eff. fall 14)

299. Individual Focused Study (1-12)
Prerequisite: graduate standing in Design or consent of instructor. Advanced study in studio practice on independent projects with faculty consultation. May be repeated for credit.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 14)

Dramatic Art

New and changed courses in Dramatic Art (DRA)

Lower Division

5. Understanding Performance: Appreciation of Modern Theatre, Dance, Film and Performance Art for the Humanities and Sciences (4)
Lecture/discussion—3 hours; laboratory/discussion—1 hour. Relevance of theatre and performance to modern culture, science and society. Approaches to theatre/dance/media/performance art, integrated into Mondavi Centre for the Arts and Theatre and Dance Department programs. (Same course as Science and Society 41.) GE credit: ArtHum, Div | AH, DD, OL, VL, WC, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

10. Introduction to Acting (4)
Laboratory/discussion—4 hours. Fundamentals of movement, speech, theatre games, and improvisation. Selected reading and viewing of theatre productions. Intended for students not specializing in Dramatic Art. GE credit: OL, VL.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15)

21A. Fundamentals of Acting (4)
Lecture—2 hours; laboratory—4 hours. Prerequisite: course 20. Open to students planning to major in Theatre and Dance. Physical and psychological resources of the actor. Experience in individual and group contact and communication, theatre games, advanced improvisation, sound and movement dynamics. Viewing of theatre productions. GE credit: OL, VL.—*F, W. (F, W.)* Leavy, Merlin
(change in existing course—eff. fall 16)

21B. Fundamentals of Acting (4)
(cancelled course—eff. fall 16)

30. Theatre Laboratory (1-5)
Prerequisite: consent of instructor. Projects in acting, production, scene design, costuming, lighting, directing, and playwriting. Participation in departmental productions. May be repeated for credit up to 11 units.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

40A. Beginning Modern Dance (2)
Laboratory/discussion—4 hours. Prerequisite: course 14 or consent of instructor. Fundamentals of modern dance focusing primarily on the development of techniques and creative problem solving. Basic anatomy, dance terminology, and a general overview of modern dance history. May be repeated two times for credit. Non-dance majors can only repeat the course once. Dance majors may apply to the dance faculty adviser for permission to repeat more times. Dance is a repetitive practice that involves constant reiteration and demands this for improvement and better understanding of the somatic and proprioceptive skills. GE credit: AH, VL.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. spring 16)

40B. Intermediate Modern Dance (2)
Laboratory/discussion—4 hours. Prerequisite: course 40A or consent of instructor. Open to students who have completed course 14 and 40A, unless with consent of instructor. Modern dance techniques. Basic anatomy, dance terminology and a general overview of modern dance history. May be repeated one time for credit. For Dance majors, further repeats negotiated with faculty adviser in dance. GE credit: ArtHum | AH, VL.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. spring 16)

41A. Beginning Jazz Dance (2)
Laboratory/discussion—4 hours. Prerequisite: consent of instructor. Fundamentals of jazz dance; includes warm-ups, dance techniques and combinations. Basic anatomy, dance terminology and general overview of jazz dance history. May be repeated one time for credit with consent of instructor.—*W. (W.)*
(change in existing course—eff. spring 16)

41B. Intermediate Jazz Dance (2)
Laboratory/discussion—4 hours. Prerequisite: course 41A or consent of instructor. Warm-ups, dance techniques and combinations at the intermediate level. Basic anatomy, dance terminology and a general overview of jazz styles of historically significant jazz choreographers and leading contemporary jazz choreographers. May be repeated one time for credit with consent of instructor.—*F. (F.)*
(change in existing course—eff. spring 16)

42A. Beginning Ballet (2)
Laboratory/discussion—4 hours. Fundamentals of ballet, focusing on the development of technique through proper alignment, quality, and rhythm. Basic anatomy, ballet terminology, and dance history. May be repeated for credit with consent of instructor. GE credit: AH, VL.
(change in existing course—eff. spring 16)

42B. Intermediate Ballet (2)
Laboratory/discussion—4 hours. Prerequisite: courses 42A or consent of instructor. Barre and center work at the intermediate level. Development and refinement of technique through proper alignment, rhythmic, and qualitative understanding. Anatomy, ballet terminology, and dance history. May be repeated for credit with consent of instructor. GE credit: AH, VL.
(change in existing course—eff. spring 16)

43B. Intermediate Contact Improvisation (2)
Lecture/laboratory—4 hours. Prerequisite: course 43A or consent of instructor. 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. GE credit: ArtHum | AH, VL.
(change in existing course—eff. spring 16)

92. Internship in Dramatic Art (1-12)
Prerequisite: consent of instructor and department chairperson. Restricted to lower division students with less than 84 units completed. Internship outside the Department of Theatre and Dance enabling students to practice their skills. May be repeated up to 12 units for credit. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 14)

Upper Division

114. Theatre on Film (4)
Lecture/discussion—3 hours; film viewing—2 hours; term paper. Prerequisite: consent of instructor. 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 or SocSci, Div, Wrt | Ah or SS, VL.
(change in existing course—eff. fall 16)

115. Advanced Study of Major Film Makers (4)
Lecture/discussion—3 hours; film viewing—2 hours. Analysis of the contribution of some outstanding film creators. Study of diverse aesthetic theories of the cinema and their application to selected films. May be repeated for credit when different film creator studied, or studied with a different methodological approach. GE credit: VL.
(change in existing course—eff. spring 16)

122A. Advanced Acting: Devising and Collaboration (4)
Lecture/laboratory—6 hours. Prerequisite: course 120 and consent of instructor. Limited enrollment. Study and practice of various devising techniques, to collaborate on and produce a series of short etudes and dramatic scenes/short plays. May be repeated up to eight units for credit. Since acting requires repetition to habituate the body and imagination to new practices, this course may be taken twice. New scripts and scenes must be undertaken in the repetition. GE credit: OL, VL.
(change in existing course—eff. spring 16)

122C. Advanced Acting: Special Topics in Acting (4)
Lecture/laboratory—6 hours. Prerequisite: course 120 and consent of instructor. Restricted to Theatre and Dance majors; limited enrollment. Intensive study and practical exploration of a specialized area; for example, World Theatre, Social Theatre, Physical Theatre, Musical Theatre, the Ancient Greeks, etc. May be repeated up to eight units for credit. Offered irregularly. GE credit: AH, OL, VL.
(change in existing course—eff. fall 16)

124A. Principles of Theatrical Design: Scenery (4)
Lecture/discussion—4 hours. Prerequisite: course 24 or consent of instructor. Pass One restricted to Theatre and Dance majors. Scene design processes, working drawings, sketching techniques, scale models, methods and materials of scenery construction. GE credit: ArtHum | AH, VL.—Iacovelli
(change in existing course—eff. spring 16)

124B. Principles of Theatrical Design: Scenery (4)
Lecture/discussion—4 hours. Prerequisite: course 24 or consent of instructor. Pass One restricted to Theatre and Dance majors. Analysis of plays in terms of scene design, elements of design, execution of designs for modern and period plays. GE credit: ArtHum | AH, VL.—Iacovelli
(change in existing course—eff. fall 16)

124C. Principles of Theatrical Design: Lighting (4)
Lecture/discussion—4 hours. Prerequisite: course 24 or consent of instructor. Pass One restricted to Theatre and Dance majors. Theories of lighting the stage, equipment and control systems, execution of lighting plots. GE credit: ArtHum | AH, VL.—Munn
(change in existing course—eff. fall 16)

124D. Principles of Theatrical Design: Costume (4)
Lecture/discussion—4 hours. Prerequisite: course 24 or consent of instructor. Pass one restricted to Theatre and Dance majors. Source materials for theatrical costuming, selecting fabrics, elements of design, analysis of plays in terms of costume design, execution of designs for modern and period plays. GE credit: ArtHum | AH, OL, VL.—Morgan
(change in existing course—eff. fall 16)

125. Scenic Painting: Studio (4)
Lecture—2 hours; studio—1 hour; laboratory—3 hours. Prerequisite: upper division standing in Theatre and Dance, Art Studio, or Design; or course 24 or 28 or consent of instructor. Scene painting techniques, practices and materials including color mixing and matching, wood graining, faux painting techniques, glazing, creating foliage, stone and brick. May be repeated one time with consent of instructor. Offered irregularly. GE credit: ArtHum | AH, VL.—Iacovelli, Munn
(change in existing course—eff. spring 16)

127A. Principles of Directing (4)
Lecture—2 hours; laboratory—4 hours. Prerequisite: consent of instructor. Director's creative approach to the play and to its staging. GE credit: VL.
(change in existing course—eff. spring 16)

127B. Principles of Directing (4)
Lecture—2 hours; laboratory—4 hours; rehearsal. Prerequisite: course 127A or consent of instructor. Director's creative approach to the actor. GE credit: VL.
(change in existing course—eff. spring 16)

130. Approaches to Theatrical Design: Practice and Theory (4)
Seminar—2 hours; studio—4 hours. Prerequisite: upper division standing in Theatre and Dance, Art Studio or Design; any class from course 124 series or consent of instructor. Advanced design study in specific areas including but not limited to: research, design styles and concepts, new materials and techniques, scenery, lighting, costume, makeup, photography, projections, computer technology, spectacle and special effects, and alternative theatre forms and genres. May be repeated three times for credit when topic differs; when instructor differs. Offered irregularly. GE credit: ArtHum | AH, VL.
(change in existing course—eff. spring 16)

140A. Dance Composition (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 40A or 41A or 42A or consent of instructor. Introduction to the craft of choreography. Compose phrases and present movement studies based on the elements of choreography: motivation, space, time, force/energy. GE credit: VL.
(change in existing course—eff. spring 16)

143. Dance and Movement Studio (1-4)
Laboratory/discussion—2-8 hours. Prerequisite: consent of instructor. Special studies in dance and movement such as African, Balinese, Baroque, Chinese, European, and stage combat. Offered as needed for stage productions. May be repeated up to eight units for credit. GE credit: AH, VL.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. spring 16)

146A. Professional Track Modern Dance I (4)
Lecture/laboratory—6 hours. Prerequisite: course 146A; consent of instructor. Professionally oriented performance training. Rigorous, consistent training regimen based on traditional modern dance technique. Breath and voice, skeletal and muscular placement, moving from the spine, contraction technique, movement intention. May be repeated two times for credit. GE credit: VL.—Grenke
(change in existing course—eff. spring 16)

146B. Professional Track Modern Dance II (4)
Lecture/laboratory—6 hours. Prerequisite: courses 40B and 146A; consent of instructor. Continuation of course 146A. Body and space relationships in solos, duets and group work; stylistic variations of Graham technique; works of Paul Taylor. May be repeated one time for credit. GE credit: VL.—Grenke
(change in existing course—eff. fall 15)

146C. Professional Track Modern Dance III (4)
Lecture/laboratory—6 hours. Prerequisite: courses 40B, 146A and 146B; consent of instructor. Continuation of course 146B. Time as a theatrical device, sustaining movement and non-movement, phrasing, musicality. May be repeated one time for credit. Offered irregularly. GE credit: VL.—Grenke
(change in existing course—eff. spring 16)

154. Asian Theatre and Drama: Contexts and Forms (4)
Lecture/discussion—4 hours. Selected Asian plays and performance forms in their cultural and artistic contexts; myth, ritual and the theatre; performance training, visual presentation of the text; political theatre; intercultural performance-the fusion of Asian and Western traditions. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC, WE.
(change in existing course—eff. spring 16)

156AN. Performance Analysis (4)
Lecture—3 hours; discussion—1 hour. Performance on the stage, in the street, in everyday life, ritual, and in politics. Satire, irony, creative protest and performance. Social movements, the state, and performance as tactical intervention. GE credit: ArtHum, Div, Wrt | AH, DD, WE.—Bogad
(change in existing course—eff. spring 16)

156B. Theatre in History and Place: Local, National and Global Conditions for Production (4)
Lecture—3 hours; discussion—1 hour. Exploration of local, national and global issues in theatre production, with special attention to historical changes in social and political contexts for performance. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Hunter
(change in existing course—eff. spring 16)

156C. Modern Aesthetic Movements in Performance (4)
Laboratory/discussion—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Important movements in performance, especially theatre and dance, from realism to the present. Primary emphasis on Western traditions though others may be studied. GE credit: ArtHum, Div, Wrt | AH, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

158. Performance Studies Undergraduate Seminar (4)
Seminar—4 hours. Prerequisite: course 156AN recommended; consent of instructor. Focused inquiry into a particular genre, period, movement, artist, or theme in performance. Philosophical and aesthetic issues as well as historical and cultural performance contexts. In-depth research projects in relationship to the subject of inquiry. May be repeated for credit. Offered irregularly. GE credit: Wrt.——*F, W, S, SU. (F, W, S, Su.)*
(change in existing course—eff. spring 16)

159S. Contemporary Experimental Performance, Theatre and Drama (4)
Lecture/discussion—4 hours. Evaluation and examination of the "New Theatre" – its experimental and innovative nature since the 1960s. Dance, film, stage, performance art and public acts of a performative nature. May be repeated up to 12 units for credit if instructor or content varies. Offered irregularly. GE credit: ArtHum | AH, WE.—*Su.*
(change in existing course—eff. winter 15)

160A. Principles of Playwriting (4)
Lecture/discussion—4 hours. Prerequisite: two courses in Theatre and Dance or related courses in other departments; consent of instructor. Analysis of dramatic structure; preparation of scenarios; the composition of plays. GE credit: WE.—*W. (W.)*
(change in existing course—eff. spring 16)

160B. Principles of Playwriting (4)
Lecture—4 hours. Prerequisite: course 160A; consent of instructor. Analysis of dramatic structure; preparation of scenarios; the composition of plays. GE credit: WE.
(change in existing course—eff. spring 16)

170. Media Theatre (4)
Lecture—1 hour; rehearsal—2 hours; performance instruction—1 hour. Prerequisite: consent of instructor. New media and application of in theatre devising and performance. Emphasis on collaborative process in relationship to integration of emerging technologies and formation of new theatrical works. Development of collaborative performance through lecture, demonstration, improvisation and experimentation. May be repeated one time for credit. GE credit: ArtHum | AH, VL.
(change in existing course—eff. spring 16)

174. Acting for Camera (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: consent of instructor. Analysis and practice of acting skills required for camera work and digital media. May be repeated eight times for credit when instructor differs. (Same course as Cinema & Technocultural Studies 174.)—*S. (S.)* Anderson, Merlin
(change in existing course—eff. spring 15)

175. Small Scale Film Production (4)
Lecture/laboratory—6 hours. Prerequisite: consent of instructor. Lecture and intensive workshop teaching small-scale film production. Appointments as a(n) director, director of photography, actor, writer, lighting designer, sound designer and other critical positions are used to produce and submit a short film to a film festival. (Same course as Technocultural Studies 175.) May be repeated two times for credit.—*S. (S.)* Anderson, Drew
(change in existing course—eff. spring 15)

180. Theatre Laboratory (1-5)
Prerequisite: consent of instructor. Projects in acting, production, scene design, costuming, lighting, directing, and playwriting. Participation in departmental productions. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

180B. Theatre Laboratory: Design (1-4)
Prerequisite: consent of instructor. Design-related participation in theatre and dance productions involves research, creation and implementation of design concept in collaboration with the director and other members of the production team. May be repeated for credit. Because each theatrical piece is conceived and produced afresh with new source material, scripts, and production style the challenges and assignments for the designers will be new each and every time they design a show. GE credit: ArtHum | AH, VL.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

194HA. Special Study for Honors Students (3)
Independent study—9 hours. Prerequisite: qualification for Letters and Science Honors Program and admission to Theatre and Dance Senior Honors Program. Preparation and presentation of a culminating project, under the supervision of an instructor, in one of the creative or scholarly areas of Dramatic Art. (Deferred grading only, pending completion of sequence).—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

194HB. Special Study for Honors Students (3)
Independent study—9 hours. Prerequisite: qualification for Letters and Science Honors Program and admission to Theatre and Dance Senior Honors Program. Preparation and presentation of a culminating project, under the supervision of an instructor, in one of the creative or scholarly areas of Dramatic Art. (Deferred grading only, pending completion of sequence).—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

195. Senior Capstone Experience (2)
Project; lecture/discussion—1 hour. Open to Theatre and Dance Majors who have completed 135 or more units. Capstone experience for majors. Examination, reflection and synthesis on development. Discussion of professional development and translatable skills. Individual project and development of portfolio. (P/NP grading only.) GE credit: ArtHum | AH, WE.—*W, S. (W, S.)*
(change in existing course—eff. fall 16)

197T. Tutoring in Dramatic Art (1-5)
Tutoring—1-5 hours. Prerequisite: upper division or graduate standing with major in Theatre and Dance; consent of department chairperson. Leading of small voluntary groups affiliated with one of the department's regular courses. May be repeated for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

Graduate

211. Advanced Voice and Speech (3)
Lecture/discussion—2 hours; laboratory—2 hours. Prerequisite: consent of instructor. Open only to Dramatic Arts Students and Ph.D. students with an emphasis in Performance and Theatre. Review a progression of exercises to free, develop and strengthen the voice, first as a human instrument, and then as an actor's instrument using various texts such as Shakespeare, Ibsen and contemporary plays. Required for the M.F.A. degree in Acting. May be repeated two times for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

212. Advanced Stage Movement (3)
Laboratory—6 hours. Prerequisite: consent of instructor; graduate standing in the MFA program. Open to advanced undergraduates by consent of instructor. Application of modes of exploration, breath placement, and the use of imagery as well as Laban's effort/shape system as a method of analysis in classic and modern plays. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

224A. Seminar in Theatrical Design: Ancient Worlds—Early 17th Century (4)
Seminar—2 hours; project—2 hours. Prerequisite: consent of instructor. Group study while focusing primarily on one discipline: scenic, costume or lighting design. Periods covered: Greek, Medieval, Renaissance, Shakespearean, Jacobean, early 17th century. Design projects include script analysis, research of period style, fashion, character development, developing design concepts, presentation skills.
(change in existing course—eff. spring 16)

224B. Seminar in Theatrical Design: Mid 17th Century to 1900 (4)
Seminar—2 hours; project—2 hours. Prerequisite: consent of instructor. Group study focusing primarily on one discipline: scenic, costume or lighting design. Periods covered: Cavalier, Restoration 18th century opera and ballet, 19th century drama. Design projects include script analysis, research of period style, fashion, character development, developing design concepts, presentation skills.
(change in existing course—eff. spring 16)

224C. Seminar in Theatrical Design: the 20th Century (4)
Seminar—2 hours; project—2 hours. Prerequisite: consent of instructor. Group study focusing primarily on one discipline–scenic, costume or lighting design. 20th century genres covered: Realism, Brecht, Musicals, Contemporary Dance, short narrative film. Design projects include script analysis, research of period style, fashion, character development, developing design concepts, presentation skills.
(change in existing course—eff. spring 16)

224D. Seminar in Theatrical Design: Contemporary Concepts (4)
Seminar—2 hours; project—2 hours. Prerequisite: consent of instructor. Group study focusing primarily on one discipline: scenic, costume or lighting design. Emphasis on contemporary design concepts for new works and classics: Shakespeare, modern dance, concept plays and musicals. Script and character analysis for design in performance, research, design projects.
(change in existing course—eff. spring 16)

224E. Seminar in Theatrical Design: Advanced Concepts (4)
Seminar—2 hours; project—2 hours. Prerequisite: consent of instructor. Group study focusing primarily on one discipline: scenic, costume or lighting design. Emphasis on special issues in contemporary design concepts for new works and classics. Script and character analysis for design in performance, research, design projects.
(change in existing course—eff. spring 16)

225. Performance Design Studio: Techniques and Media (2)
Studio—2 hours. Prerequisite: consent of instructor. Exploration and development of techniques and skills in the performance design process. Drafting, model building, drawing, painting and rendering, costume drawing, color theory, lighting techniques, design portfolio preparation and presentation. May be repeated up to five times for credit.
(change in existing course—eff. spring 16)

228. Seminar in Directing Theory: Non-Realism (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Modern directing theory as it applies to non-realistic theatre; development of directorial concepts for production of selected non-realistic plays—Greek to the present; emphasis on textual analysis.
(change in existing course—eff. spring 16)

244. Critical Approaches to Traditional Systems of Body Movement (4)
Discussion/laboratory—6 hours; project; term paper. Prerequisite: consent of instructor. 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. Offered irregularly.
(change in existing course—eff. fall 16)

250. Modern Theatre (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. The theatre of Europe and America, 1860-1940, with emphasis on the relationship of the dramas of the period to the physical circumstances under which they were produced.
(change in existing course—eff. spring 16)

251. Scoring and Scripting in Performance (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: consent of instructor. Process of weaving together various performance elements brought into play by the artists in their respective disciplines. The "script" is the thread from which the artists' "scores" will layer and transform the "script" into performance for specific time, place, spectators. Offered in alternate years.—*W. (W.)*
(change in existing course—eff. spring 16)

252. Performance: Concepts of Space, Place, and Time (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: consent of instructor. Innovative theories of creating performance spaces, establishing a sense of place, and communicating the concept of time explored through collaborative interaction. Research includes traditional principles, site-specific spaces and consideration of various tempi from music and movement. Offered in alternate years.—*S. (S.)*
(change in existing course—eff. spring 16)

253. Approaches to Collaboration (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: consent of instructor. Exploration of different approaches to collaboration among artists in different media and their influence on the creative process.—*F. (F.)*
(change in existing course—eff. spring 16)

254. Performing Identities/Personae (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: consent of instructor. Historical and contemporary theories of constructing stage identities. Discussion and project collaborations based on theories. Questions of identity related to ethnicity, gender or sexual orientation. Offered in alternate years.—*S. (S.)*
(change in existing course—eff. spring 16)

255. Composition in the Arts (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: consent of instructor. Examine manner in which specific elements utilized by actors, dancers, directors, choreographers, and designers are combined or related to form a whole in space and time, as well as methods of sequencing used by each discipline to produce artistic products. May be repeated one time for credit.—*F. (F.)*
(change in existing course—eff. spring 16)

256. Visual Language for Performance (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: graduate standing. Restricted to graduate students. Exploration of different approaches and methods to the visual elements of performance. Focus on design and style for different media and genres, storytelling through visual elements of performance. Offered in alternate years.—Morgan
(new course—eff. winter 15)

257. Interdisciplinary Seminar in Theatre, Dance and Performance (1)
Seminar—1.5 hours; project—1.5 hours. Prerequisite: consent of instructor. Restricted to students enrolled in the MFA in Dramatic Art; students taking the PhD in Performance Studies or the DE in Studies in Performance and Practice may apply to enroll. Interdisciplinary seminar for first and second year MFA students in Dramatic Art. Topics range from current practice in dance, theatre, film and performance, to leading edge developments by outstanding practitioners in the field. May be repeated two times for credit.—*W. (W.)*
(change in existing course—eff. fall 14)

259. Topics in Contemporary Theatre and Performance (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Special topics designed to study in depth aspects of contemporary performance including performance analysis, cultural and historical context, modes of production, theoretical and political entailments, and issues of spectatorship (e.g., "Brecht and After," "British Theater," "Race and Gender in Performance." May be repeated five times for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

260. Topics in Contemporary Theatre and Performance (4)
Seminar—3 hours; term paper; project. Prerequisite: admission to any graduate program in the University; consent of instructor. Preference to students enrolled in the Designated Emphasis in Studies in Performance and Practice. Instruction is offered a variety of disciplinary approaches and methodologies in Performance and Practice, with a focus is on cross-disciplinary learning and research. Usually offered each quarter. Maybe repeated for credit when content differs. Offered irregularly.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

265A. Performance Studies: Modes of Production (4)
Seminar—3 hours; term paper; project. Prerequisite: consent of instructor. 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. May be repeated three times for credit when topic differs. Offered in alternate years.
(change in existing course—eff. fall 16)

265B. Performance Studies: Signification and the Body (4)
Seminar—3 hours; term paper; project. Prerequisite: consent of instructor. Introduces students to analysis of the body in performance, drawing on theoretical models from several fields. May be repeated three times for credit when topic differs. Offered in alternate years.
(change in existing course—eff. fall 16)

265C. Performance Studies: Performance and Society (4)
Seminar—3 hours; term paper; project. Prerequisite: consent of instructor. Introduces students to the role of performance (broadly defined), in everyday life, sociopolitical negotiation, identity, social move-

ments, the media, and the state. May be repeated three times for credit when topic differs. Offered in alternate years.—*W, S. (W, S.)*

(change in existing course—eff. fall 16)

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

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

(change in existing course—eff. fall 16)

280. Theatre Laboratory (1-12)

Prerequisite: consent of instructor. Advanced practice in acting, designing, directing, playwriting, and technical theatre. May be repeated for credit.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

299. Individual Study (1-12)

Prerequisite: consent of instructor. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

299D. Dissertation Research (1-12)

Prerequisite: consent of instructor. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

Professional

396. Teaching Assistant Training Practicum (1-4)

Prerequisite: consent of instructor. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

East Asian Studies

New and changed courses in East Asian Studies (EAS)

Upper Division

196A. Honors Seminar (4)

Seminar—2 hours; conference—2 hours. Prerequisite: GPA of 3.500 in the major; senior standing; consent of instructor. A two-quarter research project culminating in an Honors thesis. A grade of B or higher must be earned to qualify the student for honors distinction at graduation. (Deferred grading only, pending completion of sequence.)—*F. (F.)*

(change in existing course—eff. summer 15)

196B. Honors Seminar (4)

Seminar—2 hours; conference—2 hours. Prerequisite: GPA of 3.500 in the major; senior standing; consent of instructor. A two-quarter research project culminating in an Honors thesis. A grade of B or higher must be earned to qualify the student for honors distinction at graduation. (Deferred grading only, pending completion of sequence.)—*W. (W.)*

(change in existing course—eff. summer 15)

Ecology

New and changed courses in Ecology (ECL)

Graduate

200A. Principles and Applications of Ecology (5)

(cancelled course—eff. spring 16)

200B. Principles and Applications of Ecology (5)

(cancelled course—eff. winter 17)

201. Ecosystems and Landscape Ecology (4)

(cancelled course—eff. winter 16)

203. Physiological Ecology (3)

Lecture—3 hours. Prerequisite: Evolution and Ecology 101 or Environmental Studies 100; Neurobiology, Physiology, and Behavior 110 or Plant Biology 111 or Environmental Studies 129; elementary calculus. A comparative examination of several animal groups addressing fundamental physiological mechanisms that shape the ecology of each animal group. Offered in alternate years—*S.*

(change in existing course—eff. summer 15)

204. Population and Community Ecology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Evolution and Ecology 101, Mathematics 21A-21B or consent of instructor; Mathematics 22B recommended. Review of major concepts of population ecology and community ecology, with emphasis on the rationale of theory and use of theory as applied in the ecology of natural and managed systems. Offered in alternate years.—*(F.)*

(change in existing course—eff. fall 15)

205. Community Ecology (4)

Lecture—2 hours; discussion—2 hours. Prerequisite: an upper-division course in ecology. Introduction to literature and contemporary research into processes structuring ecological communities.—*W. (W.)* Karban, Lawler

(change in existing course—eff. fall 15)

207. Plant Population Biology (3)

Lecture—2 hours; laboratory/discussion—1 hour. Prerequisite: advanced undergraduate ecology course (e.g., Environmental Science and Policy 100, Evolution and Ecology 101, Entomology 104 or Plant Biology 117), and advanced undergraduate course in genetics and/or evolution (e.g., Biological Sciences 101 or Evolution and Ecology 100). Introduction to theoretical and empirical research in plant population biology. Emphasis placed on linking ecological and genetic approaches to plant population biology. (Same course as Population Biology 207.) Offered in alternate years.—*(W.)*

(change in existing course—eff. summer 15)

208. Issues in Conservation Biology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: introductory biology (e.g. Biological Sciences 2B) and an upper division organismal biology class. Graduate-level introduction to current research in conservation biology. Course will emphasize reading and discussing primary literature. Specific topics will reflect the research interests of UC Davis conservation biology faculty.—*W. (W.)* Baskett, Schwartz

(change in existing course—eff. fall 15)

211. Advanced Topics in Cultural Ecology (4)

Lecture/discussion—3 hours; term paper. Prerequisite: Environmental Science and Policy 133/Anthropology 133 and graduate standing in Ecology or Anthropology. Topics of current analytical and methodological importance in cultural ecology. Examination of general issues in cultural ecology through study of human response to and influences on climate. (Same course as Anthropology 211.) Offered in alternate years.—*F.* McElreath

(change in existing course—eff. summer 15)

212A. Environmental Policy Process (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course in public policy (e.g., Environmental Studies 160) or environmental law (e.g., Environmental Studies 161); course in bureaucratic theory (e.g., Political Science 187 or Environmental Studies 166); course in statistics (e.g., Sociology 106 or Agricultural and Resource Economics 106). Introduction to selected topics in the policy process, applications to the field of environmental policy. Develops critical reading skills, understanding of frameworks of the policy process and political behavior, and an ability to apply multiple frameworks to the same phenomena. Offered in alternate years. (Same course as Environmental Science and Policy 212A.)—*(F.)* Arnold, Lubell

(change in existing course—eff. summer 15)

212B. Environmental Policy Evaluation (4)

Lecture—1 hour; discussion—1 hour; seminar—2 hours. Prerequisite: intermediate microeconomics (e.g., Economics 100); Statistics 108 or Agricultural and Resource Economics 106; policy analysis (e.g., Environmental Studies 168A or the equivalent); Agricultural and Resource Economics 176. Methods and practices of policy analysis; philosophical and intellectual bases of policy analysis and the political role of policy analysis. (Same course as Environmental Science and Policy 212B.) Offered in alternate years.—*(W.)* Springborn

(change in existing course—eff. summer 15)

213. Population, Environment, and Social Structure (4)

Seminar—3 hours; term paper. Prerequisite: at least one course in population or human ecology, or in environment and resources. Relationships among population dynamics, resource scarcity and environmental problems, and social structure; focus on demographic content of global ecological models and simulations, ecological content of modern demographic theories, and debates about scarcity, inequality, and social conflict and change. Offered in alternate years.—*S.*

(change in existing course—eff. summer 15)

214. Marine Ecology: Concepts and Practice (3)

Lecture—1 hour; discussion—1.5 hours; fieldwork—1.5 hours. Prerequisite: graduate standing or one course in ecology, one course in evolution or genetics, and consent of instructor; survey course in marine ecology recommended. Critical review and analysis of concepts and practices in modern marine ecology at the interface of several fields of study including oceanography, evolution, behavior, and physiology. Emphasis on critical thinking, problem solving, and hands-on study. Two field trips required.—*F, S. (F, S.)* Morgan, Williams

(change in existing course—eff. fall 16)

216. Ecology and Agriculture (4)

Lecture—3 hours; term paper. Prerequisite: Evolution and Ecology 11 or consent of instructor. Ecological principles as relevant to agriculture. Integration of ecological approaches into agricultural research to increase ecosystem functions and services. Topics include crop autoecology, biotic interactions among crops and pests, ecosystem and landscape ecology. Not open for credit to students who have completed Vegetable Crops 216 (Former course Vegetable Crops 216). Offered in alternate years.—*F.* Jackson

(change in existing course—eff. summer 15)

217. Conservation and Sustainable Development in Third World Nations (4)

(cancelled course—eff. fall 14)

219. Ecosystem Biogeochemistry (4)

Lecture—3 hours; laboratory/discussion—2 hours. Prerequisite: introductory courses in ecology/biology and soils are recommended; undergraduates accepted with consent of instructor. Multi-disciplinary analysis of energy and nutrient transfers within terrestrial ecosystems. Examination of processes and inter- and intra-system interactions between the atmosphere, biosphere, lithosphere, and hydrosphere. Laboratory section uses biogeochemical simulation

models to examine case studies. (Same course as Soil Science 219.) Offered in alternate years.—*S.* Houlton

(change in existing course—eff. summer 15)

220. Spatio-Temporal Ecology (2)
(cancelled course—eff. winter 16)

232. Theoretical Ecology (3)
Lecture—3 hours. Prerequisite: course 204 or the equivalent, and Mathematics 16C or 21C; or one of courses 100 or 121 or Evolution and Ecology 101, and a strong mathematics background (Mathematics 22A-22B-22C or the equivalent). Examination of major conceptual and methodological issues in theoretical ecology. Model formulation and development will be emphasized. Topics will vary from year to year. May be repeated for credit. Offered in alternate years.—*(W.)* Hastings

(change in existing course—eff. summer 15)

233. Computational Methods in Population Biology (3)
Lecture/laboratory—2 hours; discussion/laboratory—1 hour. Prerequisite: A course in theoretical ecology (e.g., course 231 or an equivalent to Environmental Science and Policy 121 from your undergraduate institution) or consent of instructor; no programming experience required. Numerical methods for simulating population dynamics using the computational software package R. Emphasis placed on model formulation and development, theoretical concepts and philosophical principles to guide simulation efforts, model parameterization, and implementing simulations with R. (Same course as Population Biology 233.) Offered in alternate years. (S/U grading only.)—*W.* Baskett, Schreiber

(change in existing course—eff. summer 15)

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. Class size limited to 20 students; graduate students, 2nd or 3rd year veterinary students; advanced undergraduate students with consent of instructor. Introduction to the field of applied ecological genetics to include applications in conservation ecology, population genetics, population biology, wildlife health and disease ecology. (Same course as Population Health and Reproduction 242.)—*F. (F.)* Neale

(change in existing course—eff. summer 15)

243. Ecological Genomics (4)
Lecture/discussion—3 hours; term paper or discussion. Prerequisite: course 242, or equivalent training in ecology and genetics according to the discretion of the instructors. Genomics concepts, technologies, and analyses for ecology research. Mixture of lecture, discussion of recent literature, hands-on training in data analysis and experimental design, and research proposal preparation and evaluation. One all-day field trip is required.—*W. (W.)* Miller, Ross-Ibarra, Whitehead

(new course—eff. fall 15)

245. Climate Change, Water and Society (4)
Lecture—4 hours. Class size limited to 25 students. Integration of climate science and hydrology with policy to understand hydroclimatology and its impact upon natural and human systems. Assignments: readings, take-home examination on climate and hydrologic science, paper that integrates course concepts into a research prospectus or review article. (Same course as Hydrologic Science 245 and Atmospheric Science 245.)—*F. (F.)* Fogg, Lubell, Ullrich

(new course—eff. spring 15)

262. Advanced Population Dynamics (3)
Lecture—3 hours. Prerequisite: graduate standing; advanced course in ecology (e.g., Evolution and Ecology 101), population dynamics (e.g., Wildlife, Fish, and Conservation 122), and one year of calculus; familiarity with matrix algebra and partial differential equations recommended. Logical basis for population models, evaluation of simple ecological models, current population models with age, size, and stage structure, theoretical basis for management and exemplary case histories. Emphasis on development and use of realistic population models in ecological research. (Same course as Wildlife, Fish, and Conservation Biology 262.) Offered irregularly.—*W. (W.)* Botsford

(new course—eff. spring 16)

280. Current Anthropology Journal Editorial Workshop (4)
Workshop—1 hour; independent study—3 hours. Prerequisite: consent of instructor. Students must enroll for all three quarters. Reading and offering workshop critiques of manuscripts submitted for publication, and reading and discussion of other relevant work in anthropology and human ecology. Track and edit published comments and authors' replies that accompany major features. Participation in the development of new sections for the electronic edition of the journal, including a "news and views" section and a debate section. (Same course as Anthropology 280.) May be repeated for 12 units of credit with consent of instructor. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 14)

Economics

New and changed courses in Economics (ECN)

Upper Division

100. Intermediate Micro Theory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A-1B and Mathematics 16A-16B or Mathematics 17A-17B or Mathematics 21A-21B, with a grade of C- or better in each course. 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.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

101. Intermediate Macro Theory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A-1B and Mathematics 16A- 16B or Mathematics 17A-17B or Mathematics 21A-21B, with a grade of C- or better in each course. Theory of income, employment and prices under static and dynamic conditions, and long term growth.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

103. Economics of Uncertainty and Information (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or Agricultural and Resource Economics 100A and 100B, Mathematics 16A and 16B or Mathematics 17A and 17B 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.

(change in existing course—eff. fall 16)

106. Decision Making (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 16A-16B or Mathematics 17A-17B or Mathematics 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. Offered irregularly.

(change in existing course—eff. fall 16)

110A. World Economic History Before the Industrial Revolution (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A and 1B. Development and application of analytical models to explain the nature and functioning of economies before the Industrial Revolution. Examples will be drawn from a variety of societies, including England, China, Polynesia, and Pre-Columbian America. GE credit: SocSci | SS.

(change in existing course—eff. summer 15)

110B. World Economic History Since the Industrial Revolution (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A, 1B and 110A. Development and application of analytical models to explain the nature and functioning of economies since the Industrial Revolution. Examples will be drawn from a variety of societies, including England, China, Germany, and India. GE credit: SocSci | SS.

(change in existing course—eff. summer 15)

111A. Economic History (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A-1B or consent of instructor. Survey of economic change in the United States from Colonial times to 1865; reference to other regions in the Western Hemisphere. GE credit: SocSci | SS.

(change in existing course—eff. summer 15)

111B. Economic History (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A-1B, or consent of instructor. Survey of economic change in the United States from 1865 to the post World War II era. GE credit: SocSci | SS.

(change in existing course—eff. summer 15)

115A. Economic Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A and 1B. Major issues encountered in emerging from international poverty, including problems of growth and structural change, human welfare, population growth and health, labor markets and internal migration. Important issues of policy concerning international trade and industrialization. (Same course as Agricultural and Resource Economics 115A.) GE credit: SocSci, Div | SS, WC.

(change in existing course—eff. summer 15)

115B. Economic Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A and 1B. Major macroeconomic issues of developing countries. Issues include problems in generating capital, conduct of monetary and fiscal policies, foreign aid and investment. Important issues of policy concerning international borrowing and external debt of developing countries. (Same course as Agricultural and Resource Economics 115B.) GE credit: SocSci | SS, WC.

(change in existing course—eff. summer 15)

116. Comparative Economic Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or Agricultural and Resource Economics 100A and 100B; Mathematics 16B or 17B or 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. Offered irregularly. GE credit: WC.

(change in existing course—eff. fall 16)

121A. Industrial Organization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A-1B; 100 or Agricultural and Resource Economics 100A-100B, or consent of the 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 | SS.
(change in existing course—eff. fall 16)

121B. Industrial Organization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A, 1B, 100 or Agricultural and Resource Economics 100A and 100B, 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. GE credit: ACGH.
(change in existing course—eff. fall 16)

122. Theory of Games and Strategic Behavior (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 16A and 16B or 17A and 17B 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.
(change in existing course—eff. fall 16)

125. Efficiency in Energy Markets (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1A and 1B, Mathematics 16A and 16B and course 102 or consent of instructor; intended for advanced economics undergraduates. Pass One open to Economics and Graduate School of Management majors. Application of theoretical and empirical models to examine efficiency in energy production and use. Energy and environmental policy, market structure and power, global climate change, optimal regulation, and real-world applications; e.g., California electricity crisis.
(change in existing course—eff. summer 15)

130. Public Microeconomics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or Agricultural and Resource Economics 100A and 100B, 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.
(change in existing course—eff. fall 16)

131. Public Finance (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or Agricultural and Resource Economics 100A and 100B. 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. Offered irregularly.
(change in existing course—eff. fall 16)

133Y. Poverty, Inequality and Public Policy (4)
Web virtual lecture—2 hours; discussion—2 hours. Prerequisite: course 1A or 1B. Class size limited to 99; 3 sections of 33 each. Examination of the economics of poverty and inequality in the United States, including measurement, trends, and related policies.—Stevens
(new course—eff. spring 16)

134. Financial Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A, 1B, and (100 or Agricultural and Resource Economics 100A and 100B); Mathematics 16A or 17A or 21A; 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.
(change in existing course—eff. fall 16)

135. Money, Banks and Financial Institutions (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or (Agricultural and Resource Economics 100A and 100B), 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.
(change in existing course—eff. fall 16)

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.
(change in existing course—eff. summer 15)

137. Macroeconomic Policy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or (Agricultural and Resource Economics 100A and 100B), course 101; Statistics 13. Theory and practice of macroeconomic policy, both monetary and fiscal.
(change in existing course—eff. fall 16)

140. Econometrics (4)
Lecture—3 hours; discussion—1 hours. Prerequisite: course 102, course 100 and course 101; Mathematics 16A and 16B or Mathematics 21A and 21B; Statistics 13, or any upper division Statistics course. 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. Exercises in applied economics. Not open for credit to students who have enrolled in or completed Agricultural and Resource Economics 106.
(change in existing course—eff. summer 15)

145. Transportation Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or (Agricultural and Resource Economics 100A, 100B); Mathematics (16A, 16B) or (17A, 17B); Statistics 13, course 102, 140, Agricultural and Resource Economics 106 or Statistics 108, or consent of instructor. Intended for advanced Economics undergraduates. Examination of fundamental problems of planning and financing transportation "infrastructure" (roads, ports, airports). The economics of the automobile industry, as well as the impact of government regulation and deregulation in the airlines and trucking industries. Offered irregularly.
(change in existing course—eff. fall 16)

151A. Economics of the Labor Market (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or Agricultural and Resource Economics 100A and 100B. 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.
(change in existing course—eff. fall 16)

151B. Economics of Human Resources (4)
Lecture—3 hours; discussion—1 hour. Human resource analysis; introduction to human capital theory and economics of education; the basic theory of wage differentials, including theories of labor market discrimination; income distribution; poverty. Policy issues; negative income tax; manpower training programs; incomes policy.
(change in existing course—eff. fall 16)

152. Economics of Education (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or (Agricultural and Resource Economics 100A and 100B), course 102; Mathematics 16B or 17B 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. Offered irregularly.
(change in existing course—eff. fall 16)

160A. International Microeconomics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or Agricultural and Resource Economics 100A and 100B, or consent of instructor. International grade 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.
(change in existing course—eff. fall 16)

160B. International Macroeconomics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A, 1B, 100 or (Agricultural and Resource Economics 100A and 100B), course 101, or consent of instructor. 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.
(change in existing course—eff. fall 16)

162. International Economic Relations (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A-1B or consent of instructor. International trade and monetary relations, trade policy, exchange rate policy, policies toward international capital migration and investment. Emphasis on current policy issues. Course intended especially for non-majors. Not open for credit to students who have completed course 160A or 160B. GE credit: SocSci | SS, WC.
(change in existing course—eff. summer 15)

171. Economy of East Asia (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1A-1B or consent of instructor. Intensive reading, discussion and research on selected topics from the economies of the countries of East Asia. Consult department for course scheduling.
(change in existing course—eff. summer 15)

192. Internship (1-6)
Internship—3-18 hours. Prerequisite: upper division standing; consent of instructor. Internship experience off and on campus in all subject areas offered in the Department of Economics. Supervised by a member of the staff. May be repeated for credit. (P/NP grading only.) GE credit: SE.
(change in existing course—eff. winter 15)

Graduate

200A. Microeconomic Theory (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: graduate standing. Linear and non-linear optimization theory applied to develop the theory of the profit-maximizing firm and the utility-maximizing consumer. (Same course as Agricultural and Resource Economics 200A.)
(change in existing course—eff. summer 15)

200B. Microeconomic Theory (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: course 200A. Characteristics of market equilibrium under perfect competition, simple monopoly and monopsony. Emphasis on general equilibrium and welfare economics; the sources of market success and market failure. (Same course as Agricultural and Resource Economics 200B.)
(change in existing course—eff. summer 15)

200C. Microeconomic Theory (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: course 200B. Uncertainty and information economics. Individual decision making under uncertainty. Introduction to game theory, with emphasis on applications to markets with firms that are imperfect competitors or consumers that are imperfectly informed. (Same course as Agricultural and Resource Economics 200C.)
(change in existing course—eff. summer 15)

200D. Macroeconomic Theory (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: course 101, Mathematics 21A, 21B, and 21C. Macro static theory of income, employment, and prices.
(change in existing course—eff. summer 15)

200E. Macroeconomic Theory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200B (may be taken concurrently) and 200D. Macrodynamic theory of income, employment, and prices.
(change in existing course—eff. summer 15)

210A. Economic History (4)
Lecture/discussion—4 hours. Economic history of the eastern hemisphere in the modern period. Medieval Europe or other regions may be studied, depending on student interest.
(change in existing course—eff. summer 15)

210B. Economic History (4)
Lecture/discussion—4 hours. The United States from Colonial times to the present. Other areas of the western hemisphere may be studied, according to student interest.
(change in existing course—eff. summer 15)

214. Development Economics (4)
Lecture—4 hours. Prerequisite: Agricultural and Resource Economics 100A, 100B, course 101; Agricultural and Resource Economics/Economics 204 and course 160A-160B recommended. Review of the principal theoretical and empirical issues whose analysis has formed development economics. Analysis of economic development theories and development strategies and their application to specific policy issues in developing country contexts. (Same course as Agricultural and Resource Economics 214.)
(change in existing course—eff. summer 15)

215A. Microdevelopment Theory and Methods I (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200A or 204; course 240A recommended. Agricultural development theory, with a focus on microeconomics. Agricultural household behavior with and without market imperfections and uncertainty. Analysis of rural land, labor, credit and insurance markets, institutions, and contracts. (Same course as Agricultural and Resource Economics 215A.)
(change in existing course—eff. summer 15)

215B. Open Macroeconomics of Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Agricultural and Resource Economics/Economics 200A or 204, 200D or 205, and 214 or 215A. Models and policy approaches regarding trade, monetary and fiscal issues, capital flows and debt are discussed in the macroeconomic framework of an open developing country. The basic analytical focus is real exchange rate and its impact on sectoral allocation of resources. (Same course as Agricultural and Resource Economics 215B.)
(change in existing course—eff. summer 15)

215C. Microdevelopment Theory and Methods II (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 215A. Extension of development theory and microeconomic methods. Agricultural growth and technological change; poverty and income inequality; multisectoral, including village and regional models. Computable general equilibrium methods and applications. (Same course as Agricultural and Resource Economics 215C.)
(change in existing course—eff. summer 15)

215D. Environment and Economic Development (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 200A, 204 or Agricultural and Resource Economics 275. Interdisciplinary course drawing on theoretical and empirical research on interactions between environmental resource use and economic development processes. Analysis of issues emerging at the interface of environmental and development economics. (Same course as Agricultural and Resource Economics 215D.) Offered irregularly.
(change in existing course—eff. summer 15)

221A. The Theory of Industrial Organization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200A, 200B, 200C. Game theory is used to analyze strategic interaction of firms in industries. Topics include models of competition, product differentiation, entry-deterring strategies, contractual arrangements, vertical control and antitrust issues. Offered irregularly.
(change in existing course—eff. summer 15)

221B. Empirical Analysis in Industrial Organization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 221A and 240B. Recent empirical work in industrial organization. Topics include empirical analysis of cartels, product differentiation, innovation and technological change, and imperfect competition in international markets. Offered irregularly.
(change in existing course—eff. summer 15)

221C. Industrial Organization and Regulation (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 221A and 240B. Optimal regulation of natural monopoly. Topics include regulatory mechanisms for single and multiple output firms under symmetric and asymmetric information, optimality without regulation, the economic theory of regulation, and empirical studies of regulation and deregulation.
(change in existing course—eff. summer 15)

230B. Public Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240A, 240B. Effects of government policies on economic behavior; labor supply, program participation, investment, consumption and savings. Offered irregularly.
(change in existing course—eff. fall 16)

230B. Public Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 230A, 240A, 240B. Effects of government policies on economic behavior; labor supply, program participation, investment, consumption and savings. Offered irregularly.
(change in existing course—eff. summer 15)

230C. Public Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200C and 240B. Advanced topics in economics of the public sector, with emphasis on current research. Topics may vary from year to year.
(change in existing course—eff. summer 15)

235A. Macroeconomics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200D or consent of instructor. Frontiers of applied/empirical macroeconomics. Evidence and lessons from macroeconomic history for The Great Depression, financial crises, efficient markets, parity conditions, capital flows, default, financial crises, exchange rates, growth, and other current empirical research topics.—*F. (F.)* Taylor
(change in existing course—eff. fall 16)

235B. Macroeconomics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200D or consent of instructor. Search theory, theory of real-world markets characterized by search frictions, with applications: Labor economics: models of unemployment and wages differentials; Financial economics: determination of asset prices in OTC financial markets; Monetary Economics: foundations for money as a medium of exchange.—*W. (W.)* Geromichalos
(change in existing course—eff. fall 16)

235C. Macroeconomics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200D or consent of instructor. Basic numerical methods for analytically intractable problems in economics. Techniques presented applicable in a wide range of fields including macroeconomics, econometrics, resource economics, labor economics, economic theory, international trade, finance, game theory, public finance, contract theory, and others.—*S. (S.)* Henriksen
(change in existing course—eff. fall 16)

239. Econometric Foundations (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: graduate standing or consent of instructor. The course will prepare students for econometric theory and empirical work by examining the statistical foundation of econometrics. Special attention is paid to problems specific to non-experimental data common to social sciences. Topics from matrix algebra are also covered. (Same course as Agricultural & Resource Economics 239.)—*F. (F.)*
(change in existing course—eff. fall 16)

240A. Econometric Methods (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Statistics 133 and a course in linear algebra or the equivalent. Least squares, instrumental variables, and maximum likelihood estimation and inference for single equation linear regression model; linear restrictions; heteroskedasticity; autocorrelation; lagged dependent variables. (Same course as Agricultural and Resource Economics 240A.)
(change in existing course—eff. summer 15)

240B. Econometric Methods (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240A. Topics include asymptotic theory and instrumental variables, pooled time-series cross-section estimation, seemingly unrelated regression, classical hypothesis tests, identification and estimation of simultaneous equation models, cointegration, error-correction models, and qualitative and limited dependent variable models. (Same course as Agricultural and Resource Economics 240B.)
(change in existing course—eff. summer 15)

240C. Time Series Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240B or consent of instructor. Probability theory; estimation, inference and forecasting of time series models; trends and non-standard asymptotic theory; vector time series methods and cointegration; time series models for higher order moments

and transition data; state-space modeling and the Kalman filter. (Same course as Agricultural and Resource Economics 240C).—*W. (W.)*

(change in existing course—eff. fall 16)

240D. Cross Section Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240B or consent of instructor. Estimation and inference for nonlinear regression models for cross-section data; models for discrete data and for limited dependent variables; models for panel data; additional topics such as bootstrap and semiparametric regression. (Same course as Agricultural and Resource Economics 240D)—*F. (F.)*

(change in existing course—eff. fall 16)

240E. Topics in Time Series Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240C or consent of instructor. 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.) Offered irregularly.

(change in existing course—eff. fall 16)

240F. Topics in Cross Section Econometrics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 240D or consent of instructor. 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 Agricultural and Resource Economics 240F.) Offered irregularly.

(change in existing course—eff. fall 16)

260A. International Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200A or 204. Theory of trade determinants; gains from trade; tariffs and effective protection; economic unions.

(change in existing course—eff. summer 15)

260B. International Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 200D and 200E. Balance of payments adjustment mechanisms; foreign exchange markets' theories of balance of payments policy and international monetary mechanisms. Offered irregularly.

(change in existing course—eff. summer 15)

260CN. International Investment and Trade (4)
Seminar—4 hours. Prerequisite: course 260A. Analysis of foreign investment and its links to trade; theories of the firm as they relate to firm's export and investment decisions; and an introduction to the political economy of trade policies.

(change in existing course—eff. summer 15)

260D. Topics in International Macroeconomics (4)
Seminar—4 hours. Prerequisite: course 260B or consent of instructor. Survey of current literature in international macroeconomic theory. Offered irregularly.

(change in existing course—eff. summer 15)

260E. Topics in International Trade (4)
Seminar—4 hours. Prerequisite: course 260A, 260B. Current literature in international trade theory.

(change in existing course—eff. summer 15)

260F. International Macroeconomic Policy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 260B. Theory and practice of international macroeconomic policy. Topics include exchange rate regimes, international financial institutions, crises and current topics.

(change in existing course—eff. summer 15)

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.)—*F, S. (F, S.)*

(change in existing course—eff. summer 15)

Graduate

397. Teaching of Economics (2)
Lecture/discussion—2 hours. Prerequisite: graduate standing in economics. Teaching of economics: methods of instruction, organization of courses, examination and evaluation procedures. (S/U grading only.)

(change in existing course—eff. summer 15)

Education

New and changed courses in Education (EDU)

Lower Division

81. Learning in Science and Mathematics (2)
Lecture/discussion—2 hours; field work—2 hours. Limited to 26 students per section. 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. (Same course as Geology 81.) (P/NP grading only.) GE credit: SS, VL, WE.—*F, W, S. (F, W, S.)* Stevenson, Latimer

(change in existing course—eff. summer 15)

Upper Division

100. Introduction to Schools (4)
Lecture—3 hours; field work—3 hours. Study of occupational concerns of teachers; skills for observing classroom activities; school organization and finance; school reform movement; observing, aiding, and tutoring in schools. GE credit: ACGH, DD, OL, SS.—*F, W, S. (F, W, S.)* Ambrose, Faltis, Tonkovich, Trexler

(change in existing course—eff. fall 16)

110. Educational Psychology: General (4)
Lecture/discussion—4 hours. Learning processes, cognitive development, individual differences, testing and evaluation. GE credit: SocSci, Wrt | SS, WE.—*F, W, S. (F, W, S.)* Ching, Martin, Mundy, Passmore, Quijada, White

(change in existing course—eff. fall 16)

114. Quantitative Methods in Educational Research (4)
Lecture/discussion—4 hours. Problems and methods in data analysis. Design of research projects. Some consideration of procedures suited to digital computers. GE credit: QL.—*F. (F.)* Martin

(change in existing course—eff. fall 16)

115. Educating Children with Disabilities (2)
Lecture—2 hours. Educational issues and processes involved in teaching children with disabilities. The course will focus on the structure of special education, with an emphasis on meeting the educational needs of children who are mainstreamed in regular classes. GE credit: SocSci | SS.—*F, S. (F, S.)* Mundy, Solari

(change in existing course—eff. fall 16)

119. The Use and Misuse of Standardized Tests (4)
Lecture—3 hours; discussion—1 hour. 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: SocSci, Wrt | QL, SS, WE.—*W, S. (W, S.)* Abedi, Welsh

(change in existing course—eff. fall 16)

120. Philosophical and Social Foundations of Education (4)
Lecture—3 hours; discussion—1 hour. Philosophical, historical, and sociological study of education and the school in our society. GE credit: SocSci, Wrt | SS, WE.—*F, W, S. (F, W, S.)* Gee, Hart, Kurlaender

(change in existing course—eff. fall 16)

122. Children, Learning and Material Culture (4)
Lecture/discussion—3 hours; extensive writing or discussion—1 hour; fieldwork. Prerequisite: consent of instructor. How material artifacts shape what and how children learn in school, at home, and in the community. Artifacts examined include books, computers, household appliances, toys and games, entertainment media, collectibles, sports equipment, clothing, folk arts and crafts, and neighborhood space. Offered in alternate years. GE credit: SocSci, Div, Wrt | SS, VL, WE.—*F, S. (F, S.)* Watson-Gegeo, White

(change in existing course—eff. fall 16)

130. Issues in Higher Education (4)
Discussion—3 hours; field work—3 hours. Prerequisite: consent of instructor. Analysis of current issues in higher education and of some practical implications of varying philosophical approaches to the role of the university. GE credit: SocSci | SS, WE.—*F, S. (F, S.)* Cuellar, Gonzalez

(change in existing course—eff. fall 16)

147. Anglos, Latinos and the Spanish Black Legend: The Origins and Educational Implications of Anti-Hispanic Prejudice (4)
Lecture/discussion—3 hours; field work; term paper. Examination of anti-Hispanic prejudice in the United States focusing on the "Black Legend," a 16th Century anti-Spanish myth underpinning the doctrine of "Manifest Destiny." Exploration of the Legend's presence in contemporary American society through interviews and analysis of school textbooks. (Same course as Spanish 147.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | ACGH, AH, DD, WE.—*(F.)* González

(change in existing course—eff. fall 16)

151. Language Development in the Chicano Child (3)
Lecture/discussion—3 hours. Bilingualism, first and second language acquisition, bilingual education, language assessment, Chicano Spanish and the role of dialect varieties in the classroom. Not open for credit to students who have completed course 151T. Offered irregularly.

(change in existing course—eff. fall 16)

151T. Language Development in the Chicano Child (3)
Lecture/discussion—3 hours. Prerequisite: acceptance in Teaching Credential Program. Open to UC Davis Teacher Credential candidates only. Open to UC Davis Teacher Credential candidates only. Bilingualism, first and second language acquisition, bilingual education, language assessment, Chicano Spanish and the role of dialect varieties in the classroom. Not open for credit to students who have completed course 151.—*F. (F.)* Fortes

(change in existing course—eff. fall 16)

152. Academic Spanish for Bilingual Teachers (3)
Lecture/discussion—3 hours; field work. Prerequisite: Acceptance in Teaching Credential Program or consent of instructor. Communicative class taught in Spanish focused on the development of Spanish communication skills for current and/or future bilingual teachers. Main topics are related to school con-

tent areas in bilingual settings, with an emphasis on standard and Southwest Spanish dialects. Restricted to Spanish speaking students. GE credit: ArtHum or SocSci | AH or SS, OL, WE.—*W. (W.)*

(change in existing course—eff. fall 16)

153. Diversity in the K-12 Classroom (2)
Lecture/discussion—2 hours. Prerequisite: acceptance in Teaching Credential Program. Analysis of research on learning styles among culturally diverse students with review and evaluation of responsive curricula and classroom teaching techniques. The ethnographic interview as a research tool.—*F. (F.)* Fortes, Rosa

(change in existing course—eff. fall 16)

160A. Introduction to Peer Counseling (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. Introduction to peer counseling techniques and development of peer counseling skills. (P/NP grading only.)

(change in existing course—eff. fall 16)

160B. Issues in Peer Counseling (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. In-depth review and development of skills for specific counseling topics. May be repeated one time for credit when topic differs. (P/NP grading only.)

(change in existing course—eff. fall 16)

163. Guidance and Counseling (4)
Lecture—4 hours. Nature and scope of pupil personnel services; basic tools and techniques of guidance; theory and practice of counseling psychology, with emphasis on educational and vocational adjustment. Offered irregularly.

(change in existing course—eff. fall 16)

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.) GE credit: SocSci | SS.—*F. (F.)* Tonkovich

(change in existing course—eff. summer 15)

180A. Computers in Education (3)
Lecture/discussion—1 hour; laboratory—2 hours; project—3 hours. Prerequisite: acceptance in Teacher Credential Program. Restricted to Teaching Credential Majors. Applications of computers in education as instructional, intellectual, and communication tools. (Deferred grading only, pending completion of sequence.)—*F. (F.)* Mendle, Pomeroy, White

(change in existing course—eff. summer 15)

180B. Computers in Education (3)
Lecture/discussion—1 hour; laboratory—2 hours; project—3 hours. Prerequisite: acceptance in Teacher Credential Program; successful completion of course 180A. Restricted to Teaching Credential Majors. Applications of computers in education as instructional, intellectual, and communication tools. (Deferred grading only, pending completion of sequence.)—*W. (W.)* Mendle, Pomeroy, White

(change in existing course—eff. summer 15)

180C. Computers in Education (3)
Lecture/discussion—1 hour; laboratory—2 hours; project—3 hours. Prerequisite: acceptance in Teacher Credential Program; successful completion of course 180B. Restricted to Teaching Credential Majors. Applications of computers in education as instructional, intellectual, and communication tools. (Deferred grading only, pending completion of sequence.)—*S. (S.)* Mendle, Pomeroy, White

(change in existing course—eff. summer 15)

181. Teaching in Science and Mathematics (2)
Lecture/discussion—2 hours; field work—2 hours. Prerequisite: major in mathematics, science, or engineering; or completion of a one-year sequence of science or calculus and consent of the instructor. Class size limited to 40 students per section. 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.) GE credit: SS, WE.—*F, W, S. (F, W, S.)* Horn

(change in existing course—eff. summer 15)

182. Computer Project for Curricular Integration (1)
Seminar—1 hour. Prerequisite: consent of instructor. Design and implementation of a curricular unit to integrate computer technology into a K-12 classroom setting. A project-based seminar intended for students with substantial prior experience with instructional use of computers and related technologies. Not open for credit to students who have completed course 180 or 181. Offered irregularly.

(change in existing course—eff. fall 16)

185. Learning in a Digital Age: Information, Schooling, and Society (4)
Lecture/discussion—2 hours; lecture/laboratory—2 hours. Focus on the changing nature of learning in a digital age: social media, ubiquitous connectivity, online education, electronic communication, writing, gaming, and youth culture. Readings will be drawn from major recent works detailing fundamental shifts in information, schooling, and society. Offered in alternate years. GE credit: SocSci | OL, VL, SS.—*(S.)* Ching

(change in existing course—eff. summer 15)

192. Internship (1-3)
Internship—2-8 hours; discussion—1 hour. Prerequisite: consent of instructor. Internship as a tutor, teacher's aide, or peer counselor in a school or educational counseling setting under the supervision of a faculty member. May be repeated for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

197T. Tutoring in Education (1-2)
Tutoring—1-2 hours. Prerequisite: consent of instructor. Leading of small voluntary discussion groups affiliated with the School's upper division courses under the supervision of, and at the option of, the course instructor, who will submit a written evaluation of the student's work. May be repeated one time for credit for a total of 4 units. (P/NP grading only.) Offered irregularly.

(change in existing course—eff. fall 16)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. Offered irregularly. (P/NP grading only.)

(change in existing course—eff. fall 16)

Graduate

200. Educational Research (4)
Lecture—2 hours; discussion—2 hours. Prerequisite: introductory statistics or consent of instructor. Defining educational research questions, reviewing relevant literature, developing research designs, developing research instruments, selecting appropriate data analysis procedures, and writing research projects. A case problem will provide practice in designing and reporting research.—*F. (F.)* Welsh

(change in existing course—eff. fall 16)

202N. Computer Analysis of Qualitative Data (4)
Seminar—3 hours; laboratory—2 hours. Critical and practical understanding of how to use computer software programs to analyze qualitative data (text, images, and videotape) in conducting social research. Offered irregularly.

(change in existing course—eff. fall 16)

204A. Quantitative Methods in Educational Research: Analysis of Correlational Designs (4)
Discussion—2 hours; laboratory/discussion—2 hours. Prerequisite: introductory statistics or consent of instructor. Topics include multiple correlation and regression, discriminant analysis, logistic regression, and canonical correlation. Emphasis on conceptual understanding of the techniques and use of statistical software.—*W. (W.)* Kurlaender

(change in existing course—eff. fall 16)

204B. Quantitative Methods in Educational Research: Experimental Designs (4)
Discussion—2 hours; discussion/laboratory—2 hours. Prerequisite: introductory statistics or consent of instructor. Methods for analysis of experimental data in educational research. Topics include ANOVA, fixed v. random effects models, repeated measures ANOVA, analysis of co-variance, MANOVA, chi square tests, small sample solutions to t and ANOVA.—*F. (F.)* Abedi

(change in existing course—eff. fall 16)

205A. Ethnographic Research in Schools I: Current Theory and Practice (4)
Lecture—4 hours. Current literature from anthropology and society related to schools. Emphasis on the organizational structure of institutions, and the analysis of face-to-face interaction. Will explore the relationship between field-based research and theory development on the acquisition of knowledge in specific social and cultural contexts.—*F. (F.)* Watson-Gegeo

(change in existing course—eff. fall 16)

205B. Ethnographic Research in Schools II: Field-Based Research Projects (4)
Discussion—4 hours. Prerequisite: course 205A. Student research projects in specific schools with cooperative critical analysis of the design, data collection, and inferencing by researchers. Students will continue to meet with instructor as a group throughout the quarter to discuss specific projects.—*W. (W.)* Watson-Gegeo

(change in existing course—eff. fall 16)

206A. Inquiry into Classroom Practice: Traditions and Approaches (2)
Lecture/discussion—2 hours; fieldwork. Prerequisite: acceptance in Teacher Credential Program. 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.—*W. (W.)* Athanases, Holmes

(change in existing course—eff. fall 16)

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.—*S. (S.)* Athanases, Ballard, Faltis, Passmore, White

(change in existing course—eff. summer 15)

206C. Inquiry into Classroom Practice: Study Design (4)
Seminar—3 hours; fieldwork—1 hours. Prerequisite: satisfactory completion of course 206B or consent of instructor. Open to Graduate MA Credential students only. 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. —*F. (F.)* Ambrose, Faltis, Wallace

(change in existing course—eff. summer 15)

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. Open to Graduate MA Credential students. 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.—*W. (W.)* Ambrose, Faltis, Wallace

(change in existing course—eff. summer 15)

207. Concepts of the Curriculum (4)
Lecture—2 hours; discussion—2 hours. Prerequisite: consent of instructor. Development of the skills of philosophical analysis and argument for the establishment of a point of view, in the consideration of curriculum theory and practice. Classical and contemporary approaches to subject matter and activity emphases, hidden curriculum, and moral education. Offered irregularly.

(change in existing course—eff. fall 16)

208. Presenting Educational Research in Written Reports (4)
Seminar—3 hours; extensive writing. Prerequisite: consent of instructor. Rhetorical and substantive challenges of presenting educational research through written reports; research rhetoric and genres; competing discourse conventions of educational research, policy, and practice; the social organization of publishing educational research. May be repeated one time for credit. Offered irregularly.

(change in existing course—eff. fall 16)

209. Image-based Field Research (4)
Lecture/discussion—3 hours; fieldwork—2 hours. Critical and practical understanding of video tape and still photography as resources for enhancing field research in schools and other social setting.

(change in existing course—eff. fall 16)

210. The Psychology of School Learning (4)
Lecture/discussion—4 hours. Study of human learning theory and research related to learning in school. Classical approaches of scholars such as Ausubel, Bruner, Gagne, Piaget, Vygotsky, Skinner. Review of contemporary issues of constructivism, metacognition, problem solving, learning strategies, science and mathematics learning. —*S.* Martin, White

(change in existing course—eff. fall 16)

211. Sociocultural and Situative Perspectives on Learning and Cognition (4)
Lecture/discussion—3 hours; extensive writing—1 hour. 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. —*(S.)* Ching, White

(change in existing course—eff. fall 16)

213. Individual Assessment (4)
Lecture—4 hours. Prerequisite: introductory statistics or consent of instructor. Theories of intellectual functioning and the measurement of cognitive abilities in school-aged children. Supervised practice in administration and scoring of contemporary tests for children including the WISC-R, the WAIS-R, the Stanford Binet, the McCarthy Scales of Children's Ability. Offered in alternate years.—*W. (W.)* Mundy

(change in existing course—eff. fall 16)

215. Research on Achievement Motivation in Education (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Analysis and critique of recent research on cognitive processes related to achievement motivation in school settings. Topics include self-determination theory, attribution theory, goal theory, intrinsic and extrinsic motivation, learned helplessness. psychological reactance, gender and culture, and research design. Offered irregularly.

(change in existing course—eff. fall 16)

220. Concepts and Methods of Policy Analysis (4)
Seminar—3 hours; fieldwork; term paper. Introduction to concepts and methods of policy analysis. Emphasis on the relationship between educational issues and problems; policy development; constructing persuasive policy analyses; issues related to policy process. Offered irregularly.

(change in existing course—eff. fall 16)

221. Culture and Social Organization of Schools (4)
Seminar—4 hours. Prerequisite: consent of instructor. Culture and social organization of schools. Examines perspectives of social researchers, educational policy-makers, and school members and their implications for educational research, policy and practice. Offered irregularly.

(change in existing course—eff. fall 16)

222. School Change and Educational Reform (4)
Lecture/discussion—2 hours; seminar—2 hours. Analysis of models, processes, and case studies of school change and educational reform with respect to variable characteristics of schools and schooling, planned and unplanned change, the moral evaluation of school change, and the role of educational research. Offered irregularly.

(change in existing course—eff. fall 16)

223. Education and Social Policy (4)
Seminar—4 hours. Prerequisite: consent of instructor. Focuses on understanding the social and political context of education in the U.S. and California and how education policy is formed in the broader public arena. Develops skills in educational policy analysis. (Former course 237.) Offered in alternate years.—Hart

(change in existing course—eff. fall 16)

225. Education Policy and Law (4)
Lecture/discussion—4 hours. 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. Offered irregularly.—Timar

(change in existing course—eff. fall 16)

226. Culture and Social Organization of Higher Education (4)
Seminar—3 hours; field work—1 hour. Prerequisite: consent of instructor. Critical study of culture and social organization of higher education institutions policies and functions in the U.S., with some attention to other countries. Offered irregularly.—Gonzalez

(change in existing course—eff. fall 16)

228. Politics and Governance of Education (4)
Seminar—3 hours; term paper. Examination of political power, representation, influence, decision-making and inter-governmental relations in the public schools. Offered in alternate years.—Timar

(change in existing course—eff. fall 16)

229. Education Finance Policy (4)
Seminar—3 hours; term paper. Examination of (1) United States financing public education, (2) the relationship between school finance and education policy, and (3) the relationship between education finance and education practice. Offered irregularly.—Rose

(change in existing course—eff. fall 16)

230. Special Topics in Education Policy (4)
Seminar—3 hours; term paper. Selected topics in education policy. Designed to facilitate preparation for the qualifying examination or dissertation. Students will critically analyze scholarly work including their own works in progress. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)* Cuellar, Gee, Hart, Kurlaender, Martorell, Quijada

(change in existing course—eff. fall 16)

235. Critical Pedagogy (4)
Seminar—4 hours. A socio-cultural critique, from an interdisciplinary perspective, of educational reform and change. The critique will include an analysis of the influence of text content on the perpetuation of social power differences. Offered irregularly.

(change in existing course—eff. fall 16)

237. Survey Research Methods (4)
Lecture/discussion—3 hours; field work—1 hour; term paper. Theories, principles and application of survey research methodology. Students develop, validate, and administer survey instruments; select representative samples; conduct focus groups; and collect, organize, and analyze survey data. Familiarity with introductory concepts in descriptive and inferential statistics is assumed. Offered irregularly.—Abedi, Welsh

(change in existing course—eff. fall 16)

238. Participatory Action Research (PAR) (4)
Lecture/discussion—3 hours; fieldwork—1 hour. introductory research methods course recommended. Principles and strategies of PAR and related methodologies that emphasize collaborating with those affected by the issue being researched in order to educate, take action or effect social change. Conduct interviews with potential collaborators, case analyses and research proposals.—*W. (W.)* Ballard

(change in existing course—eff. fall 16)

239. Interview Methods (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 201 or equivalent course recommended. Introduction to qualitative interviewing, focused in particular on narrative and self-story as both practical method and theoretical stance. Students complete a case-focused interview project during the course: designing an interview protocol, conducting the interview, transcribing, analyzing, and presenting their research. Offered in alternate years.—Ching

(change in existing course—eff. summer 15)

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, spell-

ing, vocabulary, comprehension, second language reading, assessment, intervention, and instruction. Offered irregularly.—Tonkovich

(change in existing course—eff. summer 15)

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 irregularly.

(change in existing course—eff. summer 15)

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.—Athanases

(change in existing course—eff. summer 15)

248. Academic Language and Literacies (4)
Seminar—3 hours; fieldwork; project. Prerequisite: graduate standing or consent of instructor. Exploration of theories and research on academic language and literacies for the schooling of first and second language learners. Students use basic qualitative methods to collect and analyze classroom language and literacy data. Offered in alternate years.—Enright

(change in existing course—eff. summer 15)

249. Discourse Analysis in Educational Settings (4)
Seminar—3 hours; term paper. Prerequisite: an introductory linguistics or sociolinguistics course or consent of instructor. Examines form and type in discourse (e.g., narration, conversation, routines), approaches to discourse analysis, and research on classroom discourse (lessons, teaching/learning interactional sequences). Final term paper is an analysis of discourse data tape-recorded by student in a field setting.—*W. (W.)* Watson-Gegeo

(change in existing course—eff. fall 16)

251. Research in Bilingual and Second Language Education (3)
Seminar—3 hours. Discussion and analysis of recent research in bilingual and second language education. Topics include: language acquisition in second language learners and bilinguals, second language teaching methods, language-use models in bilingual education, interaction analysis in bilingual/cross-cultural classrooms, use of the vernacular in classrooms. Offered irregularly.

(change in existing course—eff. fall 16)

253. Language and Literacy in Linguistic Minorities (3)
Seminar—2 hours; field work—3 hours. Prerequisite: acceptance in Teacher Credential Program. Analysis and application of research on oral language development and literacy in language minority students, through the development, implementation, and evaluation of research-based language arts curriculum.—*S. (S.)* Merino

(change in existing course—eff. fall 16)

255. Curriculum Development and Evaluation in Mathematics (4)
Seminar—4 hours. Prerequisite: consent of instructor. Analysis of curricular issues and goals in mathematics education, including long-term trends, current status and influences, proposed changes, and evaluation issues. Selected curriculum projects will be examined. Offered irregularly.—Ambrose, White

(change in existing course—eff. fall 16)

256A. Research in Mathematics Education (4)
Seminar—4 hours. Prerequisite: consent of instructor. Examination of research process in mathematics education; review of critical productive problems identified by researchers; evolution of trends, issues, theories and hypotheses in various areas of mathematics education research. Course emphasizes foundations. Offered irregularly.—Ambrose, White

(change in existing course—eff. fall 16)

256B. Research in Mathematics Education (4)
Seminar—4 hours. Prerequisite: consent of instructor. Current research issues and activities in mathematics education: status, trends, theories and hypotheses. Formulation of research questions and design of studies. Projection of future directions for research. Offered irregularly.—Ambrose, White

(change in existing course—eff. fall 16)

257. Computer Technology in Mathematics Education (4)
Seminar—4 hours. Prerequisite: consent of instructor. The roles of calculators, computers, and graphing calculators in mathematics education will be addressed, with emphasis on the impact of these technologies on curriculum reform. Selected efforts to integrate technology into mathematics instruction will be examined. Offered irregularly.—White

(change in existing course—eff. fall 16)

260. The Modern History of Science Education (4)
Seminar—4 hours. Prerequisite: consent of instructor. History of curricular issues and goals in science education from the late 19th century forward, including long-term trends, current status and influences, proposed changes, and evaluation issues. National science standards and curriculum projects. Offered irregularly.—Passmore

(change in existing course—eff. fall 16)

262A. Research Topics in Science Education I (4)
Seminar—4 hours. Prerequisite: consent of instructor. Research process and product in science education; review of critical science education issues; evolution of trends, theories and hypotheses in various areas of science education research. Survey of current major research in science education. Offered irregularly.

(change in existing course—eff. fall 16)

262B. Research Topics in Science Education II (4)
Seminar—4 hours. Current research issues and activities in science education: status, trends, theories and hypotheses. Formulation of research questions, design of studies and critical, in-depth review of literature related to the student's research interests. Offered irregularly.—Passmore

(change in existing course—eff. fall 16)

264. Scientific Literacy and Science Education Reform (4)
Seminar—4 hours. Prerequisite: consent of instructor. Current trends in science education reform locally, regionally, and nationally focusing on scientific literacy. Equity, access and "science for all." Offered irregularly.—Ballard, Trexler

(change in existing course—eff. fall 16)

270. Research on Teacher Education and Development (4)
Seminar—3 hours; project. Experience with formal or informal teaching recommended. Research on teacher preparation in university credential programs and on professional development of in-service teachers, with special attention to teacher preparation for work with culturally and linguistically diverse youth. Offered irregularly.—Athanases

(change in existing course—eff. fall 16)

271. Supervision of Student Teachers: Research, Theory & Practice (4)
Lecture/discussion—3 hour; fieldwork—1 hour. 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. Offered irregularly.

(change in existing course—eff. fall 16)

275B. Effective Instruction: English Language Development and Instructing English Language Learners (2)
Lecture/discussion—2 hours. Prerequisite: acceptance in the Teaching Credential program. Analysis and application of English language acquisition and development research to teaching practice. Particular attention to research that enhances learning of English language learners and under-performing students.—*F, W. (F, W.)* Cannon, Fortes, Holmes

(change in existing course—eff. fall 16)

287D. CANDEL Dissertation (6-12)
Prerequisite: passing of qualifying exams in CANDEL program and advancement to candidacy; consent of instructor. Cohort members continue to meet with faculty and share their writing, data collection, analysis, development of conclusions/implications. May be repeated nine times for credit until completion of dissertation. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

291. Proseminar in Education (4)
Seminar—3 hours; fieldwork—3 hours. Prerequisite: admission to the M.A. or Ph.D. graduate program in Education. Professional induction into educational research field and Graduate Group in Education at UC Davis. Introduction to landscape of educational research methodologies, purposes and theories. Analysis of debates within field. Investigation of K-12 educational outreach efforts at UC Davis. May be repeated two times for credit. May take the course one time as an MA student and one time as a PhD student.—*F. (F.)*

(change in existing course—eff. fall 16)

292. Special Topics in Education (2-4)
Variable—2-4 hours. Prerequisite: consent of instructor. Selected topics in education. Designed to facilitate preparation for the qualifying examination or dissertation. Students will critically analyze scholarly work including their own works in progress. May be repeated for credit.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

294. Special Topics in Science, Agriculture and Mathematics Education (4)
Seminar—3 hours; term paper; project. Critical study of special topics of research relevant to science, agricultural and mathematics education. Students and faculty present work-in-progress on a major research project, and critically analyze and discuss one another's developing scholarly work. May be repeated for credit when topic differs.—*W, S. (W, S.)* Ambrose, Ballard, Martin, White

(change in existing course—eff. fall 16)

295. Special Topics in Learning and Mind Science (4)
Seminar—3 hours; term paper. Critical study of selected issues in the learning sciences, neurodevelopmental disorders, and psychometrics and measurement, as they relate to education. May be

repeated for credit when topic differs. Offered irregularly.—Abedi, Carter, Ching, Martin, Mundy, Solari, White

(change in existing course—eff. fall 16)

298. Group Study (1-5)
Prerequisite: consent of instructor. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

299. Individual Study (1-6)
Independent study—3-18 hours. Prerequisite: consent of instructor. Individual study under the direction of a faculty member. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

299D. Research (1-12)
Independent study—3-36 hours. Prerequisite: consent of instructor. Research for individual graduate students. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

Professional

300. Reading in the Elementary School (4)
Lecture—3 hours; fieldwork—3 hours. Prerequisite: acceptance in Teacher Credential Program. Principles, procedures, and curriculum materials for teaching of reading. Includes decoding skills with a special emphasis on phonics, comprehension skills, study skills, and reading in the content areas.—*F. (F.)*

(change in existing course—eff. fall 16)

301. Reading in the Secondary School (4)
Discussion—4 hours. Prerequisite: graduate standing, enrollment in the secondary credential program, or consent of instructor. Principles, procedures, and materials to help secondary school teachers improve the reading competence of students. Strategies for enhancing learning through reading and writing in all disciplines, with special attention to linguistically diverse populations.—*F. W. (F, W.)* Faltis, Martinez

(change in existing course—eff. summer 15)

301A. Teaching Literacy in High School Contexts (2)
Lecture/discussion—2 hours. Prerequisite: acceptance in Teacher Credential Program; consent of instructor. Restricted to students enrolled in the secondary credential program. Focuses on secondary school literacy practices and strategies for engaging English-speaking and bilingual students with textual, image, and digital literacies across content areas. Covers reading and writing, the Common Core and Language Proficiency standards.—*F, W. (F, W.)* Faltis

(change in existing course—eff. fall 16)

301B. Teaching Literacy in High School Contexts (2)
Lecture/discussion—2 hours. Prerequisite: acceptance in Teacher Credential Program. Restricted to students enrolled in the secondary credential program. Focuses on secondary school literacy practices and strategies for engaging English-speaking and bilingual students with textual, image, and digital literacies across content areas. Covers reading and writing, the Common Core and Language Proficiency standards.—*F, W. (F, W.)* Martinez

(change in existing course—eff. fall 16)

302. Language Arts in the Elementary School (2)
Lecture—2 hours. Prerequisite: acceptance in Teacher Credential Program. Principles, procedures, and materials for the teaching of oral and written expression, listening skills, drama, and children's literature in elementary schools. Offered irregularly.

(change in existing course—eff. fall 16)

303. Art Education in the Elementary School (2)
Lecture/discussion—2 hours. Prerequisite: acceptance in Teacher Credential Program. Understanding the principles of education in the arts through participation. Development of concepts, introduction to media, and techniques suitable for the elementary school. Curriculum, pedagogy, and materials for teaching the visual and performing arts curriculum in elementary schools.—*S. (S.)*

(change in existing course—eff. fall 16)

304A. Teaching in the Elementary Schools (2-18)
Lecture/discussion—2 hours; fieldwork—9-48 hours. Prerequisite: acceptance in Teacher Credential Program. Supervised teaching in regular classrooms in elementary schools. Selection and organization of teaching materials. Introduction to techniques of diagnosing school achievement of children.—*F. (F.)*

(change in existing course—eff. fall 16)

304B. Teaching in the Elementary Schools (2-18)
Lecture/discussion—2 hours; fieldwork—9-48 hours. Prerequisite: acceptance in Teacher Credential Program. Supervised teaching in regular classrooms in elementary schools. Current conceptions of elementary school curriculum, emphasis on contributions from the social, biological, and physical sciences. Emphasis on effective teaching methods.—*W. (W.)*

(change in existing course—eff. fall 16)

304C. Teaching in the Elementary Schools (2-18)
Lecture/discussion—2 hours; fieldwork—9-48 hours. Prerequisite: acceptance in Teacher Credential Program. Supervised teaching in regular classrooms in elementary schools. Evaluation of teaching materials including instructional technology. Current elementary school curriculum with emphasis on contributions from fine arts and humanities.—*S. (S.)*

(change in existing course—eff. fall 16)

305A. Teaching in the Middle Grades (5-8)
Lecture—2 hours; seminar—2 hours; student teaching—15-30 hours. Prerequisite: acceptance in Teacher Credential Program. Supervised teaching in regular or special education classrooms in middle grades. Current conceptions of the middle-grades curriculum with emphasis on social, biological, and physical sciences. Effective teaching methods. Offered irregularly.

(change in existing course—eff. fall 16)

306A. Teaching in the Secondary Schools (2-18)
Lecture/discussion—2 hours; fieldwork—9-48 hours. Prerequisite: acceptance in Teacher Credential Program. Supervised teaching in regular secondary classrooms. Techniques for classroom communications; constructing goals and objectives; assessment of learning; special problems of adolescents; instructional technology.—*F. (F.)*

(change in existing course—eff. fall 16)

306B. Teaching in the Secondary Schools (2-18)
Lecture/discussion—2 hours; fieldwork—9-48 hours. Prerequisite: acceptance in Teacher Credential Program. Supervised teaching in regular secondary classrooms. Techniques for classroom communications; constructing goals and objectives; assessment of learning; special problems of adolescents; instructional technology.—*W. (W.)*

(change in existing course—eff. fall 16)

306C. Teaching in the Secondary Schools (2-18)
Lecture/discussion—2 hours; fieldwork—9-48 hours. Prerequisite: acceptance in Teacher Credential Program. Supervised teaching in regular secondary classrooms. Techniques for classroom communications; constructing goals and objectives; assessment of learning; special problems of adolescents; instructional technology.—*S. (S.)*

(change in existing course—eff. fall 16)

307. Methods in Elementary Science (2)
Lecture/discussion—2 hours. Prerequisite: acceptance in Teacher Credential Program. Principles, procedures, and materials for teaching the biological and physical sciences in elementary schools.—*F. (F.)* Passmore, Trexler

(change in existing course—eff. fall 16)

308. Methods in Elementary Social Studies (2)
Lecture/discussion—2 hours. Prerequisite: acceptance in Teacher Credential Program. Principles, procedures, and materials for teaching history and the social sciences in elementary schools.—*W. (W.)* Rosa

(change in existing course—eff. fall 16)

309. The Teaching of Mathematics, K–9 (3)
Lecture/discussion—3 hours. Prerequisite: acceptance in Teacher Credential Program. Mathematics curriculum and teaching methods for K–9 reflecting the needs of California's diverse student populations.—*W. (W.)* Mendle

(change in existing course—eff. fall 16)

322A. Pedagogical Preparation for Secondary Social Science I (3)
Lecture/discussion—2 hours; discussion—1 hour. Prerequisite: acceptance in Teacher Credential Program. Introduction to teaching methods and curriculum approaches for secondary social science teaching. State and national curriculum standards; application of learning theory to effective instruction; interdisciplinary teaching and active learning approaches; effective teaching strategies for English Learners.—*F. (F.)* Rosa

(change in existing course—eff. fall 16)

322B. Pedagogical Preparation for Secondary Social Science II (3)
Lecture/discussion—1 hour; discussion—2 hours. Prerequisite: acceptance in Teacher Credential Program. Intermediate teaching methods and curriculum approaches for secondary social science teaching. Interdisciplinary approaches to teaching major themes across social science content areas; teaching potentially controversial social science topics; teaching democratic civic values, student assessment and evaluation.—*W. (W.)* Rosa

(change in existing course—eff. fall 16)

323A. Physical Science in the Secondary School (3)
Laboratory/discussion—2 hours; discussion/laboratory—1 hour. Prerequisite: acceptance in Teacher Credential Program. Activity-based overview of concepts and processes in secondary school physical sciences. Emphasis upon philosophy, appropriate teaching methods, materials, assessment and evaluation of learning.—*F. (F.)* Passmore, Pomeroy

(change in existing course—eff. fall 16)

323B. Life Sciences in the Secondary School (3)
Laboratory/discussion—2 hours; discussion/laboratory—1 hour. Prerequisite: acceptance in Teacher Credential Program. Activity-based overview of concepts and processes in secondary school biology and life sciences. Emphasis on philosophy, appropriate teaching methods, materials, assessment and evaluation of learning, and issues.—*W. (W.)* Passmore, Pomeroy

(change in existing course—eff. fall 16)

324A. Methods and Technology in Secondary Mathematics I (4)
Lecture/discussion—4 hours. Prerequisite: acceptance in Teacher Credential Program; consent of instructor. Introduction to methods and curriculum for

teaching mathematics at the secondary level. Introduction to applications of computer technology as instructional, intellectual, and communication tools for mathematics teachers.—*F. (F.)* Wallace

(change in existing course—eff. fall 16)

324B. Methods in Secondary Mathematics II (3)

Lecture/discussion—3 hours. Prerequisite: acceptance in Teacher Credential Program; consent of instructor. Expansion of methods and curriculum for teaching mathematics at the secondary level. Intermediate applications of computer technology as instructional, intellectual, and communication tools in mathematics teaching.—*W. (W.)* Wallace

(change in existing course—eff. fall 16)

325. Research and Methods in Secondary English Language Arts (4)

Discussion—4 hours. Prerequisite: acceptance in Teacher Credential Program; consent of instructor. Research on teaching and learning in the language arts. Principles, procedures and materials for improving the writing, reading and oral language of secondary students, with special attention to students from culturally and linguistically diverse populations.—*F. (F.)* Holmes

(change in existing course—eff. fall 16)

326. Teaching Language Minority Students in Secondary Schools: Methods and Research (4)

Seminar—3 hours; field work—3 hours. Prerequisite: acceptance in Teacher Credential Program; consent of instructor. Research on principles, procedures and curricula for teaching discipline-specific concepts to language-minority students in secondary schools. Second-language acquisition principles and instructional strategies. Offered irregularly.

(change in existing course—eff. fall 16)

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

Lecture—3 hours. Prerequisite: acceptance in Teacher Credential Program. 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. Offered irregularly.

(change in existing course—eff. fall 16)

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

Lecture—3 hours. Prerequisite: acceptance in Teacher Credential Program. 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. Offered irregularly.

(change in existing course—eff. fall 16)

Engineering

New and changed courses in Engineering (ENG)

Lower Division

2. Creativity and Entrepreneurship for Engineers (3)

Discussion—3 hours. Introduction to entrepreneurial thinking from an engineer's perspective. Focus on identifying entrepreneurial opportunities, developing prototypes, and generating business models. Emphasis on developing a creative and entrepreneurial mindset. GE credit: SciEng or SocSci | SE or SS.—*F, W, S. (F, W, S.)* Arzola

(new course—eff. fall 15)

35. Statics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Physics 9A C- or better and Mathematics 21D C- or better concurrently. Force systems and equilibrium conditions with emphasis on engineering problems. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

98. Directed Group Study (1-4)

Restricted to College of Engineering students only. (P/NP grading only.) May be repeated for credit up to three times when content differs.

(change in existing course—eff. fall 14)

Upper Division

103. Fluid Mechanics (4)

Lecture—4 hours. Prerequisite: C- or better in each of the following: Engineering 35 and Mathematics 22B and Physics 9B. Open to students in the College of Engineering and Hydrology majors. Fluid properties, fluid statics, continuity and linear momentum equations for control volumes, flow of incompressible fluids in pipes, dimensional analysis and boundary-layer flows. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Aldredge, Davis, Delplanque, Hwang, Kennedy, Robinson

(change in existing course—eff. fall 16)

160. Environmental Physics and Society (3)

Lecture—3 hours. Prerequisite: Physics 9D, 5C, or 10 or 1B and Mathematics 16B or the equivalent. Impact of humankind on the environment will be discussed from the point of view of the physical sciences. Calculations based on physical principles will be made, and the resulting policy implications will be considered. In the College of Engineering, students may receive only one unit of credit towards the Technical Electives requirement. (Same course as Physics 160.) GE credit: SciEng or SocSci | SE, SL.—*S. (S.)* Craig, Jungerman

(change in existing course—eff. winter 16)

Engineering: Aerospace Science and Engineering

New and changed courses in Aerospace Science and Engineering (EAE)

Lower Division

10. From the Wright Brothers to Drones and Quadcopters (2)

Lecture—2 hours. History of aircraft and its influence on society. Topics covered will include Unmanned Aerial Vehicles, safety considerations, economics and privacy issues. Aerodynamics, stability and control will also be introduced. (P/NP grading only.) GE credit: SciEng or SocSci | SE or SS.—*Su. (Su.)*

(new course—eff. summer 15)

Upper Division

139. Structural Dynamics and Aeroelasticity (4)

(cancelled course—eff. spring 15)

140. Rocket Propulsion (4)

Lecture—4 hours. Prerequisite: C- or better in Mechanical Engineering 106. Restricted to upper division standing. Fluid and thermodynamics of rocket engines, liquid and solid rocket propulsion. Space propulsion concepts and space mission requirements. Not open for credit to students who have taken identical course 189A prior to Fall Quarter 2013. GE credit: SciEng | SE.—*S. (S.)* Delplanque, Hafez

(change in existing course—eff. winter 16)

Engineering: Applied Science—Davis

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

Graduate

205C. Mathematical Methods (4)

(cancelled course—eff. fall 14)

209. Linear Modeling Techniques (4)

(cancelled course—eff. fall 14)

210A. Numerical Methods in Applied Science (4)

(cancelled course—eff. fall 14)

210B. Numerical Methods in Applied Science (4)

(cancelled course—eff. fall 14)

210C. Numerical Methods in Applied Science (3)

(cancelled course—eff. fall 14)

211A. Numerical Solution of Partial Differential Equations I (3)

(cancelled course—eff. fall 14)

211B. Numerical Solution of Partial Differential Equations II (3)

(cancelled course—eff. fall 14)

211C. Numerical Solution of Partial Differential Equations III (3)

(cancelled course—eff. fall 14)

217A. Applied Computational Science (3)

(cancelled course—eff. fall 14)

217B. Applied Computational Science (3)

(cancelled course—eff. fall 14)

218. Signal Processing (3)

(cancelled course—eff. fall 14)

219. Wavelets and Their Applications (3)

(cancelled course—eff. fall 14)

220A. Artificial Neural Nets–I (3)

(cancelled course—eff. fall 14)

220B. Artificial Neural Nets–II (3)

(cancelled course—eff. fall 14)

221. Genetic Algorithms and Optimization (3)

(cancelled course—eff. fall 14)

225. Computational Structures for Signal and Image Processing and Graphics (3)

(cancelled course—eff. fall 14)

226. Practical Data Communications in Digital Media (3)

(cancelled course—eff. fall 14

228A. Properties of Matter (3)

(cancelled course—eff. fall 14)

228B. Properties of Matter (3)

(cancelled course—eff. fall 14)

228C. Properties of Matter (3)

(cancelled course—eff. fall 14)

231A. Applied Quantum Mechanics (4)
(cancelled course—eff. fall 14)

231B. Applied Quantum Mechanics (4)
(cancelled course—eff. fall 14)

233A. Theory and Applications of Solid-State Physics (3)
(cancelled course—eff. fall 14)

233B. Theory and Applications of Solid-State Physics (3)
(cancelled course—eff. fall 14)

233C. Theory and Applications of Solid-State Physics (3)
(cancelled course—eff. fall 14)

234A. Applied Electromagnetics I (3)
(cancelled course—eff. fall 14)

234B. Applied Electromagnetics II (3)
(cancelled course—eff. fall 14)

234C. Applied Electromagnetics III (3)
(cancelled course—eff. fall 14)

255. Biophotonics in Medicine and the Life Sciences (3)
(cancelled course—eff. fall 14)

262A. Atomic and Molecular Interactions (3)
(cancelled course—eff. fall 14)

262B. Atomic and Molecular Interactions (3)
(cancelled course—eff. fall 14)

262C. Atomic and Molecular Interactions (3)
(cancelled course—eff. fall 14)

263A. Quantum Statistics of Light (3)
(cancelled course—eff. fall 14)

263B. Quantum Theory of Optics (3)
(cancelled course—eff. fall 14)

264A. Classical Optics I (3)
(cancelled course—eff. fall 14)

264B. Classical Optics II (3)
(cancelled course—eff. fall 14)

264C. Classical Optics III (3)
(cancelled course—eff. fall 14)

271. Optical Methods in Biophysics (4)
(cancelled course—eff. spring 14)

285A. Physics and Technology of Microwave Vacuum Electron Beam Devices I (4)
(cancelled course—eff. winter 16)

285B. Physics and Technology of Microwave Vacuum Electron Beam Devices II (4)
(cancelled course—eff. spring 16)

285C. Physics and Technology of Microwave Vacuum Electron Beam Devices III (4)
(cancelled course—eff. fall 15)

Engineering: Biological Systems

New and changed courses in Engineering: Biological Systems (EBS)

Lower Division

75. Properties of Materials in Biological Systems (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Biological Sciences 2A; Physics 9C (may be taken concurrently). Properties of typical biological materials; composition and structure with emphasis on the effects of physical and biochemical properties on design of engineered systems; interactions of biological materials with typical engineering materials. GE credit: SciEng | QL, SE, SL, VL, WE.—*W. (W.)* Slaughter, Zicari
(change in existing course—eff. fall 16)

Upper Division

115. Forest Engineering (3)
Lecture—3 hours. Prerequisite: Engineering 104. Applications of engineering principles to problems in forestry including those in forest regeneration, harvesting, residue utilization, and transportation. GE credit: SciEng | QL, SE, SL, VL.—*S. (S.)* Hartsough
(change in existing course—eff. fall 16)

128. Biomechanics and Ergonomics (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Statistics 100, Engineering 102. Limited enrollment. Anatomical, physiological, and biomechanical bases of physical ergonomics. Human motor capabilities, body mechanics, kinematics and anthropometry. Use of bioinstrumentation, industrial surveillance techniques and the NIOSH lifting guide. Cumulative trauma disorders. Static and dynamic biomechanical modeling. Emphasis on low back, shoulder, and hand/wrist biomechanics. GE credit: SciEng | QL, SE, SL, VL, WE.—*S. (S.)* Fathallah
(change in existing course—eff. fall 14)

145. Irrigation and Drainage Systems (4)
Lecture—4 hours. Prerequisite: course 103 or Hydrologic Science 103N. Engineering and scientific principles applied to the design of surface, sprinkle and micro irrigation systems and drainage systems within economic, biological, and environmental constraints. Interaction between irrigation and drainage. GE credit: SciEng | QL, SE, SL, VL.—*W. (W.)* Grismer, Wallender
(change in existing course—eff. fall 16)

147. Runoff, Erosion and Water Quality Management in the Tahoe Basin (3)
Lecture/laboratory—30 hours; fieldwork—15 hours; discussion—10 hours; term paper. Prerequisite: Physics 7B or 9B, Mathematics 16C or 21C, Civil and Environmental Engineering 142 or Hydrologic Science 141 or Environmental and Resource Sciences 100. Practical hydrology and runoff water quality management from Tahoe Basin slopes. Development of hillslope and riparian restoration concepts, modeling and applications from physical science perspectives including precipitation-runoff relationships, sediment transport, and detention ponds. Five days of instruction in Tahoe City. (Same course as Hydrologic Science 147.) GE credit: SciEng | QL, SE, SL.—Grismer
(change in existing course—eff. winter 15)

175. Rheology of Biological Materials (3)
Lecture—3 hours. Prerequisite: course 103 or Engineering 103. Fluid and solid rheology, viscoelastic behavior of foods and other biological materials, and application of rheological properties to food and biological systems (i.e., pipeline design, extrusion, mixing, coating). GE credit: SciEng | QL, SE, VL.—*W. (W.)* K. McCarthy
(change in existing course—eff. fall 16)

189A. Special Topics in Biological Systems Engineering: Agricultural Engineering (1-5)
Prerequisite: upper division standing in engineering; consent of instructor. Special topics in Agricultural Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189B. Special Topics in Biological Systems Engineering: Agricultural Engineering (1-5)
Prerequisite: upper division standing in engineering; consent of instructor. Special topics in Agricultural Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189C. Special Topics in Biological Systems Engineering: Biomedical Engineering (1-5)
Prerequisite: upper division standing in engineering; consent of instructor. Special topics in Biomedical Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189D. Special Topics in Biological Systems Engineering: Biotechnical Engineering (1-5)
Prerequisite: upper division standing in engineering; consent of instructor. Special topics in Biotechnical Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189E. Special Topics in Biological Systems Engineering: Ecological Systems Engineering (1-5)
Prerequisite: upper division standing in engineering; consent of instructor. Special topics in Ecological Systems Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189F. Special Topics in Biological Systems Engineering: Food Engineering (1-5)
Prerequisite: upper division standing in engineering; consent of instructor. Special topics in Food Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189G. Special Topics in Biological Systems Engineering: Forest Engineering (1-5)
Prerequisite: upper division standing in engineering; consent of instructor. Special topics in Forest Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Graduate

289A. Selected Topics in Biological Systems Engineering; Animal Systems Engineering (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Animal Systems Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289B. Selected Topics in Biological Systems Engineering; Aquacultural Engineering (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Aquacultural Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289C. Selected Topics in Biological Systems Engineering; Biological Engineering (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Biological Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289D. Selected Topics in Biological Systems Engineering; Energy Systems (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Energy Systems. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289E. Selected Topics in Biological Systems Engineering; Environmental Quality (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Environmental Quality. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289F. Selected Topics in Biological Systems Engineering; Food Engineering (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Food Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289G. Selected Topics in Biological Systems Engineering; Forest Engineering (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Forest Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289H. Selected Topics in Biological Systems Engineering; Irrigation and Drainage (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Irrigation and Drainage. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289I. Selected Topics in Biological Systems Engineering; Plant Production and Harvest (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Plant Production and Harvest. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289J. Selected Topics in Biological Systems Engineering; Postharvest Engineering (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Postharvest Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289K. Selected Topics in Biological Systems Engineering; Sensors and Actuators (1-5)
Variable—1-5 hours. Prerequisite: consent of instructor. Special topic in Sensors and Actuators. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Engineering: Biomedical

New and changed courses in Biomedical Engineering (BIM)

Lower Division

1. Introduction to Biomedical Engineering (2)
Lecture—2 hours; laboratory—3 hours. Pass One open to freshmen. Introduction to the field of biomedical engineering with emphasis on design, careers, and specializations, including (1) medical devices (2) cellular & tissue engineering, (3) biomechanics, (4) systems & synthetic biology, and (5) biomedical imaging. GE credit: SciEng | SE.—*F. (F.)* Choi
(change in existing course—eff. fall 16)

20. Fundamentals of Bioengineering (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: C- or better in Chemistry 2B and Mathematics 21D; Physics 9B. Basic principles of mass, energy and momentum conservation equations applied to solve problems in the biological and medical sciences. Only two units of credit to students who have previously taken Chemical Engineering 51, Engineering 105. GE credit: SciEng | QL, SE, VL.—*S. (S.)* Choi
(change in existing course—eff. summer 15)

Upper Division

102. Quantitative Cell Biology (4)
Lecture/discussion—4 hours. Prerequisite: Biological Sciences 2A; Chemistry 8B. Open to College of Engineering students only. Fundamental cell biology for bioengineers. 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 completed Biological Sciences 104 or Molecular and Cellular Biology 143. GE credit: SciEng | QL, SE, VL.—*F. (F.)* Yamada
(change in existing course—eff. fall 16)

105. Probability and Statistics for Biomedical Engineers (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: C- or better in Mathematics 21D; Engineering 6 (may be concurrent). Concepts of probability, random variables and processes, and statistical analysis with applications to engineering problems in biomedical sciences. Includes discrete and continuous random variables, probability distributions and models, hypothesis testing, statistical inference and Matlab applications. Emphasis on BME applications. GE credit: SciEng | QL, SE, VL.—*F. (F.)* Rocke
(change in existing course—eff. summer 15)

106. Biotransport Phenomena (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: C- or better in course 20; course 116 or Neurobiology, Physiology, and Behavior 101; Physics 9B; Mathematics 22B. Open to Biomedical Engineering majors only. Principles of momentum and mass transfer with applications to biomedical systems; emphasis on basic fluid transport related to blood flow, mass transfer across cell membranes, and the design and analysis of artificial human organs. GE credit: SciEng | QL, SE, SL, VL.—*W. (W.)* Leach
(change in existing course—eff. winter 15)

107. Mathematical Methods for Biological Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: C- or better in Engineering 6; course 20; Mathematics 22B. Restricted to Biomedical Engineering majors only. Mathematical and computational modeling to solve biomedical problems. Topics include stochastic processes and Monte Carlo simulations, and partial differential equations. Introduced to numerical techniques in MATLAB. Offered irregularly. GE credit: SciEng | QL, SE, VL.
(change in existing course—eff. summer 15)

111. Biomedical Instrumentation Laboratory (6)
Lecture—4 hours; discussion/laboratory—4 hours. Prerequisite: courses 105, and 108; Engineering 100 or Electrical Engineering 100; course 116 or Neurobiology, Physiology, & Behavior 101. Open to Biomedical Engineering majors only. 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. GE credit: SciEng | SE.—*F. W. (F, W.)* Marcu, Pan
(change in existing course—eff. summer 15)

118. Microelectromechanical Systems (4)
Lecture—2 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: Chemistry 2A; Engineering 17. Restricted to upper division standing in College of Engineering. Introduction to the theory and practice of micro-electromechanical systems (MEMS), including fundamentals of micro-nanofabrication, microscale sensing and actuation, self assembly, microfluidics and lab-on-a-chip. Weekly hands-on laboratory sections are emphasized on implementation and utilization of MEMS technologies. (Same course as Electrical and Computer Engineering 147.) GE credit: SciEng | QL, SE.—*W. (W.)* Pan
(change in existing course—eff. winter 15)

141. Cell and Tissue Mechanics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Physics 9B; Engineering 6; Engineering 35. Mechanical properties that govern blood flow in the microcirculation. Concepts in blood rheology and cell and tissue viscoelasticity, biophysical aspects of cell migration, adhesion, and motility. GE credit: SciEng | QL, SE, VL.—*W. (W.)* Simon
(change in existing course—eff. summer 15)

142. Principles and Practices of Biomedical Imaging (4)
Lecture—4 hour. Prerequisite: Mathematics 22B, course 108 (may be taken concurrently). Basic physics, engineering principles, and applications of biomedical imaging techniques including x-ray imaging, computed tomography, magnetic resonance imaging, ultrasound and nuclear imaging. GE credit: SciEng | SE.—*S. (S.)* Cherry
(change in existing course—eff. fall 15)

143. Biomolecular Systems Engineering: Synthetic Biology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 2A; Mathematics 16C or Mathematics 17C or Mathematics 21C. Includes analysis, design, construction and characterization of molecular systems. Process and biological parts standardization, computer aided design, gene synthesis, directed evolution, protein engineering, issues of human practice, biological safety, security, innovation, and ethics are covered. Offered in alternate years. GE credit: SciEng | SE.—*(S.)* Facciotti
(change in existing course—eff. summer 15)

161A. Biomolecular Engineering (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 2A; Chemistry 8B. Restricted to upper division standing. Introduction to the basic concepts and techniques of biomolecular engineering such as recombinant DNA technology, protein engineering, and molecular diagnostics. Three units of credit for students who have taken course 161S. GE credit: SciEng | QL, SE.—*F. (F.)* Tan
(change in existing course—eff. summer 15)

161L. Biomolecular Engineering Laboratory (3)
Laboratory—4.5 hours; lecture/discussion—1.5 hours. Prerequisite: course 161A or Biological Sciences 101. Introduction to the basic techniques in biomolecular engineering. Lectures, laboratory, and discussion sessions will cover basic techniques in DNA cloning, bacterial cell culture, gene regulation, protein expression, and data analysis. Offered irregularly. GE credit: SciEng |QL, SE, SL.

(change in existing course—eff. summer 15)

161S. Biomolecular Engineering: Brief Course (1)
Lecture—1 hour. Prerequisite: Biological Sciences 2A; Chemistry 8B; course 161L (may be taken concurrently). Basic concepts and techniques in biomolecular analysis, recombinant DNA technology, and protein purification and analysis. Not open for credit to students who have taken course 161A. Offered irregularly. GE credit: SciEng | QL, SE.

(change in existing course—eff. summer 15)

163. Bioelectricity, Biomechanics, and Signaling Systems (4)
Lecture—3 hours; lecture/discussion—1 hour. Prerequisite: C- or better in Mathematics 22B; course 116 or Neurobiology, Physiology, and Behavior 101. Fundamentals of bioelectricity in cells, the calcium signaling system, and mechanical force generation in muscle. Combination of lecture and projects to promote learning of important concepts in hands-on projects using neurons and muscle as microcosms. GE credit: SciEng | SE, QL.—*S. (S.)* Chen-Izu

(change in existing course—eff. fall 14)

167. Biomedical Fluid Mechanics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 106 (may be taken concurrently) or Engineering 103. Basic biofluid mechanics, Navier Stokes equations of motion, circulation, respiration and specialized applications including miscellaneous topics such as boundary layer flow. Not open for credit to students who have completed Mechanical Engineering 167C. Offered irregularly. GE credit: SciEng | QL, SE.—*W. (W.)* Tan

(change in existing course—eff. fall 14)

189A. Topics in Biomedical Engineering; Cellular and Molecular Engineering (1-5)
Prerequisite: consent of instructor. Topics in Biomedical Engineering; Cellular and Molecular Engineering. May be repeated if topic differs. Offered irregularly. GE credit: SciEng | SE.

(change in existing course—eff. summer 15)

189B. Topics in Biomedical Engineering; Biomedical Imaging (1-5)
Prerequisite: consent of instructor. Topics in Biomedical Engineering; Biomedical Imaging. May be repeated if topic differs. Offered irregularly. GE credit: SciEng | SE.

(change in existing course—eff. summer 15)

189C. Topics in Biomedical Engineering; Biomedical Engineering (1-5)
Prerequisite: consent of instructor. Topics in Biomedical Engineering; Biomedical Engineering. May be repeated if topic differs. Offered irregularly. GE credit: SciEng | SE.

(change in existing course—eff. summer 15)

190A. Upper Division Seminar in Biomedical Engineering (1)
Seminar—1 hour. Restricted to upper division standing. In depth examination of research topics in a small group setting. Question and answer session with faculty members. May be repeated for credit. (P/NP grading only.) GE credit: SE.

(change in existing course—eff. fall 14)

Graduate

202. Cell and Molecular Biology for Engineers (4)
Lecture/discussion—4 hours. Prerequisite: Biological Sciences 104 or Molecular and Cellular Biology 121. Preparation for research and critical review in the field of cell and molecular biology for biomedical or applied science engineers. Emphasis on biophysical and engineering concepts intrinsic to specific topics including receptor-ligand dynamics in cell signaling and function, cell motility, DNA replication and RNA processing, cellular energetics and protein sorting. Modern topics in bioinformatics and proteomics.—*W. (W.)* Yamada

(change in existing course—eff. summer 15)

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.—*F. (F.)* Benham

(change in existing course—eff. summer 15)

209. Scientific Integrity for Biomedical Engineers (2)
Lecture—1 hour; discussion—1 hour. Open to Biomedical Engineering majors only. Scientific integrity and ethics for biomedical engineers, with emphasis and discussion on mentoring, authorship and peer review, use of humans and animals in biomedical research, conflict of interest, intellectual property, genetic technology and scientific record keeping. (S/U grading only.)—*S. (S.)* Simon

(change in existing course—eff. fall 14)

210. Introduction to Biomaterials (4)
Lecture—4 hours. Prerequisite: Engineering 45 or consent of instructor. Mechanical and atomic properties of metallic, ceramic, and polymeric implant materials of metallic, ceramic, and polymeric implant materials; corrosion, degradation, and failure of implants; inflammation, wound and fracture healing, blood coagulation; properties of bones, joints, and blood vessels; biocompatibility of orthopaedic and cardiovascular materials.—*W. (W.)* Fyhrie

(change in existing course—eff. summer 15)

211. Design of Polymeric Biomaterials and Biological Interfaces (4)
Lecture—4 hours. Prerequisite: Engineering 45 or consent of instructor. Open to 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. Offered in alternate years.—*(W.)* Revzin

(change in existing course—eff. summer 15)

212. Biomedical Heat and Mass Transport Processes (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mechanical Engineering 165, Biological Systems Engineering 125, Chemical Engineering 153 or the equivalent. Application of principles of heat and mass transfer to biomedical systems related to heat exchange between the biomedical system and its environment, mass transfer across cell membranes and the design and analysis of artificial human organs. (Same course as Mechanical and Aeronautical Engineering 212.) Offered in alternate years.—*W.* Alderidge

(change in existing course—eff. summer 15)

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. Offered in alternate years.—*F.* Revzin

(change in existing course—eff. summer 15)

214. Blood Cell Biomechanics (4)
Lecture—4 hours. Prerequisite: Engineering 102. Mechanical properties that govern blood flow in the microcirculation and cell adhesion and motility. Constitutive equations of vasculature tissue and blood. Blood rheology and viscoelasticity. Red and white blood cell mechanics. Remodeling of blood vessels in disease and engineering of blood vessels and cells. Offered in alternate years.—*(F.)* Simon

(change in existing course—eff. summer 15)

215. Biomedical Fluid Mechanics and Transport Phenomena (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 103 or Chemical Engineering 150B or Civil and Environmental Engineering 141. Application of fluid mechanics and transport to biomedical systems. Flow in normal physiological function and pathological conditions. Topics include circulatory and respiratory flows, effect of flow on cellular processes, transport in the arterial wall and in tumors, and tissue engineering. (Same course as Mechanical and Aeronautical Engineering 215.) Offered irregularly.

(change in existing course—eff. summer 15)

216. Advanced Topics in Cellular Engineering (4)
Lecture—4 hours. Prerequisite: course 214 or consent of instructor. Advanced research strategies and technologies used in the study of immune function and inflammation. Static and dynamic measurements of stress, strain, and molecular scale forces in blood and vascular cells, as well as genetic approaches to the study of disease. Offered in alternate years.—*F.* Simon

(change in existing course—eff. summer 15)

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, Neurobiology, 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.—*S.* Passerini

(change in existing course—eff. summer 15)

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. (Same course as Electrical and Computer Engineering 244B.)—*F. (F.)* Pan

(change in existing course—eff. summer 15)

223. Multibody Dynamics (4)
Lecture—4 hours. Prerequisite: Engineering 102. Coupled rigid-body kinematics/dynamics; reference frames; vector differentiation; configuration and motion constraints; holonomicity; generalized speeds; partial velocities; mass; inertia tensor/theorems; angular momentum; generalized forces; comparing Newton/Euler, Lagrange's, Kane's methods; computer-aided equation derivation; orientation; Euler; Rodrigues parameters. (Same course as Mechanical and Aeronautical Engineering 223.)—*W. (W.)* Eke

(change in existing course—eff. summer 15)

227. Research Techniques in Biomechanics (4)
Lecture—2 hours; laboratory—4 hours; term paper/discussion—1 hour. Prerequisite: consent of instructor, Mathematics 22B; Exercise Science 115 recommended. Experimental techniques for biomechanical analysis of human movement are examined. Techniques evaluated include data acquisition and analysis by computer, force platform analysis, strength assessment, planar and three-dimensional videography, data reduction and smoothing, body segment parameter determination, electromyography, and biomechanical modeling. (Same course as Mechanical and Aeronautical Engineering 227/Exercise Science 227.)—*W.*

(change in existing course—eff. summer 15)

228. Skeletal Muscle Mechanics: Form, Function, Adaptability (4)
Lecture—4 hours. Prerequisite: basic background in biology, physiology, and engineering; Engineering 35 and 45, Mathematics 21D; Neurobiology, Physiology, and Behavior 101 recommended. Basic structure and function of skeletal muscle examined at the microscopic and macroscopic level. Muscle adaptation in response to aging, disease, injury, exercise, and disuse. Analytic models of muscle function are discussed. Offered in alternate years.—*F. (F.)* Hawkins

(change in existing course—eff. fall 16)

231. Musculo-Skeletal System Biomechanics (4)
Lecture—4 hours. Prerequisite: Engineering 102. Mechanics of skeletal muscle and mechanical models of muscle, solution of the inverse dynamics problem, theoretical and experimental methods of kinematic and kinetic analysis, computation of intersegmental load and muscle forces, applications to gait analysis and sports biomechanics. (Same course as Mechanical and Aeronautical Engineering 231.)—*S.*

(change in existing course—eff. summer 15)

232. Skeletal Tissue Mechanics (3)
Lecture—3 hours; laboratory—1 hour. Prerequisite: Engineering 104B. Overview of the mechanical properties of the various tissues in the musculoskeletal system, the relationship of these properties to anatomic and histologic structure, and the changes in these properties caused by aging and disuse. The tissues covered include bone, cartilage and synovial fluid, ligament and tendon. (Same course as Mechanical and Aeronautical Engineering 232.)—*S. (S.)* Fyhrie

(change in existing course—eff. summer 15)

240. Computational Methods in Nonlinear Mechanics (4)
Lecture—4 hours. Prerequisite: Applied Science Engineering 115 or Mathematics 128B or Engineering 180. Deformation of solids and the motion of fluids treated with state-of-the-art computational methods. Numerical treatment of nonlinear dynamics; classification of coupled problems; applications of finite element methods to mechanical, aeronautical, and biological systems. Offered in alternate years. (Same course as Mechanical and Aeronautical Engineering 240.)—*(W.)* Sarigul-Klign

(change in existing course—eff. summer 15)

241. Introduction to Magnetic Resonance Imaging (3)
Lecture—3 hours. Prerequisite: Physics 9D, Mathematics 22B. Equipment, methods, medical applications of MRI. Lectures review basic, advanced pulse sequences, image reconstruction, display and technology and how these are applied clinically. Lecture complements a more technical course. (course 246 can be taken concurrently.)—*F. (F.)* Buonocore

(change in existing course—eff. summer 15)

242. Introduction to Biomedical Imaging (4)
Lecture—4 hours. Prerequisite: Physics 9D and Electrical and Computer Engineering 106 or consent of instructor. Basic physics and engineering principles of image science. Emphasis on ionizing and nonionizing radiation production and interactions with the body and detectors. Major imaging systems: radiography, computed tomography, magnetic resonance, ultrasound, and optical microscopy.—*F. (F.)* Chaudhari

(change in existing course—eff. summer 15)

243. Radiation Detectors for Biomedical Applications (4)
Lecture/discussion—4 hours. Prerequisite: Physics 9D, Mathematics 21D, 22B. Radiation detectors and sensors used for biomedical applications. Emphasis on radiation interactions, detection, measurement and use of radiation sensors for imaging. Operating principles of gas, semiconductor, and scintillation detectors.—*W. (W.)* Cherry

(change in existing course—eff. summer 15)

246. Magnetic Resonance Technology (3)
Lecture—3 hours. Prerequisite: Physics 9D, Mathematics 22B. Course covers MRI technology at an advanced level with emphasis on mathematical descriptions and problem solving. Topics include spin dynamics, signal generation, image reconstruction, pulse sequences, biophysical basis of T1, T2, RF, gradient coil design, signal to noise, image artifacts.—*F.*

(change in existing course—eff. summer 15)

247. Current Concepts in Magnetic Resonance Imaging I (3)
(cancelled course—eff. spring 16)

248. Current Concepts in Magnetic Resonance Imaging II (3)
(cancelled course—eff. spring 16)

250. Mathematical Methods of Biomedical Imaging (4)
(cancelled course—eff. spring 16)

251. Medical Image Analysis (4)
Lecture—4 hours. Prerequisite: Electrical and Computer Engineering 106. Techniques for assessing the performance of medical imaging systems. Principles of digital image formation and processing. Measurements that summarize diagnostic image quality and the performance of human observers viewing those images. Definition of ideal observer and other mathematical observers that may be used to predict performance from system design features. Offered in alternate years.—*S.* Qi

(change in existing course—eff. summer 15)

252. Computational Methods in Biomedical Imaging (4)
Lecture—4 hours. Prerequisite: course 105 or Statistics 120; course 108 or Electrical and Computer Engineering 150A. 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. Offered in alternate years. (Same course as Electrical and Computer Engineering 205.)—*W.* Qi

(change in existing course—eff. summer 15)

255. Biophotonics in Medicine and the Life Sciences (3)
Lecture/discussion—3 hours. Prerequisite: Physics 108 and Biology 101-105; course 202 highly recommended; graduate standing. Introduction to the science and technology of biomedical optics and photonics, with an overview of applications in medicine and the life sciences. Emphasis on research supported by the NSF Center for Biophotonics at UC Davis Medical Center. Offered in alternate years. (Same course as Applied Science 255 and Biophysics 255.)—*S. (S.)* Chuang

(change in existing course—eff. summer 15)

270. Biochemical Systems Theory (4)
Lecture—4 hours. Prerequisite: course 202 concurrently or consent of instructor. Systems biology at the biochemical level. Mathematical and computational methods emphasizing nonlinear representation, dynamics, robustness, and optimization. Case studies of signal-transduction cascades, metabolic networks and regulatory mechanisms. Focus on formulating and answering fundamental questions concerning network function, design, and evolution.—*F.* Savageau

(change in existing course—eff. summer 15)

273. Integrative Tissue Engineering and Technologies (4)
Lecture/discussion—4 hours. Prerequisite: courses 202 and 204 or similar; strongly encourage completion of course 272 although not a prerequisite. Restricted to graduate standing. 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.—*F. (F.)* Leach

(change in existing course—eff. summer 15)

281. Acquisition and Analysis of Biomedical Signals (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Engineering 100; Statistics 130A. Restricted to upper division engineering. Basic concepts of digital signal recording and analysis; sampling; empirical modeling; Fourier analysis, random processes, spectral analysis, and correlation applied to biomedical signals.—*S. (S.)* Srinivasan

(change in existing course—eff. summer 15)

282. Biomedical Signal Processing (4)
(cancelled course—eff. spring 16)

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.—*W. (W.)* Duan

(change in existing course—eff. summer 15)

285. Computational Modeling in Biology and Immunology (4)
(cancelled course—eff. spring 16)

286. Nuclear Imaging in Medicine and Biology (4)
Lecture/discussion—4 hours. Prerequisite: course 243 or consent of instructor. Radioactive decay, interaction of radiation with matter, radionuclide production, radiation detection, digital autoradiography, gamma camera imaging, single photon emission computed tomography, positron emission tomography and applications of these techniques in biology and medicine. Offered in alternate years.—*S.* Cherry

(change in existing course—eff. summer 15)

287. Concepts in Molecular Imaging (4)
Lecture—2 hours; lecture/discussion—2 hours; term paper. Prerequisite: Chemistry 2C, Mathematics 21C, Physics 9D, consent of instructor. Current techniques and tools for molecular imaging. Emphasis on learning to apply principles from the physical sciences to imaging problems in medicine and biology.—*S.* Sutcliffe

(change in existing course—eff. summer 15)

289A. Selected Topics in Biomedical Engineering; Cellular and Molecular Systems Engineering (1-5)
Variable. Prerequisite: consent of instructor. Selected topics in Cellular and Molecular Systems Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289B. Selected Topics in Biomedical Engineering; Biomedical Imaging (1-5)
Variable. Prerequisite: consent of instructor. Selected topics in Biomedical Imaging. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289C. Selected Topics in Biomedical Engineering; Computational Bioengineering (1-5)
Variable. Prerequisite: consent of instructor. Selected topics in Computational Bioengineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289D. Selected Topics in Biomedical Engineering; Cell and Tissue Biomechanics (1-5)
Variable. Prerequisite: consent of instructor. Selected topics in Cell and Tissue Biomechanics. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289E. Selected Topics in Biomedical Engineering; Analysis of Human Movement (1-5)
Variable. Prerequisite: consent of instructor. Selected topics in Analysis of Human Movement. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Professional

396. Teaching Assistant Training Practicum (1-4)
Prerequisite: graduate standing. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Engineering: Chemical

New and changed courses in Engineering: Chemical (ECH)

Lower Division

98. Directed Group Study (1-5)
Prerequisite: consent of instructor and lower division standing. (P/NP grading only.) Offered irregularly. GE credit: SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

99. Special Study for Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) Offered irregularly. GE credit: SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Upper Division

140. Mathematical Methods in Biochemical and Chemical Engineering (4)
Lecture/discussion—3 hours; laboratory— 1 hour. Prerequisite: Mathematics 22B; and Chemical and Materials Science 6 or Engineering 6 or equivalent. Mathematical methods for solving problems in chemical and biochemical engineering, with emphasis on transport phenomena. Fourier series and separation of variables. Sturm-Liouville eigenvalue problems. Similarity transformations. Tensor analysis. Finite difference methods for solving time-dependent diffusion problems. Not open for credit to students who have completed course 159. GE credit: SciEng | SE.—*F. (F.)*
(change in existing course—eff. fall 15)

144. Rheology and Polymer Processing (3)
Lecture/Discussion—3 hours. Prerequisite: Course 141. Deformation in steady shear, unsteady shear, and elongational flows. Linear and non-linear viscoelastic constitutive models. The principle of material indifference and admissibility of constitutive equations. Introduction to the unit operations of polymer processing. Not open for credit to students who have completed course 150C. Offered irregularly. GE credit: SciEng | SE.—*S. (S.)*
(change in existing course—eff. summer 15)

145A. Chemical Engineering Thermodynamics Laboratory (3)
Laboratory—2 hours; discussion—1 hour; extensive writing. Prerequisite: course 152A, course 152B (may be taken concurrently). Open to majors in Chemical Engineering, Chemical Engineering/Materials Science, & Biochemical Engineering. Laboratory experiments in chemical engineering thermodynamics. GE credit: SciEng | SE, WE.—*W. (W.)*
(change in existing course—eff. fall 15)

145B. Chemical Engineering Transport Lab (3)
Laboratory—2 hours; discussion—1 hour; extensive writing. Prerequisite: courses 141 and 145A. Open to majors in Chemical Engineering, Chemical Engineering/Materials Science, & Biochemical Engineering. Laboratory experiments in chemical engineering transport phenomena. GE credit: SciEng | SE, WE.—*S. (S.)*
(change in existing course—eff. fall 15)

158A. Process Economics and Green Design (4)
Lecture/discussion—4 hours. Prerequisite: courses 142; 143. Senior design experience in process and product creation and design with multiple realistic constraints. Cost accounting and capital investment estimation. Profitability analysis techniques. Green chemistry, health risk assessment and life cycle assessment concepts. GE credit: SciEng or SocSci | SE or SS, SL, VL.—*F. (F.)*
(change in existing course—eff. fall 16)

160. Fundamentals of Biomanufacturing (3)
Lecture—3 hours. Prerequisite: Microbiology 102, Biological Sciences 102 or Animal Biology 102. Principles of large scale bioreactor production of metabolites, enzymes, and recombinant proteins including the development of strains/cell lines, fermentor/bioreactor design, monitoring and operation, product recovery and purification, and biomanufacturing economics. Not open for credit to students who have completed course 161C or both 161A and 161B; only two units of credit to students who have completed either course 161A or 161B. Offered irregularly. GE credit: SciEng | QL, SE, VL.
(change in existing course—eff. summer 15)

161C. Biotechnology Facility Design and Regulatory Compliance (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 161A (co-requisite) and course 161B (co-requisite), or Molecular & Cellular Biology 263 (co-requisite). Design of biotechnology manufacturing facilities. Fermentation and purification equipment, and utility systems. Introduction to current good manufacturing practices, regulatory compliance, and documentation. GE credit: SciEng or SocSci | QL, SE or SS, SL, VL.—*W. (W.)*
(change in existing course—eff. summer 15)

161L. Bioprocess Engineering Laboratory (4)
Laboratory—9 hours; discussion—1 hour; term paper. Prerequisite: course 161A and 161B, or Viticulture and Enology 186, or Biological Sciences 103 and Molecular and Cellular Biology 120L. Pass One restricted to chemical/biochemical engineering majors. Laboratory experiments in the operation and analysis of bioreactors; determination of oxygen mass transfer coefficients in bioreactors and ion exchange chromatography. GE credit: SciEng, Wrt | QL, SE, VL, WE.—*S.*
(change in existing course—eff. winter 15)

166. Catalysis (3)
Lecture—3 hours. Prerequisite: course 148A; 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. Offered irregularly. GE credit: SciEng | SE.—*W. (W.)*
(change in existing course—eff. summer 15)

170. Introduction to Colloid and Surface Phenomena (3)
Lecture—3 hours. Prerequisite: Chemistry 110A. Introduction to the behavior of surfaces and disperse systems. The fundamentals will be applied to the solution of practical problems in colloid science. The course should be of value to engineers, chemists, biologists, soil scientists, and related disciplines. Offered irregularly. GE credit: SciEng | SE.—*S. (S.)*
(change in existing course—eff. summer 15)

190X. Upper Division Seminar (1)
Seminar—1 hour. Prerequisite: upper division standing. In-depth examination of a special topic in a small group setting. Offered irregularly.
(change in existing course—eff. summer 15)

192. Internship in Chemical or Biochemical 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 Chemical or Biochemical. May be repeated for credit when project differs. Offered irregularly. (P/NP grading only.) GE credit: SE.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. summer 15)

198. Group Study (1-5)
Prerequisite: consent of instructor. Offered irregularly. (P/NP grading only.) GE credit: SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Graduate

206. Biochemical Engineering (3)
Lecture—3 hours. Prerequisite: Microbiology 102 and 102L, Biological Sciences 101, 102, 103, Molecular and Cellular Biology 120L, 200A; Food Science and Technology 205 recommended; or consent of instructor. Interaction of chemical engineering, biochemistry, and microbiology. Mathematical representations of microbial systems. Kinetics of growth, death, and metabolism. Continuous fermentation, agitation, mass transfer and scale-up in fermentation systems, product recovery, enzyme technology. Offered irregularly.—*W. (W.)*
(change in existing course—eff. summer 15)

226. Enzyme Engineering (3)
Lecture—3 hours. Prerequisite: Microbiology 102 and 102L, Biological Sciences 102, 103, Molecular and Cellular Biology 122, 120L, 200A; or consent of instructor. Application of basic biochemical and engineering principles of practical enzymatic processes. Lectures cover large scale production and separation of enzymes, immobilized enzyme sys-

tems, enzyme reactor design and optimization, and new application of enzymes in genetic engineering related biotechnology. Offered irregularly.—*W. (W.)*

(change in existing course—eff. summer 15)

245. Micro- and Nano-Technology in Life Sciences (4)

Lecture/discussion—4 hours. Prerequisite: graduate standing or consent of instructor. Survey of biomedical device design from the engineering and biological perspectives; micro-/nano-fabrication and characterization techniques; surface chemistry and mass transfer; essential biological processes and models; proposal development skills to merge aforementioned themes in a multidisciplinary project. (Same course as Electrical and Computer Engineering 245 and Materials Science and Engineering 245.)—*S. (S.)* Seker

(new course—eff. winter 16)

246. Advanced Biochemical Engineering (2)

Lecture—2 hours. Prerequisite: course 206 or consent of instructor. Advances in the field of biotechnology including genetic engineering, enzyme engineering, fermentation science, and renewable resources development. The important results of original research will be evaluated for understanding of the fundamental principles and for potential practical application. Offered irregularly.—*W. (W.)*

(change in existing course—eff. summer 15)

253C. Advanced Mass Transfer (4)

Lecture—4 hours. Prerequisite: course 253A or the equivalent. 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.—*F. (F.)*

(change in existing course—eff. fall 16)

254. Colloid and Surface Phenomena (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: graduate standing in science or engineering or consent of instructor. Thermodynamics and rate processes at interfaces. These fundamental processes will be applied to determine the collective properties of thin films and membranes, self-assembled systems, liquid crystals and colloidal systems. Experimental techniques in surface analysis.—*S. (S.)*

(change in existing course—eff. summer 15)

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. Offered irregularly.—*S. (S.)*

(change in existing course—eff. summer 15)

263. Rheology and Mechanics of Non-Newtonian Fluids (3)

Lecture—3 hours. Prerequisite: courses 253A and 259 or consent of instructor. Mechanics of polymer solutions and suspension, especially the development of properly invariant constitutive equations. Topics include: viscometry, linear and nonlinear viscoelasticity, continuum mechanics, kinetic theory. Offered irregularly.—*W.* Powell

(change in existing course—eff. summer 15)

265. Emulsions, Microemulsions and Bilayers (3)

Lecture—3 hours. Prerequisite: an undergraduate course in physical chemistry. Thermodynamic and mechanical descriptions of surfactant-laden interfaces. Forces between and within interfaces. Physics of micelle and microemulsion formation. Structure and stability of emulsions. Properties of phospholipid bilayers, with emphasis on vesicles.—*W. (W.)*

(change in existing course—eff. summer 15)

267. Advanced Process Control (3)

Lecture—3 hours. Prerequisite: course 157 or the equivalent. Advanced course in analysis and synthesis of linear multivariable systems. Emphasis on frequency domain techniques and applications to chemical processes. Topics include singular value analysis, internal model control, robust controller design methods as well as self-tuning control techniques. Offered irregularly.—*S.*

(change in existing course—eff. summer 15)

289A. Special Topics in Chemical Engineering; Fluid Mechanics (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Fluid Mechanics. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289B. Special Topics in Chemical Engineering; Nonlinear Analysis and Numerical Methods (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Nonlinear Analysis and Numerical Methods. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289C. Special Topics in Chemical Engineering; Process Control (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Process Control. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289D. Special Topics in Chemical Engineering; Chemistry of Catalytic Processes (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Chemistry of Catalytic Processes. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289E. Special Topics in Chemical Engineering; Biotechnology (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics Biotechnology. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289F. Special Topics in Chemical Engineering; Interfacial Engineering (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Interfacial Engineering. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289G. Special Topics in Chemical Engineering; Molecular Thermodynamics(1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Molecular Thermodynamics. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289H. Special Topics in Chemical Engineering; Membrane Separations (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Membrane Separations. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289I. Special Topics in Chemical Engineering; Advanced Materials Processing (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Advanced Materials Processing. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289J. Special Topics in Chemical Engineering; Novel Experimental Methods (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Novel Experimental Methods. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289K. Special Topics in Chemical Engineering; Advanced Transport Phenomena (1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Advanced Transport Phenomena. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289L. Special Topics in Chemical Engineering; Biomolecular Engineering(1-5)

Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics in Biomolecular Engineering. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

290. Seminar (1)

Seminar—1 hour. Offered irregularly. (S/U grading only.)

(change in existing course—eff. summer 15)

294. Current Progress in Biotechnology (1)

Seminar—1 hour. Prerequisite: graduate standing. Seminars presented by guest lecturers on subjects of their own research activities. May be repeated for credit. (Same course as Molecular and Cellular Biology 294.) Offered irregularly. (S/U grading only.)—*F, W, S.* (I, II. III.)

(change in existing course—eff. summer 15)

298. Group Study (1-5)

Prerequisite: consent of instructor. Offered irregularly. (S/U grading only.)

(change in existing course—eff. summer 15)

Engineering: Chemical and Materials Science

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

Lower Division

1. Design of Coffee–An Introduction to Chemical Engineering (3)

Lecture—1 hour; laboratory—2 hours; project—1 hour. Non-mathematical introduction to how chemical engineers think, illustrated by elucidation of the process of roasting and brewing coffee. Qualitative overview of the basic principles of engineering analysis and design. Corresponding experiments testing design choices on the sensory qualities of coffee. Not open for credit to Chemical Engineering and Biochemical Engineering majors or students who have completed Chemical and Materials Science 5. GE credit: SciEng | SE, SL, VL.—*F. (F.)*

(change in existing course—eff. summer 15)

6. Computational Methods for Bio/ Chemical/Materials Engineers (4)
Lecture/discussion—4 hours. Prerequisite: Mathematics 21C. Programming methods for solving problems in chemical, biochemical and materials engineering using MATLAB. Programming styles, data structures, working with lists, functions and rules. Applications drawn from material balances, statistics, numerical methods, and bioinformatics. GE credit: SciEng | QL, SE.—*S. (S.)*
(change in existing course—eff. fall 15)

90X. Honors Discussion Section (1)
Discussion—1 hour. Prerequisite: open only to students enrolled in the Chemical Engineering or Biochemical Engineering Honors programs. Examination of special topics covered in selected lower-division courses through additional readings, discussions, collaborative work, or special activities which may include projects, laboratory experience or computer simulations. May be repeated for credit when topic differs. Offered irregularly.—II, III.
(change in existing course—eff. summer 15)

94H. Honors Seminar (1)
Seminar—1 hour. Prerequisite: open only to students enrolled in the Chemical Engineering or Biochemical Engineering Honors programs. Examination of selected current topics in chemical or biochemical engineering through readings, discussions, collaborative work or special activities which may include projects, laboratory experiences or computer simulations. Offered irregularly.—*F. (F.)*
(change in existing course—eff. summer 15)

Upper Division

189A. Special Topics in ECM; Fluid Mechanics (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Fluid Mechanics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189B. Special Topics in ECM; Nonlinear Analysis and Numerical Methods (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Nonlinear Analysis and Numerical Methods. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189C. Special Topics in ECM; Process Control (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Process Control. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189D. Special Topics in ECM; Chemistry of Catalytic Processes (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Chemistry of Catalytic Processes. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189E. Special Topics in ECM; Biotechnology (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Biotechnology. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189F. Special Topics in ECM; Interfacial Engineering (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Interfacial Engineering. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189G. Special Topics in ECM; Thermodynamics (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Thermodynamics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189H. Special Topics in ECM; Membrane Separations (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics: Membrane Separations. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189I. Special Topics in ECM; Novel Experimental Methods (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Novel Experimental Methods. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189J. Special Topics in ECM; Transport Phenomena (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Transport Phenomena. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189K. Special Topics in ECM; Biomolecular Engineering (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Biomolecular Engineering. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189L. Special Topics in ECM; Electronic Materials (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Electronic Materials. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189M. Special Topics in ECM; Ceramics and Minerals (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Ceramics and Minerals. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189N. Special Topics in ECM; Physics and Chemistry of Materials (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Physics and Chemistry of Materials. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189O. Special Topics in ECM; Materials Processing (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Materials Processing. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189P. Special Topics in ECM; Materials Science and Forensics (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Materials Science and Forensics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189Q. Special Topics in ECM; Biomaterials (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Biomaterials. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189R. Special Topics in ECM; Surface Chemistry of Metal Oxides (1-5)
Lecture and/or laboratory. Prerequisite: consent of instructor. Special topics; Surface Chemistry of Metal Oxides. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

190X. Honors Discussion Section (1)
Discussion—1 hour. Prerequisite: open only to students enrolled in the Chemical Engineering or Biochemical Engineering Honors programs. Examination of special topics covered in selected upper division courses through additional readings, discussions, collaborative work, or special activities which may include projects, laboratory experience or computer simulations. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HA. Special Study for Honors Students (2)
Independent study—6 hours. Open only to students enrolled in the Chemical Engineering or Biochemical Engineering Honors programs. Guided independent study of a selected topic in Chemical Engineering or Biochemical Engineering. Preparation for course 194HB. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (1-5)
Independent study—3 hours. Prerequisite: course 194HA. Open only to students enrolled in the Chemical Engineering or Biochemical Engineering Honors programs. Guided independent study of a selected topic in Chemical Engineering or Biochemical Engineering. Preparation for course 194HC. May be repeated for credit. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HC. Special Study for Honors Students (1-5)
Prerequisite: course 194HB. Open only to students enrolled in the Chemical Engineering or Biochemical Engineering Honors programs. Guided independent study of a selected topic in Chemical Engineering or Biochemical Engineering leading to the presentation of an honors project or thesis, under the supervision of a faculty adviser. GE credit: SciEng | QL, SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Graduate

229. Computational Molecular Modeling (4)
Lecture—3 hours; project—1 hour. Prerequisite: familiar with basic programming in either Fortran or C; prior experience with numerical methods and analysis; consent of instructor. Theory and hands-on implementation of algorithms in computational statistical mechanics. Temporal integrators, molecular dynamics, ab-initio methods, force fields, constrained dynamics, Monte Carlo techniques, fluctuationdissipation theorem, and parallel vs. serial computing. Offered in alternate years.—*S.* Gronbech-Jensen

(change in existing course—eff. summer 15)

261. Molecular Modelling of Soft and Biological Matter (4)
Lecture/discussion—4 hours. Prerequisite: Materials Science and Engineering 247 or Engineering: Chemical 252 or equivalent course in advanced thermodynamics/statistical mechanics. Modern molecular simulation techniques with a focus on soft matter like polymers, biologically relevant systems, and glasses. Offered in alternate years.—*W.* Faller

(change in existing course—eff. summer 15)

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.—*S.* Palazoglu

(change in existing course—eff. summer 15)

280. Seminar in Ethics for Scientists (2)
Seminar—2 hours. Restricted to 20 students; graduate standing in any department of science or engineering. Studies of topical and historical issues in the ethics of science, possibly including issues such as proper authorship, peer review, fraud, plagiarism, responsible collaboration, and conflict of interest. Limited enrollment. (Same course as Chemistry 280 and Physics 280.) (S/U grading only.)—*S. (S.)*

(change in existing course—eff. summer 15)

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.—*W.* Schoenung

(change in existing course—eff. summer 15)

Engineering: Civil and Environmental

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

Lower Division

3. Civil Infrastructure and Society (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Mathematics 21A (may be taken concurrently). Pass One restricted to lower division students; Civil Engineering majors. Introduction to civil infrastructure and its relationship with society and the natural environment. Exposure to innovative research on civil engineering and environmental systems. Participation in laboratory experiments illustrative of the solution of representative but simplified engineering problems. Not open for credit to upper division students. GE credit: SciEng or SocSci | OL, SE or SS.—*F. (F.)* Darby

(change in existing course—eff. winter 16

17. Surveying (2)
Lecture—2 hours. Prerequisite: Physics 9A (may be taken concurrently). Restricted to Civil Engineering and Biological Systems Engineering majors; nonmajors accommodated on a space-available basis. Theory behind and description of modern methods of land surveying in Civil Engineering. GE credit: SciEng | SE.

(change in existing course—eff. fall 14)

19. C Programming for Civil and Environmental Engineers (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Mathematics 21A (may be taken concurrently). Pass One open to Civil Engineering majors and Optical Science and Engineering majors. Computational problem solving techniques for Civil and Environmental Engineering applications using structured C programming. Algorithm design applied to realistic problems. GE credit: SciEng | SE.—Jeremic, Kleeman

(change in existing course—eff. fall 14)

Upper Division

143. Green Engineering Design and Sustainability (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 106; course 148A. Restricted to upper division standing; Pass One restricted to Civil Engineering majors. Application of concepts, goals, and metrics of sustainability, green engineering, and industrial ecology to the design of engineered systems. Life-cycle analyses, waste audit and environmental management systems, economics of pollution prevention and sustainability, and substitute materials for products and processes. GE credit: SciEng | QL, SE, SL, WE.—*F. (F.)* Loge

(change in existing course—eff. spring 16)

149. Air Pollution (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21D, 22B; C- or better in Chemistry 2B; Atmospheric Science 121A or C- or better in Engineering 103. Physical and technical aspects of air pollution. Emphasis on geophysical processes and air pollution meteorology as well as physical and chemical properties of pollutants. (Same course as Atmospheric Science 149.) GE credit: SciEng | QL, SE, SL.—*F. (F.)* Cappa

(change in existing course—eff. fall 16)

150. Air Pollution Control System Design: Senior Design Experience (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: C- or better in Atmospheric Science 149 or course 149. Restricted to senior level standing. Design and evaluation of air pollution control devices and systems. GE credit: SciEng | SE.—*W. (W.)* Cappa

(change in existing course—eff. spring 16)

161. Transportation System Operations (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: C- or better in both Mathematics 21C and Physics 9A. Principles of transportation system operations; traffic characteristics and methods of measurement; models of transportation operations and congestion applied to urban streets and freeways. GE credit: SciEng | QL, SE.—*F. (F.)* Zhang

(change in existing course—eff. spring 16)

162. Transportation Land Use Sustainable Design: Senior Design Experience (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: C- or better in course 148A or 161 or 163. Restricted to senior level standing. Interactions between land use and transportation systems design. Generalized design paradigm; project-based solutions for transportation land use. Students will select from various strategies to satisfy multiple constraints including cost, effectiveness and environmental sustainability. Oral, poster and written presentations required. GE credit: SciEng | SE, SL.—*S. (S.)* Niemeier

(change in existing course—eff. spring 16)

175. Geotechnical Earthquake Engineering (4)
Lecture—4 hours. Prerequisite: C- or better in course 171. Earthquakes, faults, seismology and ground motions; complex notation for vibratory motions, the wave equation, reflection and refraction; dynamic soil properties, linear and nonlinear 1-D site response analysis; introduction to soil-structure interaction. Not open for credit to students who have taken course 287A. GE credit: SciEng | SE.—*W. (W.)* Boulanger, Kutter

(change in existing course—eff. winter 16)

189A. Selected Topics in Civil Engineering; Environmental Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Environmental Engineering. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189B. Selected Topics in Civil Engineering; Hydraulics and Hydrologic Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Hydraulics and Hydrologic Engineering. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189C. Selected Topics in Civil Engineering; Engineering Planning (1-5)
Prerequisite: consent of instructor. Directed group study in Engineering Planning. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189D. Selected Topics in Civil Engineering; Geotechnical Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Geotechnical Engineering. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189E. Selected Topics in Civil Engineering; Structural Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Structural Engineering. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189F. Selected Topics in Civil Engineering; Structural Mechanics (1-5)
Prerequisite: consent of instructor. Directed group study in Structural Mechanics. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189G. Selected Topics in Civil Engineering; Transportation Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Transportation Engineering. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189H. Selected Topics in Civil Engineering; Transportation Planning (1-5)
Prerequisite: consent of instructor. Directed group study in Transportation Planning. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189I. Selected Topics in Civil Engineering; Water Resources Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Water Resources Engineering. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

189J. Selected Topics in Civil Engineering; Water Resources Planning (1-5)
Prerequisite: consent of instructor. Directed group study in Water Resources Planning. May be repeated for credit when the topic is different. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) GE credit: SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

Graduate

214. Probabilistic Seismic Hazard Analysis and Design Ground Motions (4)
Lecture—4 hours. Probabilistic seismic hazard analysis for use in developing design spectra and for seismic risk analyses, including the development of earthquake ground motion time series for use in dynamic analyses of structures. Offered in alternate years.—*F. (F.)* Abrahamson
(new course—eff. winter 16)

216. Meshfree Methods and Partition of Unity Finite Elements (4)
Lecture—4 hours. Prerequisite: course 201 and 212A. Advanced discretization techniques such as meshfree methods and partition of unity finite elements for the Galerkin solution of boundary-value problems in solid and structural mechanics. Application of meshfree and extended finite element methods in computational fracture. Offered irregularly.—Sukumar
(new course—eff. winter 16)

243L. Pilot Plant Laboratory (4)
Lecture—1 hour; Discussion—1 hour; Laboratory—6 hours. Prerequisite: course 243A and 243B (may be taken concurrently) or consent of instructor; graduate standing. Laboratory investigation of physical, chemical, and biological processes for water and wastewater treatment.—*W. (W.)* Darby
(new course—eff. winter 16)

246N. Understanding Climate Change: Causes and Consequences (4)
Lecture—4 hours. Open to graduate students. Diverse physical processes that govern climate and drive climate change. Observational, experimental and modeling techniques and methods used in the development of our scientific understanding of the Earth system.—*S. (S.)* Cappa
(new course—eff. winter 16)

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.—*S. (S.)* Cheng
(change in existing course—eff. fall 14)

265. Stochastic Hydrology and Hydraulics (4)
Lecture—4 hours. Prerequisite: course 266 or consent of instructor. Physics-based stochastic methods in modeling hydrologic and hydraulic processes; theory for modeling hydrologic-hydraulic governing equations as stochastic partial differential equations applied to various hydrologic-hydraulic processes under uncertainty, including transport, open channel flow, overland flow, soil water flow, and groundwater. Offered in alternate years.—*(F.)* Kavvas
(change in existing course—eff. winter 15)

289A. Selected Topics in Civil Engineering; Environmental Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Environmental Engineering. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289B. Selected Topics in Civil Engineering; Hydraulics and Hydrologic Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Hydraulics and Hydrologic Engineering. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289C. Selected Topics in Civil Engineering; Engineering Planning (1-5)
Prerequisite: consent of instructor. Directed group study in Engineering Planning. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289D. Selected Topics in Civil Engineering; Geotechnical Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Geotechnical Engineering. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289E. Selected Topics in Civil Engineering; Structural Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Structural Engineering. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289F. Selected Topics in Civil Engineering; Structural Mechanics (1-5)
Prerequisite: consent of instructor. Directed group study in Structural Mechanics. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289G. Selected Topics in Civil Engineering; Transportation Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Transportation Engineering. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289H. Selected Topics in Civil Engineering; Transportation Planning (1-5)
Prerequisite: consent of instructor. Directed group study in Transportation Planning. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289I. Selected Topics in Civil Engineering; Water Resources Engineering (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Directed group study in Water Resources Engineering. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289J. Selected Topics in Civil Engineering (1-5)
(cancelled course—eff. winter 15)

Engineering: Computer Science

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

Lower Division

10. Introduction to Programming (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: two years of high school algebra. Pass One open to Computer Science, Computer Science Engineering, Computer Engineering, Electrical Engineering Majors only. A hands-on introduction to computation, through programming and problem solving. Two units of credit for students who have taken course 12 or Engineering 6; not open to students who have completed course 30. GE credit: SciEng | QL, SE, SL.—*F, W, S. (F, W, S.)* Amenta, Gertz, Ludaescher
(change in existing course—eff. fall 16)

12. Introduction to Media Computation (4)
Lecture—3 hours; discussion/laboratory—1 hour. Introduction to key computational ideas necessary to understand and produce digital media. Fundamentals of programming are covered as well as analysis of how media are represented and transmitted in digital form. Aimed primarily at non-computer science students. Two units of credit for students that have taken course 10 or course 30 or Engineering 6. (Same course as Cinema and Technocultural Studies 012.) GE credit: ArtHum or SciEng | AH or SE, VL.—*W. (W.)* Neff
(change in existing course—eff. spring 15)

30. Programming and Problem Solving (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 16A or 21A (may be taken concurrently); prior experience with basic programming concepts (variable, loops, conditional statements) recommended. Pass One open to Computer Science, Computer Science Engineering, Computer Engineering, and Electrical Engineering Majors only. Introduction to computers and computer programming, algorithm design, and debugging. Elements of good programming style. Programming in the C language. Use of basic UNIX tools. GE credit: SciEng | QL, SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

40. Software Development and Object-Oriented Programming (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 30 or the equivalent with a grade of C- or better. Pass One open to Computer Science, Computer Science Engineering, Computer Engineering, and Electrical Engineering Majors only. Elements of program design, style, documentation, efficiency. Methods for debugging and verification. Operating system tools. Principles and use of object-oriented programming in C++. Basic data structures and their use. GE credit: SciEng | SE, VL.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

50. Computer Organization and Machine-Dependent Programming (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: grade of C- or better in course 40. Pass One open to Computer Science, Computer Science Engineering, and Computer Engineering Majors only. Comparative study of different hardware architectures via programming in the assembly languages of various machines. Role of system software in producing an abstract machine. Introduction to I/O devices and

programming. Only one unit of credit allowed for students who have taken Electrical and Computer Engineering 70. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Farrens, Matloff

(change in existing course—eff. fall 16)

89A. Special Topics in Computer Science; Computer Science Theory (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Computer Science Theory. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89B. Special Topics in Computer Science; Architecture (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Architecture. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89C. Special Topics in Computer Science; Programming Languages and Compilers (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Programming Languages and Compilers. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89D. Special Topics in Computer Science; Operating Systems (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Operating Systems. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89E. Special Topics in Computer Science; Software Engineering (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Software Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89F. Special Topics in Computer Science; Databases (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Databases. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89G. Special Topics in Computer Science; Artificial Intelligence (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Artificial Intelligence. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89H. Special Topics in Computer Science; Computer Graphics (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Computer Graphics. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89I. Special Topics in Computer Science; Networks (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Programming Networks. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89J. Special Topics in Computer Science; Computer-Aided Design (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Computer-Aided Design. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89K. Special Topics in Computer Science; Scientific Computing (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Scientific Computing. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

89L. Special Topics in Computer Science; Computer Science (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Computer Science. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

98F. Student Facilitated Course (1-4)
Prerequisite: consent of instructor. Student facilitated course intended primarily for lower division students. (P/NP grading only.) Offered irregularly.

(new course—eff. winter 16)

Upper Division

120. Theory of Computation (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 20 or Mathematics 108. Pass One open to Computer Science, Computer Science Engineering, and Computer Engineering Majors only. Fundamental ideas in the theory of computation, including formal languages, computability and complexity. Reducibility among computational problems. GE credit: SciEng | QL, SE.—*F, W, S. (F, W, S.)* Bai, Franklin, Gusfield, Martel, Rogaway

(change in existing course—eff. fall 16)

122A. Algorithm Design and Analysis (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 20, 60. Pass One open to Computer Science, Computer Science Engineering, and Computer Engineering Majors only. Complexity of algorithms, bounds on complexity, analysis methods. Searching, sorting, pattern matching, graph algorithms. Algorithm design techniques: divide-conquer, greedy, dynamic programming. Approximation methods. NP-complete problems. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Amenta, Filkov, Franklin, Gusfield, Martel, Rogaway

(change in existing course—eff. fall 16)

122B. Algorithm Design and Analysis (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 122A. Pass One open to Computer Science, Computer Science Engineering, and Computer Engineering Majors only. Theory and practice of hard problems, and problems with complex algorithm solutions. NP-completeness, approximation algorithms, randomized algorithms, dynamic programming and branch and bound. Theoretical analysis, implementation and practical evaluations. Examples from parallel, string, graph, and geometric algorithms. GE credit: SciEng | QL, SE.—*F. (F.)* Gusfield, Martel, Rogaway

(change in existing course—eff. fall 16)

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 2A or Molecular and Cellular Biology 10. Fundamental biological, mathematical and algorithmic models underlying bioinformatics and systems biology; sequence analysis, database search, genome annotation, clustering and classification, functional gene networks, regulatory network inference, phylogenetic trees, applications of common bioinformatics tools in molecular biology and genetics. GE credit: SciEng | SE.—*S. (S.)* Filkov, Gusfield, Tagkopoulos

(change in existing course—eff. winter 15)

127. Cryptography (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 20 or Mathematics 108. Pass One open to Computer Science and Computer Science Engineering Majors only. Introduction to the theory and practice of cryptographic techniques used in computer security. Encryption (secret-key and public-key), message authentication, digital signatures, entity authentication, key distribution, and other cryptographic protocols. The social context of cryptography. GE credit: SciEng | QL, SE, SL.—Franklin, Rogaway

(change in existing course—eff. fall 16)

129. Computational Structural Bioinformatics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: college level programming course; Biological Science 2A or Molecular and Cellular Biology 10. Fundamental biological, chemical and algorithmic models underlying computational structural biology; protein structure and nucleic acids structure; comparison of protein structures; protein structure prediction; molecular simulations; databases and online services in computational structural biology. GE credit: SciEng | SE.—*F. (F.)* Koehl

(change in existing course—eff. winter 15)

130. Scientific Computation (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 30 or Engineering 6; Mathematics 22A or Mathematics 67. Pass One open to Computer Science and Computer Science Engineering Majors only. Matrix-vector approach using MATLAB for floating-point arithmetic, error analysis, data interpolation, least squares data fitting, quadrature, zeros, optimization and matrix eigenvalues and singular values. Parallel computing for matrix operations and essential matrix factorizations. GE credit: SciEng | SE.—*S. (S.)* Bai, Hamann, Joy

(change in existing course—eff. fall 16)

132. Probability and Statistical Modeling for Computer Science (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 40; course 50 or Engineering Electrical and Computer 70; Mathematics 21C; Mathematics 22A or Mathematics 67. Pass One open to Computer Science and Computer Science Engineering Majors only. Univariate and multivariate distributions. Estimation and model building. Markov/Hidden Markov models. Applications to data mining, networks, security, software engineering and bioinformatics. GE credit: SciEng | QL, SE.—*W. (W.)* Davidson, Ghosal, Matloff

(change in existing course—eff. fall 16)

140A. Programming Languages (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 50 or Electrical Computer Engineering 70; course 60. Pass One open to Computer Science, Computer Science Engineering, and Computer Engineering Majors only. Syntactic definition of programming languages. Introduction to programming language features including variables, data types, data abstraction, object-orientedness, scoping, parameter disciplines, exception handling. Non-imperative programming languages. Comparative study of several high-level programming languages. GE credit: SciEng | SE.—*F, W. (F, W.)* Olsson, Pandey, Su

(change in existing course—eff. fall 16)

140B. Programming Languages (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 140A. Pass One open to Computer Science and Computer Science Engineering Majors only. Continuation of programming language principles.

Further study of programming language paradigms such as functional and logic; additional programming language paradigms such as concurrent (parallel); key implementation issues for those paradigms; and programming language semantics. Offered in alternate years. GE credit: SciEng | SE.—*W. (W.)* Levitt, Olsson, Pandey

(change in existing course—eff. fall 16)

142. Compilers (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 20, 140A; course 120 recommended. Pass One open to Computer Science and Computer Science Engineering Majors only. Principles and techniques of lexical analysis, parsing, semantic analysis, code generation, and code optimization. Implementation of compilers. GE credit: SciEng | SE.—*W. (W.)* Pandey, Su

(change in existing course—eff. fall 16)

145. Scripting Languages and Their Applications (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: programming skill at the level of course 60. Pass One open to Computer Science and Computer Science Engineering Majors only. Goals and philosophy of scripting languages, with Python and R as prime examples. Applications include networking, data analysis and display, and graphical user interfaces (GUIs). Offered in alternate years. GE credit: SciEng | SE.—*S.* Matloff

(change in existing course—eff. fall 16)

150. Operating Systems and System Programming (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 40; course 50 or Electrical and Computer Engineering 170. Pass One open to Computer Science, Computer Science Engineering, and Computer Engineering Majors only. Basic concepts of operating systems and system programming. Processes and interprocess communication/synchronization; virtual memory, program loading and linking; file and I/O subsystems; utility programs. Study of a real operating system. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Levitt, Matloff, Olsson, Wu

(change in existing course—eff. fall 16)

152B. Computer Networks (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 152A or Electrical and Computer Engineering 173A. Pass One open to Computer Science and Computer Science Engineering Majors only. TCP/IP protocol suite, computer networking applications, clientserver and peer-to-peer architectures, application-layer protocols, transport-layer protocols, transport-layer interfaces, sockets, network programming, remote procedure calls, and network management. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Ghosal, Matloff, Mohapatra, Mukherjee

(change in existing course—eff. fall 16)

153. Computer Security (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 150, 152A. Pass One open to Computer Science and Computer Science Engineering Majors only. Principles, mechanisms, and implementation of computer security and data protection. Policy, encryption and authentication, access control, and integrity models and mechanisms; network security; secure systems; programming and vulnerabilities analysis. Study of an existing operating system. Not open for credit to students who have completed course 155. GE credit: SciEng | SE.—*F, S. (F, S.)* Bishop, Chen

(change in existing course—eff. fall 16)

154B. Computer Architecture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 154A or both Electrical and Computer Engineering 170 and Electrical and Computer Engineering 180A. Pass One open to Computer Science and Computer Science Engineering Majors only. Hardwired and microprogrammed CPU design. Memory hierarchies. Uniprocessor performance analysis under varying program mixes. Introduction to pipelining and multiprocessors. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Farrens

(change in existing course—eff. fall 16)

158. Programming on Parallel Architectures (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 150 and 154B recommended. Pass One open to Computer Science and Computer Science Engineering Majors only. Techniques for software development using the shared-memory and message-passing paradigms, on parallel architectures and networks of workstations. Locks, barriers, and other techniques for synchronization. Introduction to parallel algorithms. GE credit: SciEng | SE.—*S. (S.)* Chong, Farrens, Ma, Matloff, Pandey

(change in existing course—eff. fall 16)

160. Software Engineering (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 140A. Pass One open to Computer Science and Computer Science Engineering Majors only. Requirements, specification, design, implementation, testing, and verification of large software systems. Study and use of software engineering methodologies. Team programming. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Devanbu, Levitt

(change in existing course—eff. fall 16)

163. Information Interfaces (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 60. Pass One open to Computer Science and Computer Science Engineering Majors only. 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. GE credit: SciEng | SE, VL.—*S. (S.)* Amenta, Ma

(change in existing course—eff. fall 16)

165A. Database Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 60. Pass One open to Computer Science and Computer Science Engineering Majors only. Database modeling and design (E/R model, relational model), relational algebra, query languages (SQL), file and index structures, query processing, transaction management. GE credit: SciEng | SE.—*W. (W.)* Ludaescher

(change in existing course—eff. fall 16)

165B. Database Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 165A. Pass One open to Computer Science and Computer Science Engineering Majors only. Data modeling (object-relational, graph-based, spatiotemporal models). Querying semistructured data (XML). Database theory (normalization, integration, provenance). Database programming (stored procedures, embedded SQL, web programming). Advanced topics (data warehousing, parallel data processing). GE credit: SciEng | SE.—*S. (S.)* Ludaescher

(change in existing course—eff. fall 16)

170. Introduction to Artificial Intelligence (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 60.Pass One open to Computer Science and Computer Science Engineering Majors only. Design and implementation of intelligent computer systems. Knowledge representation and organization. Memory and inference. Problem solving. Natural language processing. GE credit: SciEng | SE.—*W. (W.)* Davidson, Levitt

(change in existing course—eff. fall 16)

171. Machine Learning (4)
Lecture—3 hours; discussion—1 hour. Pass One open to Computer Science and Computer Science Engineering Majors only. Introduction to machine learning. Supervised and unsupervised learning, including classification, dimensionality reduction, regression and clustering using modern machine learning methods. Applications of machine learning to other fields. GE credit: SciEng | SE.—*S. (S.)* Davidson, Matloff, Tagkopoulos

(change in existing course—eff. fall 16)

173. Image Processing and Analysis (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 60; Mathematics 67 or C- or better in Mathematics 22A. Pass One open to Computer Science and Computer Science Engineering Majors only. Techniques for automated extraction of high-level information from images generated by cameras, three-dimensional surface sensors, and medical devices. Typical applications include detection of objects in various types of images and describing populations of biological specimens appearing in medical imagery. GE credit: SciEng | SE.—*W. (W.)* Amenta

(change in existing course—eff. fall 16)

174. Computer Vision (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 60; Mathematics 22A or Mathematics 67. Pass One open to Computer Science and Computer Science and Engineering Majors only. Computer vision is the study of enabling machines to "see" the visual world (e.g., understand images and videos). Explores several fundamental topics in the area, including feature detection, grouping and segmentation, and recognition. GE credit: SciEng | SE.—*S. (S.)* Lee

(new course—eff. winter 16)

175. Computer Graphics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 60; Mathematics 22A or Mathematics 67. Pass One open to Computer Science and Computer Science Engineering Majors only. Principles of computer graphics, with a focus on interactive systems. Current graphics hardware, elementary operations in two-and threedimensional space, geometric transformations, camera models and interaction, graphics system design, standard graphics APIs, individual projects. GE credit: SciEng | SE, VL.—*F, W. (F, W.)* Amenta, Hamann, Joy

(change in existing course—eff. fall 16)

177. Scientific Visualization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 175. Pass One open to Computer Science and Computer Science Engineering Majors only. Computer graphics techniques for generating images of various types of measured or computer-simulated data. Typical applications for these graphics techniques include study of air flows around car bodies, medical data, and molecular structures. GE credit: SciEng | SE, VL.—*W. (W.)* Hamann, Joy, Max, Staadt

(change in existing course—eff. fall 16)

178. Geometric Modeling (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 175. Pass One open to Computer Science and Computer Science Engineering Majors only. Interactive graphics techniques for defining and manipulating geometrical shapes used in computer animation, car body design, aircraft design, and architectural design. GE credit: SciEng | SE, VL.—*F. (F.)* Hamann, Joy, Max

(change in existing course—eff. fall 16)

188. Ethics in an Age of Technology (4)
Lecture/discussion—4 hours. Prerequisite: upper division standing. Pass One open to Computer Science and Computer Science Engineering Majors only. Foundations of ethics. Views of technology. Technology and human values. Costs and benefits of

technology. Character of technological change. Social context of work in computer science and engineering. GE credit: SocSci, Wrt | SS, SL, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

189A. Special Topics in Computer Science; Computer Science Theory (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Science Theory. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189B. Special Topics in Computer Science; Architecture (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Architecture. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189C. Special Topics in Computer Science; Programming Languages and Compilers (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Programming Languages and Compilers. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189D. Special Topics in Computer Science; Operating Systems (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Operating Systems. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189E. Special Topics in Computer Science; Software Engineering (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Software Engineering. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189F. Special Topics in Computer Science; Databases (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Databases. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189G. Special Topics in Computer Science; Artificial Intelligence (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Artificial Intelligence. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189H. Special Topics in Computer Science; Computer Graphics (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Graphics. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189I. Special Topics in Computer Science; Networks (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Networks. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189J. Special Topics in Computer Science; Computer-Aided Design (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer-Aided Design. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189K. Special Topics in Computer Science; Scientific Computing (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Scientific Computing. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189L. Special Topics in Computer Science; Computer Science (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Science. May be repeated for credit when topic differs. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189M. Special Topics in Computer Science; Computer Security (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Security. May be repeated for credit when topic differs. Offered irregularly.

(change in existing course—eff. summer 15)

189N. Special Topics in Computer Science; Bioinformatics and Computational Biology (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Bioinformatics and Computational Biology. May be repeated for credit when topic differs. Offered irregularly.

(change in existing course—eff. summer 15)

193A. Senior Design Project (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: course 160 recommended (may be concurrent) or consent of instructor. Pass One open to Computer Science Engineering Majors only; Pass Two open to Computer Science and Computer Science Engineering Majors only. Team design project involving analysis, design, implementation and evaluation of a large-scale problem involving computer and computational systems. The project is supervised by a faculty member. Students must take course 193A and 193B to receive credit. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE.—*W, S. (W, S.)* Davidson, Joy, Mohapatra

(change in existing course—eff. fall 16)

193B. Senior Design Project (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: IP grade in course 193A. Pass One open to Computer Science Engineering Majors only; Pass Two open to Computer Science and Computer Science Engineering Majors only. Team design project involving analysis, design, implementation and evaluation of a large-scale problem involving computer and computational systems. The project is supervised by a faculty member. Students must take course 193A and 193B to receive credit. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE.—*F, S. (F, S.)* Davidson, Joy

(change in existing course—eff. fall 16)

198F. Student Facilitated Course (1-4)
Prerequisite: consent of instructor. Student facilitated course intended primarily for upper division students. (P/NP grading only.) Offered irregularly.

(new course—eff. winter 16)

199FA. Student Facilitated Course Development (1-4)
Prerequisite: course 3 or University Writing Program 1; consent of instructor. STU FAC. Under the supervision of a faculty member, an undergraduate student plans and develops the course they will offer under 98F/198F. (P/N grading only.) Offered irregularly.

(new course—eff. winter 16)

199FB. Student Facilitated Teaching (1-4)
Prerequisite: course 199FA; consent of instructor. STU FAC. Under the supervision of a faculty member, an undergraduate student teaches a course under 98F/198F. (P/N grading only.) Offered irregularly.

(new course—eff. winter 16)

Graduate

201A. Advanced Computer Architecture (4)
Lecture—3 hours; term paper. Prerequisite: course 154B or Electrical and Computer Engineering 170; course 150. Pass 1 and Pass 2 open to Graduate Students in Computer Science only. Modern research topics and methods in computer architecture. Design implications of memory latency and bandwidth limitations. Performance enhancement via within-processor and between-processor parallelism. Term project involving student-proposed extensions/modifications of work in the research literature. Not open for credit to students who have completed course 250A.—*F. (F.)* Farrens

(change in existing course—eff. winter 16)

201B. High-Performance Uniprocessing (4)
Lecture—3 hours; term paper. Prerequisite: course 201A. Pass 1 and Pass 2 open to Graduate Students in Computer Science only. Maximizing uniprocessor performance. Barriers to high performance; solutions to the problems; historical and current processor designs. Not open for credit to students who have completed course 250B.—*W. (W.)* Farrens

(change in existing course—eff. spring 16)

203. Novel Computing Technologies (4)
Lecture—3 hours; project—1 hour. Prerequisite: course 201A. Pass One and Pass Two open to Graduate Students in Computer Science only. Novel computing technologies that could revolutionize computer architecture. Quantum computing technologies, including algorithms, devices, and fault tolerance. A survey of other unconventional technologies including nanoscale electronics, MEMS devices, biological devices, and nanotechnology. Offered in alternate years.—*W. (W.)* Chong

(change in existing course—eff. spring 16)

220. Theory of Computation (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 120, 122A. Pass 1 and Pass 2 open to Graduate Students in Computer Science only. Time and space complexity classes. Reductions, completeness, and the role of randomness. Logic and undecidability.—*S. (S.)* Rogaway

(change in existing course—eff. fall 15)

221. Computational Methods in Systems and Synthetic Biology (4)
Lecture—3 hours; discussion—1 hour. Pass 1 and Pass 2 open to Graduate Students in Computer Science only. Computational methods related to systems and synthetic biology. An overview of machine learning techniques related to the analysis of biological data, biological networks. Predictive modeling and simulation of biological systems. Topics on biological circuit construction.—*F. (F.)* Tagkopoulos

(change in existing course—eff. spring 16)

222A. Design and Analysis of Algorithms (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 122A; Statistics 31A recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. Techniques for designing

efficient algorithms, analyzing their complexity and applying these algorithms to a broad range of applications. Methods for recognizing and dealing with difficult problems.—*F. (F.)* Amenta, Franklin, Gusfield, Martel, Rogaway

(change in existing course—eff. spring 16)

222B. Advanced Design and Analysis of Algorithms (4)

Lecture—3 hours; project—1 hour. Prerequisite: course 222A. Pass One and Pass Two open to Graduate Students in Computer Science only. Advanced topics in complexity theory. Problem classification. The classes P, NP, P-space, co-NP. Matching and network flow algorithms. Matrix multiplication. Approximation algorithms.—*W. (W.)* Gusfield, Franklin, Martel, Rogaway

(change in existing course—eff. spring 16)

223. Parallel Algorithms (4)

Laboratory/discussion—3 hours; project—1 hour. Prerequisite: course 222A. Pass One and Pass Two open to Graduate Students in Computer Science only. Models of parallel computer systems including PRAMs, loosely coupled systems and interconnection networks. Parallel algorithms for classical problems and general techniques for their design and analysis. Proving lower bounds on parallel computation in several settings.—*W. (W.)* Martel

(change in existing course—eff. spring 16)

224. String Algorithms and Applications in Computational Biology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 122A. Pass One and Pass Two open to Graduate Students in Computer Science only. Algorithms that operate on strings. Pattern matching, sets of patterns, regular expression pattern matching, suffix trees and applications, inexact similarity, parametric sequence alignment, applications to DNA sequencing and protein database searching. Offered in alternate years—*F. (F.)* Gusfield

(change in existing course—eff. spring 16)

225. Graph Theory (3)

Lecture—3 hours. Prerequisite: graduate standing in electrical engineering or computer science or consent of instructor. Pass 1 and Pass 2 open to Graduate Students in Computer Science only. Fundamental concepts. Vector spaces and graphs. Planar graphs: Whitney's and Kuratowski's theorems. Topological parameters: packings and coverings. Connectivity: Menger's theorem. Hamilton graphs: Posa's and Chvatal's theorems. Graph factorization: Tutte's theorem. Graph coloring: Brooks; and Vizing's theorem.—*W. (W.)* Franklin

(change in existing course—eff. spring 16)

226. Computational Geometry (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 175, 222A. Pass One and Pass Two open to Graduate Students in Computer Science only. Mathematics of unstructured data. Algorithms for data structures such as Voronoi diagrams, oct-trees, and arrangements. Applications in computer graphics, concentrating on problems in three-dimensions. Offered in alternate years.—*S. (S.)* Amenta, Max

(change in existing course—eff. spring 16)

227. Modern Cryptography (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 220 or 222A. Pass One and Pass Two open to Graduate Students in Computer Science only. Modern cryptography as a discipline emphasizing formal definitions and proofs of security. One-way functions, pseudo-randomness, encryption, digital signatures, zero-knowledge, secure protocols.—*W. (W.)* Rogaway

(change in existing course—eff. spring 16)

228. Cryptography for E-Commerce (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 222A. Pass One and Pass Two open to Graduate Students in Computer Science only. Cryptographic primitives and protocols of importance to e-commerce, present and future, including content distribution mechanisms, payment mechanisms, pricing mechanisms, anonymity and privacy mechanisms, fair exchange mechanisms. Offered in alternate years.—*W. (W.)* Franklin

(change in existing course—eff. spring 16)

229. Advanced Computational Structural Bioinformatics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: graduate standing. Pass One and Pass Two open to Graduate Students in Computer Science only. Algorithmic problems in structural biology; protein structure classification; protein structure prediction (including comparative modeling and ab initio protein structure prediction); molecular simulations (molecular dynamics and Monte Carlo simulations).—*W. (W.)* Koehl

(change in existing course—eff. spring 16)

230. Applied Numerical Linear Algebra (4)

Laboratory/discussion—3 hours; discussion—1 hour. Prerequisite: course 130 or Engineering Applied Science 209 or Mathematics 167. Pass One and Pass Two open to Graduate Students in Computer Science only. Numerical linear algebra (NLA) with emphasis on applications in engineered systems; matrix factorizations; perturbation and rounding error analyses of fundamental NLA algorithms. Offered in alternate years.—*F. (F.)* Bai, Laub

(change in existing course—eff. spring 16)

231. Large-Scale Scientific Computation (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 130. Pass One and Pass Two open to Graduate Students in Computer Science only. Algorithms and techniques for large-scale scientific computation, including basics for high performance computing, iterative methods, discrete approximation, fast Fourier transform, Poisson solvers, particle methods, spectral graph partition and its applications. Offered in alternate years.—*W. (W.)* Bai, Laub

(change in existing course—eff. spring 16)

234. Computational Functional Genomics (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 124; graduate standing in Computer Science or Life Sciences. Pass One and Pass Two open to Graduate Students in Computer Science only. 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.—*W. (W.)* Filkov

(change in existing course—eff. spring 16)

235A. Computer and Information Security (4)

Lecture—3 hours; project. Prerequisite: course 150; course 152A recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. 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.—*F. (F.)* Chen

(change in existing course—eff. fall 16)

235B. Foundations of Computer and Information Security (4)

Lecture—3 hours; project. Prerequisite: course 235A; courses 120, 150 recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. 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.—*W. (W.)* Bishop

(change in existing course—eff. fall 16)

236. Computer Security: Intrusion Detection Based Approach (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 150; 153 recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. Concepts of intrusion detection, anomaly detection based on machine learning, signature-based detection using pattern matching, automated response to attacks using artificial intelligence planning, tracing intruders based on principal component analysis, security policy languages. Offered in alternate years.—*F. (F.)* Levitt

(change in existing course—eff. spring 16)

240. Programming Languages (4)

Lecture—3 hours; discussion—1 hour. Prerequisites: courses 140A; 142. Pass One and Pass Two open to Graduate Students in Computer Science only. Advanced topics in programming languages, including formal syntax and semantics, the relation between formal semantics and verification, an introduction to the lambda calculus. Additional topics will include language design principles, alternative programming languages, in-depth semantic theory and models of language implementation.—*W. (W.)* Pandey

(change in existing course—eff. spring 16)

242. Translation of Programming Languages (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 240. Pass One and Pass Two open to Graduate Students in Computer Science only. Lexical analysis, parsing, storage management, symbol table design, semantic analysis and code generation. LR, LALR grammars. Compiler-compilers.—*S. (S.)* Pandey

(change in existing course—eff. spring 16)

243. Code Generation and Optimization (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 201A or Engineering Electrical and Computer 270. Pass One and Pass Two open to Graduate Students in Computer Science only. 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.—*W. (W.)* Wilken

(change in existing course—eff. fall 16)

244. Principles of Concurrent Programming (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: courses 20; 150. Pass One and Pass Two open to Graduate Students in Computer Science only. Fundamental concepts and applications of concurrent programs; concurrent program verification and derivation; synchronization mechanisms in programming languages; distributed programming techniques; case studies of languages.—*F. (F.)* Olsson, Pandey

(change in existing course—eff. spring 16)

247. Concurrent Programming Languages (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 140A, 150. Pass One and Pass Two open to Graduate Students in Computer Science only. Language design parameters. Models of parallel machines. Load balancing. Scalability. Portability. Efficiency measures. Design and implementation techniques for several classes of concurrent programming languages (such as object-oriented, functional, logic, and constraint programming languages).—*F. (F.)* Olsson, Pandey

(change in existing course—eff. fall 16)

251. Operating Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 150. Pass One and Pass Two open to Graduate Students in Computer Science only. Models, design, implementation, performance evaluation in operating systems. Algorithms, internal architectures for single processor OS and distributed systems. Concurrency control, recovery, security. OS kernel-level programming. Special topics embedded systems, real-time system, device driver, NPU (Network Processor Unit).—*S. (S.)* Pandey, Wu
(change in existing course—eff. spring 16)

252. Computer Networks (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 152B. Pass 1 and Pass 2 open to Graduate Students in Computer Science only. Internet protocol based computer networks applications, transport, network layer protocols. High speed LAN technologies: Ethernet, Asynchronous Transfer Mode (ATM). Delay models in data networks: analysis of multiaccess techniques in polling, ring, random access networks. Multimedia applications requirements and design.—Ghosal, Mukherjee, Mohapatra
(change in existing course—eff. spring 16)

253. Network Theory and Applications (4)
Lecture/discussion—4 hours. Prerequisite: Mathematics 22A; Mathematics 22B; Statistics 13 or 120; experience with computer software; or consent of instructor. Develops the mathematical theory underlying growth, structure and function of networks with applications to physical, social, biological and engineered systems. Topics include network growth, resilience, epidemiology, phase transitions, software and algorithms, routing and search control, cascading failures. (Same course as Mechanical & Aeronautical Engineering 253.) Offered in alternate years.—(III). D'Souza
(new course—eff. fall 15)

256. Performance Evaluation (4)
Lecture—3 hours; project—1 hour. Prerequisite: courses 20, 152A, 154A-B or Electrical and Computer Engineering 170, Statistics 131A; course 150 recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. Use of simulation and queueing theory in computer and communication system design. Applications to processor scheduling, memory hierarchies; I/O systems; packet and circuit switched networks; fault-tolerance; computer networks applications. Not open for credit to students who have completed course 256A.—*F, W. (F, W.)* Ghosal, Matloff, Mohapatra, Mukherjee
(change in existing course—eff. fall 16)

257. Mobile and Wireless Networks (4)
Lecture—3 hours; independent study. Prerequisite: course 252. Pass One and Pass Two open to Graduate Students in Computer Science only. Fundamental techniques in design of second generation wireless networks: cellular network and protocols, medium access techniques, handoff control, signaling and mobility management, wireless data works, Internet mobility and Personal Communication Services (PCS). Third generation wideband systems, novel technologies, adhoc networks. Offered in alternate years.—*F. (F.)* Ghosal, Mohapatra, Mukherjee
(change in existing course—eff. fall 16)

258. Networking Architecture and Resource Management (4)
Lecture—3 hours; project. Prerequisite: course 152A or Electrical & Computer Engineering 173A. Pass One and Pass Two open to Graduate Students in Computer Science and Electrical and Computer Engineering only. Concepts and design principles of computer networks. Network architectures, protocol mechanisms and implementation principles (transport/network/data-link layers), network algorithms, router mechanisms, design requirements of applications, network simulation, modeling and performance analysis. (Same course as Electrical & Computer Engineering 273.) Offered in alternate years.—*W. (W.)* Chuah, Mohapatra
(change in existing course—eff. fall 16)

259. Optical Networks (4)
Lecture—3 hours; independent study. Prerequisite: course 252. Pass One and Pass Two open to Graduate Students in Computer Science only. Optical networks. Enabling technologies. Multiplexing techniques. WDM. Broadcast networks. Wavelength-routed networks. Network architectures. Protocols. Network algorithms. Device-network interface. Optimization problems.—*F. (F.)* Ghosal, Mukherjee
(change in existing course—eff. fall 16)

260. Software Engineering (4)
Lecture—3 hours; project. Prerequisite: course 142; course 160 recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. Advanced techniques for domain-specific software reuse.—*F. (F.)* Devanbu
(change in existing course—eff. fall 16)

262. Formal Specification (3)
Lecture—3 hours. Prerequisite: course 261. Pass One and Pass Two open to Graduate Students in Computer Science only. Formal specification of modules, and its relationship to top-down programming development and verification. Abstract data types, together with methods for specifying them. Implementations and proofs of implementation. Using specifications to reason about programs. Parameterized types. Constructing good formal specifications. Offered in alternate years.—*W. (W.)* Levitt
(change in existing course—eff. fall 16)

265. Distributed Database Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 165A. Pass One and Pass Two open to Graduate Students in Computer Science only. Concepts of distributed database systems and architectures, distributed database design, distributed query processing and optimization, transaction management and concurrency control, heterogeneous and multidatabase systems.—*F, S. F, (S.)* Gertz, Ludaescher
(change in existing course—eff. fall 16)

267. Wide-Area Distributed Information Systems (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 152B or 165A. Pass One and Pass Two open to Graduate Students in Computer Science only. Wide-area distributed information systems, data broadcast, multicast, publish/subscribe, service differentiation, information retrieval, Web caching. Offered in alternate years.—*W. (W.)* Askoy
(change in existing course—eff. fall 16)

270. Artificial Intelligence (3)
Lecture—3 hours. Prerequisite: courses 140A, 172. Pass One and Pass Two open to Graduate Students in Computer Science only. Concepts and techniques underlying the design and implementation of models of human performance on intelligent tasks. Representation of high-level knowledge structures. Models of memory and inference. Natural language and story understanding. Common sense planning and problem solving.—*W. (W.)* Levitt
(change in existing course—eff. fall 16)

271. Machine Learning and Discovery (4)
Lecture—3 hours; project—1 hour. Prerequisite: course 170. Pass One and Pass Two open to Graduate Students in Computer Science only. Artificial intelligence techniques for knowledge acquisition by computers. Fundamental problems in machine learning and discovery. Systems that learn from examples, analogies, and solved problems. Systems that discover numerical laws and qualitative relationships. Projects centering on implementation and evaluation.—*S. (S.)* Levitt, Vemuri
(change in existing course—eff. fall 16)

272. Information Visualization (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 163 or 175 recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. Advanced topics in information visualization: perceptually effective display methods, color design and selection, interaction models and techniques, focus-context techniques, distortion methods, large graph visualization techniques, visual data mining methods, and evaluation methods.—*W. (W.)* Ma
(change in existing course—eff. fall 16)

275A. Advanced Computer Graphics (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 175 or 177 or 178. Pass One and Pass Two open to Graduate Students in Computer Science only. Advanced topics in computer graphics. Hidden surface models, rendering of various surface types, subdivision methods, shading techniques, anti-aliasing, modeling techniques.—*W. (W.)* Joy, Hamann, Ma, Staadt
(change in existing course—eff. fall 16)

275B. Advanced Computer Graphics (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 175 or 177 or 178. Pass 1 and Pass 2 open to Graduate Students in Computer Science only. Advanced topics in computer graphics and geometric modeling. Topics taken from advanced research papers in computer graphics, image synthesis, visualization and geometric modeling. Discussion of current research in the field. Offered in alternate years.—*W. (W.)* Joy, Hamann, Ma, Staadt
(change in existing course—eff. spring 16)

276. Advanced Volume Visualization (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 177. Pass One and Pass Two open to Graduate Students in Computer Science only. Applications, available tools and techniques, the challenges confronting the field of volume visualization, and some of the advanced topics in the field. Primary emphasis on advanced software and hardware techniques to achieve interactive visualization.—*S. (S.)* Hamann, Joy, Ma, Max
(change in existing course—eff. fall 16)

278. Computer-Aided Geometric Design (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 175. Mathematical techniques for the definition and manipulation of curves and surfaces. Bezier curves and surfaces, B-spline curves and surfaces, subdivision surfaces, wavelets. Integration into various computer graphics rendering models, visualization systems and computer-aided design systems. Offered in alternate years.—*S. (S.)* Hamann, Joy
(change in existing course—eff. fall 16)

279. Computer Animation (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 175 or 275. Pass One and Pass Two open to Graduate Students in Computer Science only. Course surveys current research and fundamental techniques that lie behind character animation tools. Emphasis on improving expressive aspects of movement and how physics, motion capture data, the arts and psychology literature, and interactive techniques can be used towards this goal. Offered in alternate years.—*W. (W.)* Neff

280. Virtual Reality Technology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 175. Pass One and Pass Two open to Graduate Students in Computer Science only. Fundamentals and principles of Virtual Reality (VR) technology. Potential and limits for its useful application. Developing a complete virtual reality application. Offered in alternate years.—*S. (S.)* Joy
(change in existing course—eff. spring 16)

289A. Special Topics in Computer Science; Computer Science Theory (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Science Theory. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289B. Special Topics in Computer Science; Architecture (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Architecture. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289C. Special Topics in Computer Science; Programming Languages and Compilers (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Programming Languages and Compilers. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289D. Special Topics in Computer Science; Operating Systems (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Operating Systems. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289E. Special Topics in Computer Science; Software Engineering (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Software Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289F. Special Topics in Computer Science; Databases (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Databases. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289G. Special Topics in Computer Science; Artificial Intelligence (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Artificial Intelligence. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289H. Special Topics in Computer Science; Computer Graphics (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Graphics. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289I. Special Topics in Computer Science; Networks (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Networks. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289J. Special Topics in Computer Science; Computer-Aided Design (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer-Aided Design. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289K. Special Topics in Computer Science; Scientific Computing (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Scientific Computing. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289L. Special Topics in Computer Science; Computer Science (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Science. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289M. Special Topics in Computer Science; Security (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Security. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289N. Special Topics in Bioinformatics and Computational Biology (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Bioinformatics and Computational Biology. May be repeated for credit when topic differs. Offered irregularly.
(change in existing course—eff. summer 15)

293A. Research in Computer Science (1)
Lecture—1 hour. Prerequisite: graduate standing in computer science. Pass One and Pass Two open to Graduate Students in Computer Science only. Study of research topics in computer science, Ph.D. 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.)—*F. (F.)* Martel
(change in existing course—eff. fall 16)

293B. Research in Computer Science (1)
Lecture—1 hour. Prerequisite: graduate standing in computer science; graduate standing in computer science; 293A recommended. Pass One and Pass Two open to Graduate Students in Computer Science only. Study of Ph.D. 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.)—*W. (W.)* Martel
(change in existing course—eff. fall 16)

Professional

390. The Teaching of Computer Science (1)
Discussion—1 hour. Prerequisite: meet qualifications for teaching assistant and/or associate-in in Pass One and Pass Two open to Graduate Students in Computer Science only. Computer Science Computer Science. Participation as a teaching assistant or associate-in in a designated engineering course. Methods of leading discussion groups or laboratory sections, writing and grading quizzes, use of laboratory equipment, and grading laboratory reports. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

Engineering: Electrical and Computer

New and changed courses in Engineering: Electrical and Computer (EEC)

Lower Division

10. Introduction to Digital and Analog Systems (3)
Lecture—1 hour; laboratory—3 hours. Prerequisite: Computer Science Engineering 30, and Physics 9C or 9HD (may be taken concurrently); consent of instructor. Open to Electrical and Computer Engineering sophomores. Interactive and practical introduction to fundamental concepts of electrical and computer engineering by implementing electronic systems, which can be digitally controlled and interrogated, with a programmable microcontroller with the ability to program the electrical connections between analog and digital components. GE credit: SciEng | SE.—*W, S. (W, S.)*
(change in existing course—eff. winter 15)

89A. Special Topics in Electromagnetics (1-5)
Prerequisite: consent of instructor. Special topic in Electromagnetics. May be repeated for credit if topic differs. Offered irregularly. GE credit: SciEng | SE.
(change in existing course—eff. summer 15)

89B. Special Topics in Physical Electronics (1-5)
Prerequisite: consent of instructor. Special topic in Physical Electronics. May be repeated for credit if topic differs. Offered irregularly. GE credit: SciEng | SE.
(change in existing course—eff. summer 15)

89C. Special Topics in Active and Passive Circuits (1-5)
Prerequisite: consent of instructor. Special topic in Active and Passive Circuits. May be repeated for credit if topic differs. Offered irregularly. GE credit: SciEng | SE.
(change in existing course—eff. summer 15)

89D. Special Topics in Signals and Systems (1-5)
Prerequisite: consent of instructor. Special topics in Signals and Systems. May be repeated for credit if topic differs. Offered irregularly. GE credit: SciEng | SE.
(change in existing course—eff. summer 15)

89E. Special Topics in Computer Systems and Software (1-5)
Prerequisite: consent of instructor. Special topics in Computer Systems and Software. May be repeated for credit if topic differs. Offered irregularly. GE credit: SciEng | SE.
(change in existing course—eff. summer 15)

89F. Special Topics in Digital System Design (1-5)
Prerequisite: consent of instructor. Special topics in Digital System Design. May be repeated for credit if topic differs. Offered irregularly. GE credit: SciEng | SE.
(change in existing course—eff. summer 15)

Upper Division

100. Circuits II (5)
Laboratory—3 hours; lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 17, C- or better. Restricted to the following majors: Electrical Engineering, Computer Engineering, Computer Science & Engineering, Electronic Materials Engineering, Electrical Engineering/Materials Science, Optical Science & Engineering, Biomedical Engineering,

Applied Physics, Electrical & Computer Engineering graduate students. 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. Students who have completed Engineering 100 may receive 3.5 units of credit. GE credit: SciEng | QL, SE, VL.—*F. W. (F, W.)* Abdel-Ghaffar, Chang, Levy, Yankelevich

(change in existing course—eff. fall 14)

130A. Electromagnetics I (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21D; Physics 9C or 9HD, 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. GE credit: SciEng | SE.—*F, W. (F, W.)*

(change in existing course—eff. spring 16)

132A. RF and Microwaves in Wireless Communication (5)

Lecture—3 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: course 110A, 130B. Study of Radio Frequency and Microwave theory and practice for design of wireless electronic systems. Transmission lines, microwave integrated circuits, circuit analyis of electromagnetic energy transfer systems, the scattering parameters. GE credit: SciEng | SE.—*F. (F.)*

(change in existing course—eff. winter 15)

136A. Electronic Design Project (3)

Workshop—1 hour; laboratory—6 hours. Prerequisite: Computer Science Engineering 30; courses 100; 180A; and either 110B, 157A (may be taken concurrently), or 180B. Pass One restricted to major. Optical, electronic and communication-engineering design of an opto-electronic system operating under performance and economic constraints. Measurement techniques will be designed and implemented, and the system will be characterized. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE.—*F. (F.)*

(change in existing course—eff. fall 15)

140A. Principles of Device Physics I (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Engineering 17; Physics 9D or 9HE. Semiconductor device fundamentals, equilibrium and non-equilibrium statistical mechanics, conductivity, diffusion, electrons and holes, p-n and Schottky junctions, first-order metal-oxide-semiconductor (MOS) field effect transistors, bipolar junction transistor fundamentals. GE credit: SE, SL.—*F, W. (F, W.)*

(change in existing course—eff. spring 16)

145. Electronic Materials (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 140A. Electronic and physical properties of materials used in electronics, ICs, optoelectronics and MEMS. Semiconductors, dielectrics, metals, optical materials, organic semiconductive, optical and nonlinear properties, as well as their synthesis and deposition methods. GE credit: SciEng | SE.—*W. (W.)*

(change in existing course—eff. fall 15)

146B. Advanced Integrated Circuits Fabrication (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: course 146A. Restricted to Electrical, Computer, and Electrical/Materials Science majors and Electrical Engineering graduate students; non-majors accommodated when space available. Fabrication processes for CMOS VLSI. Laboratory projects examine deposition of thin films, ion implantation, process simulation, anisotropic plasma etching, sputter metallization, and C-V analysis. Topics include isolation, projection alignment, epilayer growth, thin gate oxidation, and rapid thermal annealing. GE credit: SciEng | SE.—*W. (W.)*

(change in existing course—eff. fall 14)

147. Microelectromechanical Systems (4)

(cancelled course—eff. spring 16)

161. Probabilistic Analysis of Electrical & Computer Systems (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100; Engineering 6 or Mathematics 22AL. 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. GE credit: SciEng | SE.—*F, S. (F, S.)*

(change in existing course—eff. spring 16)

170. Introduction to Computer Architecture (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 180A, Computer Science Engineering 30. Introduces basic aspects of computer architecture, including computer performance measurement, instruction set design, computer arithmetic, pipelined/non-pipelined implementation, and memory hierarchies (cache and virtual memory). Presents a simplified Reduced Instruction Set Computer using logic design methods from the prerequisite course. GE credit: SciEng | SE.—*F. (F.)*

(change in existing course—eff. winter 15)

172. Embedded Systems (4)

Lecture—2 hours; laboratory—6 hours. Prerequisite: course 100; and course 170 or Computer Science Engineering 154A. Introduction to embedded-system hardware and software. Topics include: embedded processor and memory architecture; input/output hardware and software, including interrupts and direct memory access; interfacing with sensors and actuators; wired and wireless embedded networking. GE credit: SciEng | SE.—*W, S. (W, S.)*

(change in existing course—eff. winter 16)

189A. Special Topics in Electrical Engineering and Computer Science; Computer Science (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topic in Computer Science. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189B. Special Topics in Electrical Engineering and Computer Science; Programming Systems (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Programming Systems. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189C. Special Topics in Electrical Engineering and Computer Science; Digital Systems (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Digital Systems. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189D. Special Topics in Electrical Engineering and Computer Science; Communications (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Communications. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189E. Special Topics in Electrical Engineering and Computer Science; Signal Transmission (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Signal Transmission. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189F. Special Topics in Electrical Engineering and Computer Science; Digital Communication (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Digital Communication. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189G. Special Topics in Electrical Engineering and Computer Science; Control Systems (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Control Systems. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189H. Special Topics in Electrical Engineering and Computer Science; Robotics (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Robotics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189I. Special Topics in Electrical Engineering and Computer Science; Signal Processing (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Signal Processing. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189J. Special Topics in Electrical Engineering and Computer Science; Image Processing (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Image Processing. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189K. Special Topics in Electrical Engineering and Computer Science; High-Frequency Phenomena and Devices (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in High-Frequency Phenomena and Devices. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189L. Special Topics in Electrical Engineering and Computer Science; Solid-State Devices and Physical Electronics (1-5)

Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Solid-State Devices and Physical Electronics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189M. Special Topics in Electrical Engineering and Computer Science; Systems Theory (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Systems Theory. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189N. Special Topics in Electrical Engineering and Computer Science; Active and Passive Circuits (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Active and Passive Circuits. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189O. Special Topics in Electrical Engineering and Computer Science; Integrated Circuits (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Integrated Circuits. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189P. Special Topics in Electrical Engineering and Computer Science; Computer Software (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Computer Software. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189Q. Special Topics in Electrical Engineering and Computer Science; Computer Engineering (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Computer Engineering. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189R. Special Topics in Electrical Engineering and Computer Science; Microprocessing (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Microprocessing. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189S. Special Topics in Electrical Engineering and Computer Science; Electronics (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Electronics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189T. Special Topics in Electrical Engineering and Computer Science; Electromagnetics (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Electromagnetics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189U. Special Topics in Electrical Engineering and Computer Science; Opto-Electronics (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Opto-Electronics. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

189V. Special Topics in Electrical Engineering and Computer Science; Computer Networks (1-5)
Lecture; laboratory; lecture/laboratory. Prerequisite: consent of instructor. Special topics in Computer Networks. May be repeated for credit when topic differs. Offered irregularly. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

195A. Autonomous Vehicle Design Project (3)
Workshop—1 hour; laboratory—6 hours. Prerequisite: Computer Science and Engineering 30; course 180A; and either 110B, 157A (may be taken concurrently), 180B, or 60. Pass One restricted to major. Design and construct an autonomous race car. 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.) GE credit: SciEng | SE.—*F. (F.)*

(change in existing course—eff. fall 15)

Graduate

210. MOS Analog Circuit Design (3)
Lecture—3 hours. Prerequisite: course 140A and 110B. Analysis and design of MOS amplifiers, bias circuits, voltage references and other analog circuits. Stability and compensation of feedback amplifiers. Introduction to noise analysis in MOS circuits.—*F. (F.)*

(change in existing course—eff. winter 16)

217. Biomedical Electronics (4)
Lecture—3 hours; project. Prerequisite: course 210 or consent of instructor; special consideration and accommodation will be made for biomedical or signal processing majors who have not taken 210. Circuit design for medical applications including weak inversion amplifiers; integrated ULF filters; chopper stabilization; electrochemical interfaces; neurostimulation pulse generation; wireless powering of and communication with implantable devices. Electrophysiological signaling and aspects of signal processing for biomedical systems.—*S. (S.)*

(change in existing course—eff. winter 15)

229. RF-MEMS and Adaptive Wireless Frontends (4)
Lecture—3 hours; discussion—3 hours. Prerequisite: course 130A. Focuses on the modeling, design, fabrication, and characterization of RF-MEMS while providing a thorough introduction to the technology with an emphasis on how it will benefit the design of adaptive RF/microwave wireless systems. Offered in alternate years.—*S.* Liu

(new course—eff. fall 15)

231A. Plasma Physics and Controlled Fusion (3)
Lecture—3 hours. Prerequisite: consent of instructor. Equilibrium plasma properties; single particle motion; fluid equations; waves and instabilities in a fluid plasma; plasma kinetic theory and transport coefficients; linear and nonlinear Vlasov theory; fluctuations, correlations and radiation; inertial and magnetic confinement systems in controlled fusion.—*F, W, S. (F, W, S.)* Hwang, Luhmann

(new course—eff. spring 15)

231B. Plasma Physics and Controlled Fusion (3)
Lecture—3 hours. Prerequisite: course 231A; consent of instructor. Equilibrium plasma properties; single particle motion; fluid equations; waves and instabilities in a fluid plasma; plasma kinetic theory and transport coefficients; linear and nonlinear Vlasov theory; fluctuations, correlations and radiation; inertial and magnetic confinement systems in controlled fusion.—*F, W, S. (F, W, S.)* Hwang, Luhmann

(new course—eff. spring 15)

231C. Plasma Physics and Controlled Fusion (3)
Lecture—3 hours. Prerequisite: course 231B; consent of instructor. Equilibrium plasma properties; single particle motion; fluid equations; waves and instabilities in a fluid plasma; plasma kinetic theory and transport coefficients; linear and nonlinear Vlasov theory; fluctuations, correlations and radiation; inertial and magnetic confinement systems in controlled fusion.—*F, W, S. (F, W, S.)* Hwang, Luhmann

(new course—eff. spring 15)

234A. Physics and Technology of Microwave Vacuum Electron Beam Devices I (4)
Lecture—4 hours. Prerequisite: B.S. degree in physics or electrical engineering or the equivalent background. Physics and technology of electron beam emissions, flow and transport, electron gun design, space charge waves and klystrons. Offered in alternate years.—*F.*

(new course—eff. fall 15)

234B. Physics and Technology of Microwave Vacuum Electron Beam Devices II (4)
Lecture—4 hours. Prerequisite: course 234B. Theory and experimental design of traveling wave tubes, backward wave oscillators, and extended interaction oscillators. Offered in alternate years.—*F, W, S. (F, W, S.)* Luhmann

(new course—eff. spring 16)

234C. Physics and Technology of Microwave Vacuum Electron Beam Devices III (4)
Lecture—4 hours. Prerequisite: course 234A. Physics and technology of gyrotrons, gyro-amplifiers, free electron lasers, magnetrons, crossfield amplifiers and relativistic devices. Offered in alternate years.—*F, W, S. (F, W, S.)* Luhmann

(new course—eff. fall 15)

241. Introduction to Molecular Electronics (4)
Lecture/discussion—4 hours. Prerequisite: consent of instructor. Examines molecules for electronic devices and sensors. Course covers: electronic states of molecules, charge transport in nanoscale systems, and fabrication and measurement of molecular-scale devices. Specific Topics: Hartree-Fock and Density Functional Theory, Landauer formalism, coulomb blockade, tunneling and hopping transport. Offered in alternate years.—*W. (W.)* Hihath

(change in existing course—eff. spring 16)

245. Micro- and Nano-Technology in Life Sciences (4)
Lecture/discussion—4 hours. Prerequisite: graduate standing or consent of instructor. Survey of biomedical device design from the engineering and biological perspectives; micro-/nano-fabrication and characterization techniques; surface chemistry and mass transfer; essential biological processes and models; proposal development skills to merge aforementioned themes in a multidisciplinary project. (Same course as Chemical Engineering 245 and Materials Science and Engineering 245.)—*S. (S.)* Seker

(change in existing course—eff. winter 16)

248. Photovoltaics and Solar Cells (3)
Lecture—3 hours. Prerequisite: course 140B or equivalent, or consent of instructor. Physics and application of photovoltaics and solar cells, including design, fabrication technology, and grid incorporation. Mono and microcrystalline silicon devices; thin-film technologies, heterojunction and organic-semiconductor technologies. Collectors, electrical inverters and infrastructure issues. Challenges and concerns. (Same course as Engineering-Material Science 246.) Offered in alternate years.—*W.* Hunt, Moule
(new course—eff. fall 14)

272. High-Performance Computer Architecture (4)
Lecture—4 hours. Prerequisite: course 270 or Computer Science Engineering 201A. Designing and analysis of high performance computer architecture with emphasis on vector processing, on-chip interconnect networks, chip-level multiprocessors, memory and storage subsystem design and impact of technological advances on computer architecture.—*S. (S.)* Akella, Farrens
(change in existing course—eff. spring 15)

273. Networking Architecture and Resource Management (4)
Lecture—3 hours; project. Prerequisite: course 173A or Computer Science and Engineering 152A. Pass One and Pass Two open to Graduate Students in Computer Science and Electrical and Computer Engineering only. Concepts and design principles of computer networks. Network architectures, protocol mechanisms and implementation principles (transport/network/data-link layers), network algorithms, router mechanisms, design requirements of applications, network simulation, modeling and performance analysis. (Same course as Computer Science Engineering 258.)—*W. (W.)* Chuah, Mohaptra
(change in existing course—eff. fall 16)

289A. Special Topics in Electrical and Computer Engineering; Computer Science (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Computer Science. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289B. Special Topics in Electrical and Computer Engineering; Programming Systems (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Programming Systems. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289C. Special Topics in Electrical and Computer Engineering; Digital Systems (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Digital Systems. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289D. Special Topics in Electrical and Computer Engineering; Digital Systems (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Digital Systems. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289E. Special Topics in Electrical and Computer Engineering; Signal Transmission (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Signal Transmission. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289F. Special Topics in Electrical and Computer Engineering; Digital Communication (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Digital Communication. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289G. Special Topics in Electrical and Computer Engineering; Control Systems (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Control Systems. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289H. Special Topics in Electrical and Computer Engineering; Robotics (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Robotics. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289I. Special Topics in Electrical and Computer Engineering; Signal Processing (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Signal Processing. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289J. Special Topics in Electrical and Computer Engineering; Image Processing (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Image Processing. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289K. Special Topics in Electrical and Computer Engineering; High Frequency Phenomena and Devices (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in High Frequency Phenomena and Devices. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289L. Special Topics in Electrical and Computer Engineering; Solid-State Devices and Physical Electronics (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Solid-State Devices and Physical Electronics. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289M. Special Topics in Electrical and Computer Engineering; Systems Theory (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Systems Theory. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289N. Special Topics in Electrical and Computer Engineering; Active and Passive Circuits (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Active and Passive Circuits. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289O. Special Topics in Electrical and Computer Engineering; Integrated Circuits (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Integrated Circuits. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289P. Special Topics in Electrical and Computer Engineering; Computer Software (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Computer Software. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289Q. Special Topics in Electrical and Computer Engineering; Computer Engineering (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Computer Engineering. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289R. Special Topics in Electrical and Computer Engineering; Microprocessing (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Microprocessing. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289S. Special Topics in Electrical and Computer Engineering; Electronics (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Electronics. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289T. Special Topics in Electrical and Computer Engineering; Electromagnetics (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Electromagnetics. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289U. Special Topics in Electrical and Computer Engineering; Optoelectronics (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Optoelectronics. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

289V. Special Topics in Electrical and Computer Engineering; Computer Networks (1-5)
Lecture/laboratory—1-5 units. Prerequisite: consent of instructor. Special topic in Computer Networks. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Engineering: Materials Science and Engineering

New and changed courses in Materials Science and Engineering (EMS)

Lower Division

2. Materials Marvels (2)
Lecture/discussion—2 hours. Restricted to lower division students only. Role of materials in technological societies and their impact on our way of living. Exploration of how materials are extracted from the earth, processed, and shaped into products, including discussion of disposal and re-use of materials. GE credit: SciEng | SE.—*F. W. (F, W.)* Castro, Risbud

(change in existing course—eff. winter 16)

Graduate

245. Micro- and Nano-Technology in Life Sciences (4)
Lecture/discussion—4 hours. Prerequisite: graduate standing or consent of instructor. Survey of biomedical device design from the engineering and biological perspectives; micro-/nano-fabrication and characterization techniques; surface chemistry and mass transfer; essential biological processes and models; proposal development skills to merge aforementioned themes in a multidisciplinary project. (Same course as Electrical and Computer Engineering 245 and Chemical Engineering 245.)—*S. (S.)* Seker

(change in existing course—eff. winter 16)

246. Photovoltaics and Solar Cells (3)
Lecture—3 hours. Prerequisite: Electrical & Computer Engineering 140B or equivalent, or permission of instructor. Physics and application of photovoltaics and solar cells, including design, fabrication technology, and grid incorporation. Mono and microcrystalline silicon devices; thin-film technologies, heterojunction and organic-semiconductor technologies. Collectors, electrical inverters and infrastructure issues. Challenges and concerns. (Same course as Electrical & Computer Engineering 248.) Offered in alternate years.—*W.* Hunt, Moule

(new course—eff. fall 14)

250A. Special Topics in Polymer and Fiber Science (3)
Lecture—3 hours. Prerequisite: course 147 or consent of instructor. Selected topics of current interest in polymer and fiber sciences. Topics will vary each time the course is offered. (Same course as Fiber and Polymer Science 250A.)—*S. (S.)*

(change in existing course—eff. summer 15)

250B. Special Topics in Polymer and Fiber Science (3)
Lecture—3 hours. Prerequisite: course 147 or consent of instructor. Selected topics of current interest in polymer and fiber sciences. Topics will vary each time the course is offered. (Same course as Fiber and Polymer Science 250B.)—*S. (S.)*

(change in existing course—eff. summer 15)

250C. Special Topics in Polymer and Fiber Science (3)
Lecture—3 hours. Prerequisite: course 147 or consent of instructor. Selected topics of current interest in polymer and fiber sciences. Topics will vary each time the course is offered. (Same course as Fiber and Polymer Science 250C.) Offered irregularly.—*W. (W.)*

(change in existing course—eff. summer 15)

250D. Special Topics in Polymer and Fiber Science (3)
Lecture—3 hours. Prerequisite: course 147 or consent of instructor. Selected topics of current interest in polymer and fiber sciences. Topics will vary each time the course is offered. (Same course as Fiber and Polymer Science 250D.) Offered irregularly.—*W. (W.)*

(change in existing course—eff. summer 15)

250E. Special Topics in Polymer and Fiber Science (3)
Lecture—3 hours. Prerequisite: course 147 or consent of instructor. Selected topics of current interest in polymer and fiber sciences. Topics will vary each time the course is offered. (Same course as Fiber and Polymer Science 250E.)—*F. (F.)*

(change in existing course—eff. summer 15)

250F. Special Topics in Polymer and Fiber Science (3)
Lecture—3 hours. Prerequisite: course 147 or consent of instructor. Selected topics of current interest in polymer and fiber sciences. Topics will vary each time the course is offered. (Same course as Fiber and Polymer Science 250F.) Offered irregularly.—*W. (W.)*

(change in existing course—eff. summer 15)

289A. Special Topics in Materials Science; Electronic Materials (1-5)
Lecture/laboratory. Prerequisite: consent of instructor. Special topics in Electronic Materials. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289B. Special Topics in Materials Science; Electronic Materials (1-5)
Lecture/laboratory. Prerequisite: consent of instructor. Special topics in Electronic Materials. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289C. Special Topics in Materials Science; Physics and Chemistry of Materials (1-5)
Lecture/laboratory. Prerequisite: consent of instructor. Special topics in Physics and Chemistry of Materials. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289D. Special Topics in Materials Science; Materials Processing (1-5)
Lecture/laboratory. Prerequisite: consent of instructor. Special topics in Materials Processing. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289E. Special Topics in Materials Science; Materials Science and Forensics (1-5)
Lecture/laboratory. Prerequisite: consent of instructor. Special topics in Materials Science and Forensics. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289F. Special Topics in Materials Science; Biomaterials (1-5)
Lecture/laboratory. Prerequisite: consent of instructor. Special topics in Biomaterials. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289G. Special Topics in Materials Science; Surface Chemistry of Metal Oxides (1-5)
Lecture/laboratory. Prerequisite: consent of instructor. Special topics in Surface Chemistry of Metal Oxides. May be repeated for credit when topic differs. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

Professional

390. The Teaching of Materials Science (1)
Discussion—1 hour. Prerequisite: meet qualifications for teaching assistant and/or associate-in in materials science and engineering. Participation as a teaching assistant or associate-in in a designated engineering course. Methods of leading discussion groups or laboratory sections, writing and grading quizzes, use of laboratory equipment, and grading laboratory reports. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

Engineering: Mechanical

New and changed courses in Engineering: Mechanical (EME)

Upper Division

107A. Experimental Methods (3)
(cancelled course—eff. fall 16)

107B. Experimental Methods (3)
(cancelled course—eff. fall 16)

108. Measurement Systems (4)
Lecture—2 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: C- or better in Engineering 100 and Engineering 102; Engineering 104 recommended. Restricted to Mechanical Engineering, Aerospace Science & Engineering and Mechanical/Materials Science & Engineering. Stability of flexible systems. Introduction to fluid-structure interaction. Mechanical vibrations. Experiments to illustrate principles of mechanical systems. Theory of measurements; Signal analysis; Demonstration of basic sensors for mechanical systems; Experimental project design; Experiments involving voltage measurement; strain gauges, dynamic systems of 0th, 1st and 2nd order. Three units of credit for students who have previously taken Biomedical Engineering 111; two units of credit for students who have previously taken Biological Systems Engineering 165; one unit of credit allowed for students who have completed course 107B (former version of course 108). GE credit: SciEng | QL, SE, VL, WE.—*F, W, S. (F, W, S.)* Erickson, Hill, Horsley, La Saponara

(new course—eff. fall 16)

109. Experimental Methods for Thermal Fluids (4)
Lecture—2 hours; laboratory—1.5 hours; discussion—1 hour; extensive writing. Prerequisite: grade of C- or better in course 106. Restricted to Mechanical Engineering, Aerospace Science & Engineering and Mechanical/Materials Science Engineering Majors. Experiments to illustrate principles of thermal-fluid systems. Statistical and uncertainty analysis of data; statistical design of experiments; measurement devices; experiments involving thermodynamic cycles, combustion, compressible and incompressible flows. Not open for credit to students who have completed Chemical Engineering 150A. GE credit: SciEng | QL, SE, VL.—*F, W, S. (F, W, S.)* Aldredge, Davis, Delplanque, Hwang, Kennedy, Robinson

(new course—eff. fall 16)

139. Stability of Flexible Dynamic Systems (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: grade of C- or better in Engineering 102 and 103. Stability of flexible systems. Introduction to fluid-structure interaction. Mechanical vibrations. Design of mechanical subsystems or systems under constraints. Dynamic instabilities. Flutter. Control effectiveness. Energy extraction from fluid-structure interactions. Design applications to aerospace, mechanical and biomedical systems. No credit for students who have completed Aerospace Science and Engineering 139. GE credit: SciEng | SE.—*S. (S.)* Sarigul-Klijn
(new course—eff. spring 16)

164. Introduction to Heating, Ventilation and Air Conditioning Systems (4)
Lecture—4 hours. Prerequisite: C- or better in both course 106 and 165. Introduction to basic mechanisms and processes associated with heating, ventilation and air conditioning (HVAC), including equipment and systems used for HVAC in residential and commercial buildings. Only 2 units for students who have completed Civil and Environmental Engineering 125. Offered in alternate years. GE credit: SciEng | SE.—*W. (W.)* Modera
(change in existing course—eff. spring 16)

189A. Selected Topics in Mechanical Engineering; Energy Systems and the Environment (1-5)
Prerequisite: consent of instructor. Directed group study in Energy Systems and the Environment. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189B. Selected Topics in Mechanical Engineering; Engineering Controls (1-5)
Prerequisite: consent of instructor. Directed group study in Engineering Controls. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189C. Selected Topics in Mechanical Engineering; Engineering Dynamics (1-5)
Prerequisite: consent of instructor. Directed group study in Engineering Dynamics. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189D. Selected Topics in Mechanical Engineering; Biomechanics (1-5)
Prerequisite: consent of instructor. Directed group study in Biomechanics. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189E. Selected Topics in Mechanical Engineering; Fluid Mechanics (1-5)
Prerequisite: consent of instructor. Directed group study in Fluid Mechanics. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189F. Selected Topics in Mechanical Engineering; Manufacturing Engineering (1-5)
Prerequisite: consent of instructor. Directed group study in Manufacturing Engineering. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189G. Selected Topics in Mechanical Engineering; Mechanical Engineering and Product Design (1-5)
Prerequisite: consent of instructor. Directed group study in Mechanical Engineering and Product Design. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189H. Selected Topics in Mechanical Engineering; Mechatronics Systems (1-5)
Prerequisite: consent of instructor. Directed group study in Mechatronics Systems. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189I. Selected Topics in Mechanical Engineering; MEMS/Nanotechnology (1-5)
Prerequisite: consent of instructor. Directed group study in MEMS/Nanotechnology. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189J. Selected Topics in Mechanical Engineering; Solid and Structural Mechanics (1-5)
Prerequisite: consent of instructor. Directed group study in Solid and Structural Mechanics. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189K. Selected Topics in Mechanical Engineering; Thermodynamics (1-5)
Prerequisite: consent of instructor. Directed group study in Thermodynamics. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

189L. Selected Topics in Mechanical Engineering; Vehicle and Transportation Systems (1-5)
Prerequisite: consent of instructor. Directed group study in Vehicle and Transportation Systems. May be repeated for credit when the topic is different. Offered irregularly.
(change in existing course—eff. summer 15)

Engineering: Mechanical and Aerospace

New and changed courses in Engineering: Mechanical and Aerospace (MAE)

Graduate

253. Network Theory and Applications (4)
Lecture/discussion—4 hours. Prerequisite: Mathematics 22A; Mathematics 22B; Statistics 13 or 120; experience with computer software; or consent of instructor. Develops the mathematical theory underlying growth, structure and function of networks with applications to physical, social, biological and engineered systems. Topics include network growth, resilience, epidemiology, phase transitions, software and algorithms, routing and search control, cascading failures. (Same course as Computer Science Engineering 253.) Offered in alternate years.—(III). D'Souza
(new course—eff. fall 15)

English

New and changed courses in English (ENL)

Lower Division

5NF. Introduction to Creative Writing: Non-Fiction (4)
Lecture/discussion—4 hours. Prerequisite: completion of Entry Level Writing requirement. Elementary principles of writing creative non-fiction. Work in prescribed literary forms (such as essay, meditation, biography, memoir, book review, documentary, or experimental non-fiction forms) and forms of students' choosing. No final examination. May be repeated one time for credit when instructor differs. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*
(new course—eff. fall 15)

10A. Literatures in English I: To 1700 (4)
Lecture—3 hours; extensive writing or discussion—1 hour. 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: ArtHum | AH, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

10B. Literatures in English II: 1700-1900 (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 3 or University Writing Program 1 or equivalent. 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: ArtHum | AH, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

10C. Literatures in English III: 1900 to Present (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 3 or University Writing Program 1 or equivalent. 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: ArtHum | AH, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

30A. Survey of American Literature (4)
(cancelled course—eff. fall 15)

30B. Survey of American Literature (4)
(cancelled course—eff. fall 15)

46A. Masterpieces of English Literature (4)
(cancelled course—eff. spring 15)

46B. Masterpieces of English Literature (4)
(cancelled course—eff. spring 15)

46C. Masterpieces of English Literature (4)
(cancelled course—eff. spring 15)

41. Introductory Topics in Literature and Media (4)
Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: course 3 or University Writing Program 1 or equivalent. Study of a topic centered on the relationships between literature and moving-image

media. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, VL, WE.—*S. (S.)*

(new course—eff. fall 16)

98F. Student Facilitated Course (1-4)

Prerequisite: course 3 or University Writing Program 1; consent of instructor. Student facilitated course intended primarily for lower division students. (P/NP grading only.) Offered irregularly.

(new course—eff. winter 16)

Upper Division

100FA. Creative Writing Advanced Fiction (4)

Discussion—4 hours. Prerequisite: course 100F. Priority given to English majors; admission by application only. 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. May be repeated one time for credit with consent of instructor.—*S. (S.)*

(change in existing course—eff. fall 14)

100PA. Creative Writing Advanced Poetry (4)

Discussion—4 hours. Prerequisite: course 100P. Priority to English majors; admission by application only. 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. May be repeated one time for credit with consent of instructor.—*S. (S.)*

(change in existing course—eff. fall 14)

139. Topics in Global Literatures and Cultures (4)

Lecture—3 hours; extensive writing or discussion. Prerequisite: course 3 or University Writing Program 1 or equivalent. Historically or thematically organized study of Anglophone literature at the global scale. Possible emphases: globalization of English and its literatures; the history of "world literature"; literatures of British imperialism; questions of translation. May be repeated two times for credit when content differs. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—II.

(change in existing course—eff. fall 03)

146. American Literature 1900-1945 (4)

Lecture—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1 or the equivalent. Historically or thematically focused study of American literature (drama, poetry, prose fiction) from the period between 1900 and the end of World War II. GE credit: ArtHum, Wrt | ACGH, AH, DD, WE.

(change in existing course—eff. fall 14)

147. American Literature, 1945 to the Present (4)

Lecture—3 hours; extensive writing. Prerequisite: course 3 or University Writing Program 1 or equivalent. Historically or thematically focused study of American literature (drama, poetry, prose fiction) from the period between 1945 and the present. GE credit: ArtHum, Wrt | ACGH, AH, DD, WE.

(change in existing course—eff. fall 14)

158B. The American Novel from 1900 to the Present (4)

Lecture/discussion—3 hours; term paper. Prerequisite: course 3 or University Writing Program 1 or the equivalent. Historically or thematically organized examination of important American novelists from 1900 to the present: authors may include Willa Cather, Nathanael West, William Faulkner, Ralph Ellison, Zora Neale Hurston, Thomas Pynchon, Ishmael Reed, Maria Helena Viramontes, Rachel Kushner, and others. GE credit: ArtHum, Wrt | AH, DD, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

160. Film as Narrative (4)

Lecture—3 hours; film viewing—3 hours. Prerequisite: course 3 or University Writing Program 1. Study of modern film (1930 to present) as a storytelling medium. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.

(change in existing course—eff. fall14)

161A. Film History I: Origins to 1945 (4)

Lecture—3 hours; film viewing—3 hours. Prerequisite: course 3 or University Writing Program 1. Cultural and aesthetic history of filmmaking from its origins in the 1890's through 1945. (Courses 161A and 161B need not be taken in sequence.) Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.

(change in existing course—eff. fall 14)

161B. Film History II: 1945 to present (4)

Lecture—3 hours; film viewing—3 hours. Prerequisite: course 3 or University Writing Program 1. Cultural and aesthetic history of filmmaking from 1945 through the present. (Courses 161A and 161B need not be taken in sequence.) Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.

(change in existing course—eff. fall14)

162. Film Theory and Criticism (4)

Lecture—3 hours; film viewing—3 hours. Prerequisite: course 3 or University Writing Program 1. Film theory and criticism, with a study of ten major works of international film art. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WE.

(change in existing course—eff. fall 14)

163. Literary Study in the British Isles (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Course 3 or University Writing Program 1. Enrollment by application only through the Education Abroad Center. Literary Study in the British Isles: On-site study of the literature, film, and/or performance of the British Isles. May be repeated two times if subject matter differs. GE credit: ArtHum, Wrt | AH, WC, WE.—*S. (S.)*

(change in existing course—eff. fall 14)

172. Video Games and Culture (4)

Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 3 or Technocultural Studies 1 or Science and Technology Studies 1 or equivalent. Critical approaches to the study of video games, focusing on formal, historical, and cultural modes of analysis. History of software and hardware in North American and global contexts. Relations of games to society, politics, economics, literature, media, and the arts. (Same course as Cinema and Technocultural Studies 172 and Science and Technology Studies 172.) GE credit: ArtHum or SocSci | ACGH, AH or SS, VL.

(change in existing course—eff. spring 15)

173. Science Fiction (4)

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3 or Science and Technology Studies 1 or equivalent. 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 | AH, WE.—*W.*

(change in existing course—eff. winter 15)

175. American Literary Humor (4)

Lecture/discussion—3 hours; term paper. Prerequisite: course 3 or University Writing Program 1, or standing above freshman level. American humorous vision of man, nature, and the supernatural. Includes one or more of the following: colonial humor; southwestern and New England humor; pre- and post-Civil War masters; local colorists; journalistic gadflies; anti-provincialists; modernist poets and prose writers; black humor. GE credit: ArtHum, Wrt | ACGH, AH, WE.—*S. (S.)*

(change in existing course—eff. spring 15)

183. Young Adult Literature (4)

Lecture—3 hours; term paper. Prerequisite: course 3 or University Writing Program 1, or equivalent. Theoretical, critical, and literary issues informing the study and teaching of American young adult literature. GE credit: ArtHum | AH, WE.

(change in existing course—eff. spring 16)

197T. Tutoring in English (1-5)

Tutoring—1-5 hours. Prerequisite: upper division standing and consent of Chairperson. Leading of small voluntary discussion groups affiliated with one of the department's regular courses. Does not fulfill requirement for major. May be repeated up to 8 units for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

198F. Student Facilitated Course (1-4)

Prerequisite: course 3 or University Writing Program 1; consent of instructor. Student facilitated course intended primarily for upper division students. (P/NP grading only.) Offered irregularly.

(new course—eff. winter 16)

199FA. Student Facilitated Teaching (1-4)

Prerequisite: course 3 or University Writing Program 1; consent of instructor. STU FAC. Under the supervision of a faculty member, an undergraduate student teaches a course under 98F/198F. (P/N grading only.) Offered irregularly.

(new course—eff. winter 16)

Graduate

237. Seminar for Writers (4)

Seminar—3 hours; extensive writing. Prerequisite: graduate standing. Varied topics in the study of literature and literary culture craft and poetics from the perspective of the writer/practitioner. May be repeated two times for credit if focus differs. Offered irregularly.—*W. (W.)*

(new course—eff. fall 15)

280. Seminar in Research Practices (4)

Lecture/discussion—3 hours; project. Must have passed Departmental Preliminary Exam. Study of various practical and technical skills needed to perform research in literary studies. Course materials to be selected by the instructor. Evaluation based on student projects that involve hands-on application of skills taught in the seminar. May be repeated for credit when topic differs.—*S. (S.)*

(new course—eff. fall 16)

290. Creative Writing: Special Topic (4)

Seminar—3 hours; conference—1 hour. Prerequisite: consent of instructor. Writing that falls outside the generic confines of traditional genres (fiction, poetry, and nonfiction) or traditional workshop formats. Evaluation of written materials and individual student conferences. May be repeated for credit. Offered irregularly.—*F. (F.)*

(new course—eff. fall 15)

290F. Creative Writing: Fiction (4)

Seminar—3 hours; conference—1 hour. Prerequisite: consent of instructor; graduate standing, with preference given to those enrolled in master's program in Creative Writing. Writing of prose fiction. Evaluation of written materials and individual student conferences. May be repeated for credit.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

290NF. Creative Writing: Non-Fiction (4)
Seminar—3 hours; conference—1 hour. Prerequisite: consent of instructor; graduate standing; with preference given to those enrolled in the master's program in Creative Writing. Writing of literary non-fiction, with emphasis on autobiography, biography, memoir, the occasional or nature essay, or other non-fiction prose narratives. May be repeated for credit. Offered in alternate years.—*(S.)*
(change in existing course—eff. winter 16)

290P. Creative Writing: Poetry (4)
Seminar—3 hours; conference—1 hour. Prerequisite: consent of instructor; graduate standing, with preference given to those enrolled in master's program in Creative Writing. Writing of poetry. Evaluation of written materials and individual student conferences. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. winter 16)

Entomology

New and changed courses in Entomology (ENT)

Lower Division

10. Natural History of Insects (3)
Lecture—3 hours. Introduction to the insects detailing their great variety, structures and functions, habits, and their significance in relation to plants and animals including man. Designed for students not specializing in entomology. Not open for credit to students who have had course 100, but students who have taken this course may take course 100 for credit. GE credit: SciEng | SE, SL.—*W. (W.)* R. Kimsey, Parrella
(change in existing course—eff. fall 14)

90X. Special Topics in Entomology (2)
Seminar—2 hours. Prerequisite: consent of instructor. Freshman seminar course for in-depth examination of a special topic within the subject area. May be repeated two times for credit. (P/NP grading only.)—*F, W, S.*
(change in existing course—eff. winter 15)

Upper Division

116. Freshwater Macroinvertebrates (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: Biological Sciences 2B or equivalent. Limited enrollment. Biology, ecology and taxonomy of freshwater macroinvertebrates, including insects, crustaceans, molluscs, worms, leeches, flatworms and others. Adaptations to life in freshwater. Aquatic food webs. Uses of macroinvertebrates in water quality monitoring. Field trips during regular lab hours. GE credit: SciEng | SE, SL.—*S. (S.)* Lawler
(change in existing course—eff. winter 15)

116L. Aquatic Insect Collection (2)
Laboratory—4 hours; field work—2 hours. Prerequisite: course 100L or 116 (may be taken concurrently), or prior experience with insect/arthropod identification to Family level. Restricted to 25 students. Collection of aquatic insects and identification to the Family level. Collections will require two, one-day weekend field trips (by arrangement). Collection requirement is 40 Families.—*S. (S.)* Lawler
(change in existing course—eff. fall 16)

119. Apiculture (3)
Lecture—3 hours; papers. Biology and behavior of honeybees; communication, orientation, social organization, foraging activities, honey production, pollination activities. GE credit: SciEng, Wrt | OL, VL, WE.—*S. (S.)* Johnson
(change in existing course—eff. fall 16)

Environmental Horticulture

New and changed courses in Environmental Horticulture (ENH)

Lower Division

1. Introduction to Environmental Horticulture/Urban Forestry (3)
Lecture—3 hours. Introduction to the use of plants to enhance the physical, visual and social environment, the use of ecological principles in developing sustainable, low maintenance landscape systems, and the career opportunities in these areas. GE credit: SciEng | SE, SL.—*F. (F.)* Volder
(change in existing course—eff. winter 16)

Upper Division

129. Analysis of Horticultural Problems (4)
(cancelled course—eff. spring 15)

130. Turfgrass and Amenity Grassland Utilization and Management (4)
(cancelled course—eff. fall 15)

160. Restoration Ecology (3)
Lecture—3 hours. Prerequisite: Plant Biology/Evolution & Ecology 117 or Evolution & Ecology 121 or Plant Biology 147 or equivalent course in ecology/plant ecology. Conceptual bases of restoration ecology; tools used by restoration ecologists to solve practical problems; scope and success of actual restoration projects. GE credit: SciEng | SE, SL, WE.—*S. (S.)* Eviner
(change in existing course—eff. fall 15)

Graduate

229. Analysis of Horticultural Problems (5)
(cancelled course—eff. winter 15)

Environmental Science and Management

New and changed courses in Environmental Science and Management (ESM)

Lower Division

98F. Student Facilitated Course Development (1-3)
Prerequisite: consent of instructor. Restricted to upper division standing or consent of instructor. Student-facilitated (taught) course intended for lower division students. Offered irregularly. (P/NP grading only.)
(new course—eff. winter 16)

Upper Division

140. Culinary and Medicinal Herbs (3)
(cancelled course—eff. spring 15)

198F. Student Facilitated Course (1-3)
Prerequisite: consent of instructor. Student-facilitated (taught) course intended for upper division students. Offered irregularly. (P/NP grading only).—*F, W, S. (F, W, S.)*
(new course—eff. spring 16)

199FA. Student Teaching Course Development (1-3)
Prerequisite: consent of instructor. Restricted to upper division standing. Under the supervision of a faculty member, an undergraduate student plans and develops the course they will teach under 98F/198F. Offered irregularly. (P/NP grading only).
(new course—eff. winter 16)

199FB. Student Teaching Course Development (1-3)
Prerequisite: course 199FA; consent of instructor. Restricted to upper division standing. Student facilitated. Under the supervision of a faculty member, an undergraduate student teaches a course under 98F/198F. Offered irregularly. (P/NP grading only).
(new course—eff. winter 16)

Environmental Science and Policy

New and changed courses in Environmental Science and Policy (ESP)

Lower Division

10. Current Issues in the Environment (3)
Lecture—3 hours. Prerequisite: elementary biology recommended. The science behind environmental issues, and policies affecting our ability to solve domestic and international environmental problems. Resources, environmental quality, regulation, environmental perception and conservation. Integrative case studies. Not open for credit to students who have completed course 1. GE credit: SciEng | SE or SS, SL., WE.—*W. (W.)* Morgan
(change in existing course—eff. fall 14)

Upper Division

100. General Ecology (4)
Lecture—3 hours; discussion—1 hour. Prerequisites: Biological Sciences 2A, 2B, 2C, Mathematics 16A and 16B or 17A and 17B or 21A and 21B; Statistics 13 recommended. Theoretical and experimental analysis of the distribution, growth and regulation of species populations; predator-prey and competitive interactions; and the organization of natural communities. Application of evolutionary and ecological principles to selected environmental problems. GE credit: SciEng | SE, SL.—*F. (F.)* Harrison, Sih
(change in existing course—eff. fall 16)

111. Marine Environmental Issues (1)
Discussion—1 hour. Prerequisite: consent of instructor. Examination of critical environmental issues occurring in coastal waters including the effects of climate change, overfishing, and other human impacts. Through readings and group discussions, students will develop an integrative understanding of the oceanographic and ecological processes. May be repeated two times for credit when topics differ. (Same Course as Evolution and Ecology 111.) GE credit: SciEng | SE, SL.—*S, Su. (S, Su.)*
(change in existing course—eff. summer 15)

121. Population Ecology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 2A, 2B, 2C, Mathematics 16B or 17B or 21B or 21BH. Development of exponential and logistic growth models for plant and animal populations, analysis of age structure and genetic structure, analysis of competition and predator-prey systems. Emphasis is on developing models and using them to make predictions and solve problems. GE credit: SciEng, Wrt | QL, SE, SL.—*W. (W.)* Baskett, Hastings
(change in existing course—eff. fall 16)

123. Introduction to Field and Laboratory Methods in Ecology (4)
Lecture—2 hours; laboratory—2 hours; fieldwork—4 hours. Prerequisite: course 100 or Evolution and Ecology 101 or the equivalent. Statistics 100 or the equivalent. Introduces students to methods used for collecting ecological data in field and laboratory situations. Methods used by population ecologists and community ecologists; emphasis on experimental design, scientific writing and data analysis.Offered in alternate years. GE credit: SciEng | SE, SL.—*S.* Grosholz
(change in existing course—eff. spring 15)

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. Enrollment restricted to application 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. Offered irregularly. GE credit: SciEng | SE, SL.
(change in existing course—eff. fall 14)

127. Plant Conservation Biology (4)
Lecture/discussion—3 hours; discussion—1 hour; term paper. Prerequisite: course 100 or Evolution and Ecology 101 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. Offered irregularly. GE credit: SciEng | SE, SL.
(change in existing course—eff. fall 16)

150A. Physical and Chemical Oceanography (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Environmental Science and Policy/Geology 116, Physics 9B, Mathematics 22C, Chemistry 1C; or upper division standing in a natural science and consent of instructor. Physical and chemical properties of seawater, fluid dynamics, air-sea interaction, currents, waves, tides, mixing, major oceanic geochemical cycles. (Same course as Geology 150A.) GE credit: SciEng | QL, SE.—*F. (F.)* McClain, Spero
(change in existing course—eff. fall 14)

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. Enrollment restricted to application at http://www.bml.ucdavis.edu. 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. GE credit: SciEng | SE, SL.—*Su. (Su.)* Largier
(change in existing course—eff. fall 14)

155. Wetland Ecology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 2A or equivalent; course 100 or Evolution and Ecology 101 recommended. Introduction to wetland ecology. The structure and function of major wetland types and principles that are common to wetlands and that distinguish them from terrestrial and aquatic ecosystems. GE credit: SciEng | SE.—*F. (F.)* Rejmankova
(change in existing course—eff. fall 16)

160. The Policy Process (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Political Science 1; Economics 1A and Statistics 13 recommended. Alternative models of public policymaking and application to case studies in the U.S. and California. GE credit: SocSci | SS.—*S. (S.)* Arnold
(change in existing course—eff. fall 16)

161. Environmental Law (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: upper division standing and one course in environmental science or political science recommended. Introduction for non-Law School students to some of the principal issues in environmental law and the judicial interpretation of some important environmental statutes, e.g., NEPA. GE credit: SocSci, Wrt | SS.—*S. (S.)*
(change in existing course—eff. fall 15)

165N. Climate Policy (3)
Lecture/discussion—3 hours. Prerequisite: course 1 or Economics 1A or consent of instructor. Models, data and assumptions behind competing arguments regarding societal response to the prospect of climate change at the state, national and international level from economic, ethical and policy science perspectives.—*S. (S.)* Springborn
(change in existing course—eff. fall 16)

167. Energy Policy (4)
Lecture—4 hours; term paper. Prerequisite: Economics 1A and Mathematics 16B or 17B or 21B, or consent of instructor. Survey of primary energy resources (fossil, renewable, nuclear), energy conversion methods, future energy demand scenarios, and environmental impacts of energy. Overview of energy policy in the U.S. Analysis of policy alternatives for addressing energy-related environmental and national security issues. Offered in alternate years. GE credit: SocSci | SS.—*(S.)* Ogden
(change in existing course—eff. fall 16)

168A. Methods of Environmental Policy Evaluation (5)
Lecture—3 hours; discussion—1 hour; term paper. Prerequisite: Statistics 13; Economics 100 or Agricultural and Resource Economics 100A; Mathematics 16B or 17B or 21B; course 1; upper division standing. Evaluation of alternatives for solution of complex environmental problems; impact analysis, benefit-cost analysis, distributional analysis, decision making under uncertainty, and multi-objective evaluation. GE credit: SocSci | SS.—*F. (F.)* Ogden
(change in existing course—eff. fall 16)

169. Water Policy and Politics (3)
Lecture—3 hours. Prerequisite: Economics 1A or Political Science 1 recommended. The governance of water, including issues of water pollution/quality and water supply. The politics of water decision-making and effectiveness of water policy. Broad focus on federal water policy, with case examples from nationally significant U.S. watersheds. Offered in alternate years. GE credit: SocSci | SS.—*S. (S.)* Lubell
(change in existing course—eff. fall 16)

170. Conservation Biology Policy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: one course in environmental science (e.g., course 1), conservation (e.g., Wildlife, Fish, and Conservation Biology 11 or 154), or government (e.g., Political Science 1) recommended. Analysis of policies designed to conserve species and their habitats. Emphasis on how individual incentives affect the success of conservation policies. Valuation of endangered species and biodiversity. Criteria for deciding conservation priorities. Offered in alternate years. GE credit: SciEng or SocSci | SE or SS.—*S. (S.)* Schwartz
(change in existing course—eff. fall 16)

171. Urban and Regional Planning (4)
Lecture—3 hours; discussion—1 hour; term paper. Prerequisite: course 1 recommended. 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. GE credit: SocSci | SS, WE.—*S. (S.)* Handy
(change in existing course—eff. fall 16)

172. Public Lands Management (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Economics 1A recommended. Investigation of alternative approaches to public lands management by Federal and state agencies. The role each agency's legislation plays in determining the range of resource allocations. GE credit: SocSci | ACGH, SS.—*F. (F.)* Lubell
(change in existing course—eff. fall 16)

173. Land Use and Growth Controls (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: upper division standing; one course in environmental policy. Exposes students to the economic, political, and legal factors affecting land use and growth controls, and helps students critically evaluate written materials in terms of their arguments and supporting data. GE credit: SocSci | SS.—*Su. (Su.)* Loux
(change in existing course—eff. fall 16)

178. Applied Research Methods (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Agricultural & Resource Economics 106 or Sociology 106 or Statistics 100 or 103 or 108 or the equivalent. Research methods for analysis of urban and regional land use, transportation, and environmental problems. Survey research and other data collection techniques; demographic analysis; basic forecasting, air quality, and transportation models. Collection, interpretation, and critical evaluation of data. GE credit: SocSci | QL, SS.—*W. (W.)*
(change in existing course—eff. fall 16)

179. Environmental Impact Assessment (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 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. GE credit: SocSci | SS.—*W. (W.)*
(change in existing course—eff. fall 16)

Environmental Toxicology

New and changed courses in Environmental Toxicology (ETX)

Upper Division

140. Genes and the Environment (3)
Lecture/discussion—3 hours. Prerequisite: Biological Science 101 required or permission of instructor; coursework in genetics and molecular biology and/or environmental toxicology recommended. Evaluation of evidence that human health and disease susceptibility result from complex interactions between genes and the environment. Emphasis on cancer, metabolic, cardiovascular, and neurological health

outcomes assessed by genotoxicity and toxicogenomic methods. Offered in alternate years.—*F. (F.)* La Merrill

(new course—eff. fall 15)

194HA. Honors Research (3)
Discussion—1 hour; laboratory—6 hours. Prerequisite: senior standing; minimum GPA of 3.250; consent of instructor. Specific research project conducted under the supervision of a faculty sponsor. Experience to include experimental design, learning new techniques, data analysis and interpretation of findings. (P/NP grading only; deferred grading pending completion of sequence.) GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

194HB. Honors Research (3)
Discussion—1 hour; laboratory—6 hours. Prerequisite: senior standing; minimum GPA of 3.250; consent of instructor. Specific research project conducted under the supervision of a faculty sponsor. Experience to include experimental design, learning new techniques, data analysis and interpretation of findings. (P/NP grading only; deferred grading pending completion of sequence.) GE credit: SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

194HC. Honors Research (3)
Laboratory—6-9 hours; discussion—1 hour. Prerequisite: senior standing; minimum GPA of 3.250; and consent of instructor. Continuation of course 194HA-194HB. (P/NP grading only.) GE credit: SE.

(change in existing course—eff. summer 15)

Graduate

280. Forensic DNA Analysis (3)
Lecture—3 hours. Prerequisite: coursework in genetics and molecular biology. Graduate standing; consent of instructor required for all students not enrolled in the MS Forensics program. Foundation in theory and practice of forensic DNA analysis; past, present, and emerging technologies; legal and quality assurance issues. DNA extraction, DNA quantitation, multiplex amplification of STR loci, capillary electrophoresis of amplified products, and analysis of STR typing data. (Same course as Forensic Science 280.)—*W. (W.)* Von Beroldingen

(change in existing course—eff. fall 14)

Epidemiology

New and changed courses in Epidemiology (EPI)

Graduate

205B. Integration of Epidemiologic Concepts (2)
Discussion—2 hours. Prerequisite: Preventive Veterinary Medicine 405/course 205A can be taken concurrently. In-depth analysis and integration of basic epidemiologic concepts and approaches to epidemiologic research presented in Preventive Veterinary Medicine 405/course205A, with more mathematical and theoretical basis and examples from veterinary and human medicine, including outbreak investigation, infectious disease epidemiology, properties of diagnostic tests, study design, and surveillance.—*F. (F.)*

(change in existing course—eff. fall 15)

206. Epidemiologic Study Design (4)
Lecture—30 sessions; discussion—9 sessions; laboratory—2 sessions. Prerequisite: course 205 or consent of instructor. Builds on concepts presented in course 205. Concepts of epidemiologic study design–clinical trials, observational cohort studies, case control studies–introduced in course 205A are covered in more depth, using a problem-based format. Discussion of published epidemiologic studies. (Same course as Preventive Veterinary Medicine 206.)

(new course—eff. winter 15)

207. Advanced Epidemiologic Methodology (4)
Lecture/discussion—4 hours. Prerequisite: course 206. In-depth integration of advanced epidemiological concepts. Theory, methods, and applications for observational studies including random and systematic error, confounding, counterfactuals, causal inference, effect modification, internal and external validity, estimability, and interpretation of effect measures, and advanced study designs. (Same course as Public Health Sciences 207.)—*S. (S.)* Hertz-Picciotto, Kass

(change in existing course—eff. winter 16)

209. History of Epidemiology in Public Health (2)
Lecture—0.5 hours; discussion—1.5 hours. Introduction to the history of epidemiology in solving major public health problems. Original historical articles will be read/discussed. Topics may include: infectious disease, accidents/adverse events, nutritional deficiencies, community vaccination trials, occupational exposures, cancer, birth defects, cardiovascular disease, and smoking. (Same course as Public Health Sciences 209.)—*W. (W.)* Hertz-Picciotto

(new course—eff. fall 14)

223. Spatial Epidemiology (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: course 205A or Preventive Veterinary Medicine 205. Geographic Information Systems (GIS) and spatial statistics. Students are expected to complete a term project based on their graduate research. Offered in alternate years.—*W. (W.)*

(change in existing course—eff. fall 15)

230. Introduction to Molecular Epidemiology (3)
Lecture/discussion—3 hours. Prerequisite: course 205. Overview of the modern field of molecular epidemiology. Integrates molecular biology into traditional epidemiologic research by identifying pathways, molecules and genes that influence the risk of developing disease. —*S.* Schmidt

(new course—eff. fall 14)

231. Infectious Disease Epidemiology (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: introductory epidemiology course (e.g., course 205). Infectious disease epidemiology and prevention, with emphasis on human and veterinary diseases of global health importance. Major global health epidemics and challenges of infectious diseases, by mode of transmission. (Same course as Public Health Sciences 211.)—*W. (W.)* DeRiemer

(new course—eff. winter 15)

250. Introduction to Clinical Research Design and Epidemiology (1)
(cancelled course—eff. fall 14)

270. Research Methods in Occupational Epidemiology (3)
Laboratory/discussion—3 hours. Prerequisite: course 205A or Preventive Veterinary Medicine 205; Statistics 102 or Preventive Veterinary Medicine 202. Methods used in epidemiologic research on occupational hazards. Topics include design and analysis of cohort and case-control studies, sample size, measuring dose, choosing a control group, validation of employment and health data, interpreting negative studies, and analysis software. Offered in alternate years.—*S. (S.)* Beaumont

(change in existing course—eff. fall 15)

290. Seminars in Epidemiology (0.5)
Seminar—0.5 hours. Faculty and students will present and lead discussion of ongoing or published epidemiologic research. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Evolution and Ecology

New and changed courses in Evolution and Ecology (EVE)

Lower Division

12. Life in the Sea (3)
Lecture—3 hours. Diversity of life in the sea; adaptations to physical/chemical ocean environment; marine science research methods; utilization of living marine resources by humans; factors and processes that influence diversity of sea life, including humans. Limited enrollment. Offered in alternate years. GE credit: SciEng | SE, SL.—*(S.)* Williams

(change in existing course—eff. spring 15)

13. Sex in the Natural World (3)
Lecture/discussion—3 hours. Explores the diversity, mechanisms and evolution of sexual behaviors across the kingdoms of life. Offered in alternate years. GE credit: SciEng | SE, SL, VL.—*F.* Patricelli

(new course—eff. fall 14)

20. Darwinian Medicine (3)
Lecture—3 hours. Introduction for non-biologists to the evolved traits of humans and pathogens that influence human biological variation, health, and disease. Offered in alternate years. GE credit: QL, SE, SL.—*(F.)* Begun

(change in existing course—eff. fall 17)

Upper Division

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. Enrollment restricted to application 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. GE credit: SciEng | QL, SE, VL, WE.—*Su.* Gaylord

(change in existing course—eff. fall 14)

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. Enrollment restricted to application 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. Offered irregularly. GE credit: SciEng | QL, SE, VL, WE.—Gaylord

(change in existing course—eff. fall 14)

111. Marine Environmental Issues (1)
Discussion—1 hour. Prerequisite: consent of instructor. Examination of critical environmental issues occurring in coastal waters including the effects of

climate change, overfishing, and other human impacts. Through readings and group discussions, students will develop an integrative understanding of the oceanographic and ecological processes. May be repeated two times for credit when topics differ. (Same Course as Evolution and Ecology 111.) GE credit: SciEng | SE, SL.—*S, Su. (S, Su.)*

(change in existing course—eff. summer 15)

112L. Biology of Invertebrates Laboratory (2)

Laboratory—6 hours. Prerequisite: Biological Sciences 1B, or 2B and 2C; course 112 concurrently. Enrollment limited to 50 students. 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. Offered in alternate years.—*(W.)* Grosberg, Sanford

(change in existing course—eff. fall 14)

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. Enrollment restricted to application at http://www.bml.ucdavis.edu. 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. GE credit: SciEng | QL, SE, VL, WE.—*Su. (Su.)* Sanford

(change in existing course—eff.

149. Evolution of Ecological Systems (4)

Lecture—3 hours; term paper. Prerequisite: course 101 or Environmental Science 100 (or the equivalent), and course 100 (or the equivalent). Evolution as an organizing force in natural communities. Coadaptation in trophic and competitive relationships. Ecology of polymorphisms, clines, and speciation. Offered in alternate years. GE credit: SciEng | SE, SL, WE.—*F.* Shapiro

(change in existing course—eff. fall 15)

194HA. Research Honors (2)

Laboratory—6 hours. Prerequisite: students who have completed 135 units and qualify for the honors program (as defined by the current catalog). Students pursue intensive research under the guidance of a faculty adviser. Students are expected to complete the full three-quarter sequence culminating in the writing of an honors thesis. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

194HB. Research Honors (2)

Laboratory—6 hours. Prerequisite: students who have completed 135 units and qualify for the honors program (as defined by the current catalog). Students pursue intensive research under the guidance of a faculty adviser. Students are expected to complete the full three-quarter sequence culminating in the writing of an honors thesis. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

194HC. Research Honors (2)

Laboratory—6 hours. Prerequisite: students who have completed 135 units and qualify for the honors program (as defined by the current catalog). Students pursue intensive research under the guidance of a faculty adviser. Students are expected to complete the full three-quarter sequence culminating in the writing of an honors thesis. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

Exercise Biology

New and changed courses in Exercise Biology (EXB)

Upper Division

106. Human Gross Anatomy (4)

Lecture—4 hours. Prerequisite: Biological Sciences 2A; concurrent enrollment in course 106L or Cell Biology and Human Anatomy 101L strongly recommended. Upper division students only; Pass One open to upper division Exercise Biology or Anthropology majors only; Pass Two open to Seniors in any major; open enrollment at the start of the quarter for upper division students in any major. Detailed study of the gross anatomical structure of the human body, with emphasis on function and clinical relevance to students entering health care professions. (Same course as Cell Biology and Human Anatomy 101.) GE credit: SciEng | SE.—*W. (W.)* Gross

(change in existing course—eff. fall 14)

106L. Human Gross Anatomy Laboratory (3)

Laboratory—9 hours. Prerequisite: Biological Sciences 2A; must take course 106 or Cell Biology and Human Anatomy 101 concurrently (or have already completed). Upper division students only; Pass One open to upper division Exercise Biology or Anthropology majors only; Pass Two open to Seniors in any major; open enrollment at the start of the quarter for upper division students in any major; mandatory attendance on first day of lab. Detailed study of prosected human cadavers in small group format with extensive hands-on experience. (Same course as Cell Biology and Human Anatomy 101L.) GE credit: SciEng | SE.—*W. (W.)* Gross

(change in existing course—eff. fall 14)

113. Growth and Development in Human Performance (3)

(cancelled course—eff. fall 14)

189. International Perspectives in Exercise Biology (4)

Lecture—4 hours. Prerequisite: course 10 or upper division standing in Exercise Biology; consent of instructor: students will be accepted based upon academic merit, personal experience, and academic discipline in order to provide multidisciplinary perspectives. Restricted to 22 students. Compare and contrast exercise science issues between the US and an international location. Identify political, economic, cultural, technological and environmental issues that impact human exercise, physical activity, wellness, and sport from a global perspective. Offered irregularly.

(change in existing course—eff. fall 14)

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. Restricted to upper division students. 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.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 14)

192. Exercise Biology Internship (1-12)

Internship—3-36 hours. Prerequisite: consent of instructor; enrollment dependent on availability of intern positions. Work experience in the application of physical activity programs to teaching, recreational, clinical or research situations under program faculty supervision. Written report required. May be repeated up to 15 units of credit, including course 92. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 15)

Exercise Science

New and changed courses in Exercise Science (EXS)

Graduate

228. Skeletal Muscle Mechanics: Form, Function, Adaptability (4)

(cancelled course—eff. fall 16)

Fiber and Polymer Science

New and changed courses in Fiber and Polymer Science (FPS)

Graduate

250A. Special Topics in Polymer and Fiber Science (3)

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250A.)—*F, S. (F, S.)* Hsieh, Pan, Sun

(change in existing course—eff. summer 15)

250B. Special Topics in Polymer and Fiber Science (3)

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250B.)—*F, S. (F, S.)* Hsieh, Pan, Sun

(change in existing course—eff. summer 15)

250C. Special Topics in Polymer and Fiber Science (3)

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250C.)—*F, S. (F, S.)* Hsieh, Pan, Sun

(change in existing course—eff. summer 15)

250D. Special Topics in Polymer and Fiber Science (3)

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250D.)—*F, S. (F, S.)* Hsieh, Pan, Sun

(change in existing course—eff. summer 15)

250E. Special Topics in Polymer and Fiber Science (3)

Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250E.)—*F, S. (F, S.)* Hsieh, Pan, Sun

(change in existing course—eff. summer 15)

250F. Special Topics in Polymer and Fiber Science (3)
Lecture—3 hours. Prerequisite: Fiber and Polymer Science 100 or consent of instructor. Selected topics of current interest in polymer and fiber science. Topics will vary each time the course is offered. (Same course as Materials Science and Engineering 250F.)—*F, S. (F, S.)* Hsieh, Pan, Sun
(change in existing course—eff. summer 15)

Food Service Management

New and changed courses in Food Service Management (FSM)

Upper Division

122. Food Service Systems Management (3)
Lecture—3 hours. Prerequisite: Agricultural and Resource Economics 112, course 120. Principles of quantity food production management: production schedules, portion control, financial management, layout and equipment planning, evaluation of alternative systems, and computer applications.—*W. (W.)* Frank
(change in existing course—eff. winter 17)

Food Science and Technology

New and changed courses in Food Science and Technology (FST)

Lower Division

47. Food Product Development Field Study (1)
(cancelled course—eff. fall14)

55. Food in American Culture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: complete Subject A requirement. Relationship between food and culture; relationship between food and the social order; influences on eating habits and the tensions between them including identity, convenience, and responsibility; multiple disciplines and genres. (Same course as American Studies 55.) GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*S. (S.)* Biltekoff
(new course—eff. spring 16)

Upper Division

108. Food Processing Plant Sanitation (2)
(cancelled course—eff. fall 14)

110. Food Processing (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Physics 7A, 7B,7C or the equivalent; Mathematics 16A, 16B, 16C or the equivalent; course 50 (may be taken concurrently). Application of the conservation of mass and energy to food processing. Elements of engineering thermodynamics, fluid mechanics, heat and mass transfer. Quantitative analysis through problem solving and simulation. Not open for credit to students enrolled in College of Engineering. GE credit: SciEng | QL, SE, VL.—*F. (F.)* McCarthy
(change in existing course—eff. winter 15)

110A. Physical Principles in Food Processing (3)
(cancelled course—eff. fall 14)

110B. Heat and Mass Transfer in Food Processing (3)
(cancelled course—eff. fall 14)

120. Principles of Meat Science (3)
(change in existing course—eff. spring 15)

120L. Meat Science Laboratory (2)
(cancelled course—eff. fall 15)

131. Food Packaging (4)
Lecture—3 hours; discussion—1 hour. Prerequisites: Chemistry 8B, Biological Sciences 1B, Physics 7C. Class size limited to 50 students. Principles of food packaging. Functions of packaging. Properties of metal, glass, paper and plastic materials and packages. Design, fabrication, and applications of food packaging. Packaging of fresh and processed foods, including fruits and vegetables, dairy foods, beer and wine. Offered irregularly. GE credit: SciEng | SE.—*Su. (Su.)*
(change in existing course—eff. summer 16)

Graduate

201. Food Chemistry and Biochemistry (4)
Lecture—4 hours. Prerequisite: undergraduate courses in organic chemistry and biochemistry; undergraduate course in food chemistry is recommended. Restricted to graduate standing or consent of instructor. Advanced topics in food chemistry and biochemistry, emphasizing the application of the basic principles of chemistry and biochemistry to food composition, properties, preservation and processing. Chemical structures, interactions, reaction mechanisms and experimental methods are stressed.—*F. (F.)* G. Smith
(change in existing course—eff. winter 15)

Forensic Science

New and changed courses in Forensic Science (FOR)

Graduate

205. Microscopy and Microanalytical Methods in Forensic Science (3)
Lecture—2 hours; laboratory—1 hours. Prerequisite: consent of instructor. Restricted to students enrolled in the M.S. in Forensic Science Program; s a minimum, year each of the following chemistry, organic chemistry, calculus, & physics. Introduction to optical and electron microscopy. Transmission, diffraction, reflection and absorption; polarized light and polarizing crystals; phase contrast. Radiography; image recording, SEM analysis of gunshot residues, paints, glass. EDS, XRF analysis, signal-to-noise ratios, minimum detectable levels and homogeneity. Offered in alternate years.—*(S.)* van Benthem
(change in existing course—eff. fall 14)

240. Homicide Crime Scene Investigation (3)
Lecture—2 hours; laboratory—3 hours. Restricted to Forensic Science Masters Program Students; enrollment is limited to 15 students per class. Processing and evaluating complex homicide scenes. Functions and activities of police agencies. Recognition, documentation, identification, and collection of evidence. Event sequence reconstruction. Evidence collection, preservation, report writing. Courtroom presentation.—*F, S. (F, S.)* Hopkins
(change in existing course—eff. fall 14)

263. Forensic Computer Science Investigations (3)
Lecture—3 hours. Prerequisite: graduate student; consent of instructor. Restricted to students in the Forensic Science Graduate program unless approved by instructor. Discuss the threats to the security of any kind of evidence that is captured, transmitted, or stored digitally and develop critical thinking and basic knowledge of computer forensic science issues in the evaluation of digital evidence.—*S. (S.)* Peisert
(new course—eff. fall 13)

280. Forensic DNA Analysis (3)
Lecture—3 hours. Prerequisite: coursework in genetics and molecular biology. Graduate standing; consent of instructor required for all students not enrolled in the MS Forensics program. Foundation in theory and practice of forensic DNA analysis; past, present, and emerging technologies; legal and quality assurance issues. DNA extraction, DNA quantitation, multiplex amplification of STR loci, capillary electrophoresis of amplified products, and analysis of STR typing data. (Same course as Environmental Toxicology 280.)—*W. (W.)* Von Beroldingen
(change in existing course—eff. fall 14)

289. Survey in Forensic Science (3)
Lecture—3 hours. Restricted to students enrolled in the M.S. in Forensic Science Program. Analytical methods in contemporary forensic science. Clandestine laboratories in California, crime scene management, examination and analysis of human hair, forensic ballistics/trajectory reconstruction, shoe/tire print impressions, serial number restoration, forensic aspects of alcohol impairment, bloodstain pattern interpretation, microscopy of building materials, biological aspect of forensic science. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)* Hopkins
(change in existing course—eff. fall 14)

290C. Graduate Research Conference in Forensic Science (1)
Independent study—1 hour. Restricted to students enrolled in the M.S. in Forensic Science Program. Individual and/or group conference on problems, progress and techniques in forensic science and research. May be repeated for credit when topic differs. (S/U grading only.)—*F, W, S.* Hopkins
(change in existing course—eff. fall 14)

293. Forensic Science Research Methodology (2)
Lecture—1.5 hour; extensive writing or discussion—0.5 hours. Restricted to students enrolled in the Graduate Forensic Science program or by consent of the 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. (S/U grading only.)—*S. (S.)* Kimsey
(change in existing course—eff. fall 14)

298. Group Study in Forensic Science (1-5)
Restricted to students enrolled in the M.S. in Forensic Science Program. May be repeated for credit when topic differs. (S/U grading only.)
(change in existing course—eff. fall 14)

299. Research in Forensic Science (1-12)
Prerequisite: consent of instructor. Restricted to students enrolled in the M.S. in Forensic Science Program. May be repeated for credit. (S/U grading only.)
(change in existing course—eff. fall 14)

French

New and changed courses in French (FRE)

Lower Division

1. Elementary French (5)
Discussion—5 hours; laboratory—1 hour. Introduction to French grammar and development of all language skills in a cultural context with special emphasis on communication. Not open for credit to students who have taken course 1A; students who have successfully completed French 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. GE credit: ArtHum | AH, WC.—*F, W, S, Su. (F, W, S, Su.)* Webb
(change in existing course—eff. fall 14)

2S. Elementary French (5)
Discussion—5 hours; laboratory—1 hour. Prerequisite: course 1 or 1S. Continuation of course 1. Course is taught abroad. Not open for credit to students who have completed course 1A or 2. GE credit: ArtHum | AH, WC.—*F. (F.)*
(change in existing course—eff. winter 15)

3. Elementary French (5)
Discussion—5 hours; laboratory-1 hour. Prerequisite: course 2. Continuation of course 2. Not open for credit to students who have taken course 1A. GE credit: ArtHum | AH, WC—*-F, W, S, Su. (F, W, S, Su.)* Webb
(change in existing course—eff. fall 14)

21S. Intermediate French (5)
Lecture/discussion—4 hours; laboratory—1 hour. Prerequisite: course 1A, 3, or 3S. Review of grammar and vocabulary acquired in the elementary sequence, as well as the study of new grammatical structures and a continuing enrichment of vocabulary through oral work in class, written exercises, readings and compositions. Not open for credit to students who have completed course 21. GE credit: ArtHum | AH, OL, WC, WE.—*F. (F.)*
(change in existing course—eff. winter 15)

23S. Intermediate French (5)
Lecture/discussion—4 hours; laboratory—1 hour. Prerequisite: course 22 or 22S. Continuation of course 22 or 22S. Review of grammar and vocabulary, as well as, the study of new grammatical structures and a continuing enrichment of vocabulary. Not open for credit to students who have completed course 23. GE credit: ArtHum | AH, OL, WC, WE.—*F. (F.)*
(change in existing course—eff. winter 15)

Upper Division

107. The Making of Modern France (4)
Lecture—3 hours; term paper. Prerequisite: course 23. Introduction to French culture through a historical approach to topics such as the citizen and the state (politics, justice, social security), the nation and centralization, the rise of public education, colonization, class and social relationships. GE credit: ArtHum | AH, WE.—Goldstein, Simon
(change in existing course—eff. fall 16)

107A. Pre and Early Modern France (4)
Lecture—3 hours; term paper. Prerequisite: course 23. Introduction to pre- and early modern French culture through a historical approach to topics such as the feudal system, the rise of the monarchy, the Reformation and religious wars. GE credit: ArtHum, Wrt | AH, WC, WE.—Goldstein, Simon
(change in existing course—eff. spring 16)

107B. The Making of Modern France (4)
Lecture—3 hours; term paper. Prerequisite: course 23. Introduction to French culture through a historical approach to topics such as the absolute monarchy, the role of the parlements, the French revolution, and the political regimes of the nineteenth century. GE credit: ArtHum, Wrt.—Goldstein, Simon
(change in existing course—eff. spring 16)

107S. The Making of Modern France (4)
Lecture—3 hours; term paper. Prerequisite: course 23 or 23S. Introduction to French culture through a historical approach to topics such as the nation-state, centralization of the monarchy, and the rise of public education, colonization, class and social relationships. Taught abroad. Not open for credit to students who have completed course 107. GE credit: ArtHum, Wrt | AH, WC, WE.
(change in existing course—eff. fall 16)

108. Modern French Culture (4)
Lecture—3 hours; extensive writing. Prerequisite: course 23. 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. GE credit: WC, WE.—Fort, Simon
(change in existing course—eff. spring 16)

115. Medieval French Literature and Society (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Social and cultural life of medieval France as studied through its representation in such literary works as La Chanson de Roland, courtly love lyric, the Arthurian romances of Chrétien de Troyes, Aucassin et Nicolette, selected fabliaux and farces. GE credit: ArtHum | AH, WC, WE.—Guynn
(change in existing course—eff. spring 16)

116. The French Renaissance (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Overview of major works and writers with particular attention to the historical context of the turbulent 16th century. Writers to be read may include Rabelais, Marot, Ronsard, Du Bellay, Labé, Marguerite de Navarre, Montaigne, and D'Aubigné. GE credit: ArtHum | AH, WC, WE.—Goldstein, Guynn
(change in existing course—eff. spring 16)

117A. Baroque and Preclassicism (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. The literature and intellectual culture of the period between the Renaissance and French classicism. GE credit: ArtHum | AH, WC, WE.—Goldstein, Guynn
(change in existing course—eff. spring 16)

117B. The Classical Moment (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Literature, culture, and politics in the Age of Louis XIV. May be repeated one time for credit when topic differs. GE credit: ArtHum | AH, WC, WE.—Goldstein, Guynn
(change in existing course—eff. spring 16)

118B. Private Lives and Public Secrets: The Early French Novel (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. History of the French roman from the Middle Ages to the Revolution with particular emphasis on the novels of the 18th century. GE credit: ArtHum | AH, WC, WE.—Simon
(change in existing course—eff. spring 16)

119A. The Romantic Imaginary (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Major concepts and themes of French Romanticism, such as dream and the supernatural, impossible love, exoticism, revolution, individualism, nature, the mal du siècle, Romantic irony, the creative imagination, the cult of ruin. GE credit: ArtHum, Wrt | AH, WC, WE.—Fort, Simon
(change in existing course—eff. spring 16)

119B. Realism, History and the Novel (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Narrative and historical codes of French realist fiction, with emphasis on the representation of history in the realist novel, its depiction of social "realities" such as class and gender, and its relation to the historical situation of post-revolutionary society. GE credit: ArtHum, Wrt | AH, WC, WE.—Fort, Simon
(change in existing course—eff. spring 16)

119C. From Baudelaire to Surrealism (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Study of the main poets and poetic movements from the mid-19th to the early 20th century, including Baudelaire, the Symbolists, and the Surrealists. GE credit: ArtHum | AH, WC, WE.—Fort, Simon
(change in existing course—eff. spring 16)

120. Modern French Thought (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Overview of post-Second World War French intellectual currents from existentialism to structuralism and deconstructionism. Readings will include Sartre and de Beauvoir, Camus, Lévi-Strauss, Lacan, Barthes, Foucault, Derrida, Kristeva, Sollers, Cixous, and Irigaray. Offered in alternate years. GE credit: ArtHum, Wrt | AH, WC, WE.—*F. (F.)* Fort
(change in existing course—eff. spring 16)

121. Twentieth Century French Novel (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Novels and theories of the novel, from Proust to the Nouveau Roman and beyond. Readings from among Gide, Sartre, de Beauvoir, Camus, Breton, Beckett, Robbe-Grillet, Sarraute, Simon, Barthes, Duras, Tournier, Perec, Modiano, Guibert, Toussaint. GE credit: ArtHum, Wrt | AH, WC, WE.—Fort, Warner
(change in existing course—eff. spring 16)

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 when topic differs. Offered in alternate years. GE credit: ArtHum | AH, VL, WC, WE.—*(F.)* Fort
(change in existing course—eff. fall 14)

124. Post-Colonial and Francophone Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Post-Independence Black African and/or Caribbean and/or North African literatures written in French. Selected topics include: identity and subjectivity, the role of the intellectual, women's voices, languages and oral literatures, cultural syncretism, theories of post-colonialism. May be repeated one time for credit with approval of major adviser and instructor; when content differs; for example, students may take the course for repeat credit when the geographical focus (West Africa, North, African or Caribbean) or theme is substantially different from previous iterations. GE credit: ArtHum, Div | AH, WC, WE.—Warner
(change in existing course—eff. fall 16)

125. French Literature and Other Arts (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Relationship between French literature and other arts-painting, music, cinema, architecture, opera-from different

periods. May be repeated one time for credit when topic differs. GE credit: ArtHum, Wrt | WC.—Fort, Goldstein, Guynn, Simon

(change in existing course—eff. fall 16)

125S. French Literature and Other Arts (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Relationship between French literature and other arts, such as painting, music, cinema, architecture, or opera, from different periods. Taught abroad. May be repeated one time for credit when topic differs. GE credit: ArtHum, Wrt | AH, VL, WC, WE.

(change in existing course—eff. fall 16)

127. Paris: Modernity and Metropolitan Culture (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Representation of Paris in 19th and 20th century texts and its importance in defining the experience and art of modernity. GE credit: ArtHum, Wrt | AH, WC, WE.—Simon

(change in existing course—eff. fall 16)

128. Topics in French Culture (4)
Lecture—3 hours; extensive writing. Prerequisite: course 100 or consent of instructor. In-depth study of a particular topic in French culture. Topics may include the Court of Louis XIV, the French Revolution and Immigration. May be repeated one time for credit when topic differs. Offered in alternate years. GE credit: WE.—Constable, Guynn, Simon, Van Den Abbeele

(change in existing course—eff. fall 14)

130. From Page to Stage: Theatre and Theatricality (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. French theater as literature and performance. May be repeated one time for credit when topic differs. GE credit: ArtHum, Wrt | AH, WC, WE.—Guynn

(change in existing course—eff. fall 16)

133. Gender and Politics in French Literature and Culture (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Thematic, theoretical and political tendencies in contemporary French fiction. Barthes, Foucault, Duras, Guibert, considered in terms of their writing on identity and gender. GE credit: ArtHum, Div | AH, WC, WE.—Guynn

(change in existing course—eff. fall 16)

140. Study of a Major Writer (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Concentrated study of works of a single author. May be repeated one time for credit if author-subject changes. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. fall 16)

141. Selected Topics in French Literature (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Subjects and themes such as satiric and didactic poetry of the Middle Ages, poetry of the Pléiade, theater in the eighteenth century, pre-romantic poetry, autobiography, literature and film, etc. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. fall 16)

141S. Selected Topics in French Literature (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Subjects and themes such as satiric and didactic poetry of the Middle Ages, poetry of the Pléiade, theater in the eighteenth century, pre-romantic poetry, autobiography, literature and film, etc. Taught abroad. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. fall 16)

160. Linguistic Study of French-Sound and Form (4)
Seminar—3 hours; term paper. Prerequisite: course 100 or Linguistics 1. Introduction to the linguistic study of modern French, with focus on sound structure and form, inflection and derivation. GE credit: ArtHum or SocSci | AH or SS, WE.—*W. (W.)* Anderson, Webb

(change in existing course—eff. fall 16)

161. Linguistic Study of French—Form and Meaning (4)
Seminar—3 hours; term paper. Prerequisite: course 100 or Linguistics 1. Introduction to the linguistic study of modern French, with focus on sentence construction and constituency, meaning and discourse functions. GE credit: ArtHum or SocSci | AH or SS.—Webb

(change in existing course—eff. fall 16)

162. History of the French Language (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or Linguistics 1. Main periods in development of the French language, from Latin to contemporary popular aspects, with emphasis on relationship between socio-cultural patterns and evolution of the language. Offered in alternate years. GE credit: ArtHum or SocSci | AH or SS, WC, WE.—Webb

(change in existing course—eff. spring 16)

Graduate

200. Introduction to Graduate Study in French (2)
Seminar—2 hours. Prerequisite: graduate standing or consent of instructor. Introduction to a range of methodologies and critical practices in the field of French Studies, including literature, culture, and linguistics. Covers basic principles of bibliographic research in the humanities. (S/U grading only.)—*F. (F.)*

(change in existing course—eff. spring 16)

201. History of French (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Presentation of the main changes in the grammatical structures of French, from Latin to contemporary usage, involving textual analysis and sociolinguistic description.—*F. (F.)* Guynn, Russell Webb

(change in existing course—eff. spring 16)

202. Topics in French Civilization (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. 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 when content differs.—*F. (F.)* Simon

(change in existing course—eff. spring 16)

204. Topics in Medieval Literature (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Study of Medieval French literature, focusing on a particular period, milieu, literary movement, genre, or theoretical approach. May be repeated for credit when topic differs.—*F. (F.)* Guynn

(change in existing course—eff. spring 16)

205A. Sixteenth-Century Literature: The Humanists (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. French humanism in its most varied forms. Although at different times Rabelais and Montaigne will be primarily studied, other leading intellectuals and religious writers will also receive attention. May be repeated for credit when different topic is studied.—*F. (F.)*

(change in existing course—eff. spring 16)

206A. Seventeenth-Century Literature: Theater (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. Works of Corneille, Racine, Molière, and minor dramatists. One or more authors may be covered. May be repeated for credit with consent of instructor when different topics are studied.—*W. (W.)* Guynn

(change in existing course—eff. spring 16)

206B. Seventeenth-Century Literature: Prose (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor.Works of authors such as Pascal, Descartes, Mme de Lafayette. One or more authors may be covered. May be repeated for credit with consent of instructor as different topics are studied from quarter to quarter.—*F. (F.)*

(change in existing course—eff. spring 16)

206C. Seventeenth-Century Literature: Poetry (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Studies of the works of one or more poets of the period. May be repeated for credit with consent of instructor.—*S. (S.)*

(change in existing course—eff. spring 16)

207A. Eighteenth-Century Literature: Philosophies (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Not a course in philosophy, but an examination of the role of philosophy in the design and context of literary works. Study of one or more authors. May be repeated for credit.—*W. (W.)* Simon

(change in existing course—eff. spring 16)

207B. Eighteenth-Century Literature: Novel (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. Rise of the novel. Study of narrative experiments in the context of the philosophical climate and new literary values. Course may treat one or more novelists of the period. May be repeated for credit when different topics are studied.—*S. (S.)* Simon

(change in existing course—eff. spring 16)

208A. Nineteenth-Century Literature: Fiction (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. Study of the works of one or several novelists and/or short-story writers of the period. May be repeated for credit with consent of instructor when different topics are studied.—*F. (F.)*

(change in existing course—eff. spring 16)

208B. Nineteenth-Century Literature: Poetry (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. Study of the works of one or several poets of the period. May be repeated for credit with consent of instructor when different topics are studied.—*S. (S.)*

(change in existing course—eff. spring 16)

209A. Twentieth-Century: Prose (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor.Study of the works of one or several writers of the period.—*W. (W.)* Fort

(change in existing course—eff. spring 16)

209B. Twentieth-Century: Theater (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Study of the works of one or several dramatists of the period. May be repeated for credit with consent of instructor.—*W. (W.)* Fort
(change in existing course—eff. spring 16)

209C. Twentieth-Century: Poetry (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Study of the works of one or several poets of the period. May be repeated for credit with consent of instructor.—*S. (S.)*
(change in existing course—eff. spring 16)

210. Studies in Narrative Fiction (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. May be repeated for credit with consent of instructor when different topic is studied.—*F. (F.)*
(change in existing course—eff. spring 16)

211. Studies in Criticism (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. May be repeated for credit with consent of instructor when different topic is studied.—*W. (W.)*
(change in existing course—eff. spring 16)

212. Studies in the Theater (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor. May be repeated for credit with consent of instructor when different topic is studied.—*F. (F.)*
(change in existing course—eff. spring 16)

213. Studies in Poetry (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor.May be repeated for credit with consent of instructor when different topic is studied.—*W. (W.)*
(change in existing course—eff. spring 16)

214. Study of a Literary Movement (4)
Seminar—3 hours. Prerequisite: graduate standing or consent of instructor.May be repeated for credit with consent of instructor when different topic is studied.—*S. (S.)*
(change in existing course—eff. spring 16)

215. Topics in French and Francophone Film (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. 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.—*S. (S.)*
(change in existing course—eff. winter 16)

224. Francophone Literatures (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Study of cultural productions (literature, film, visual arts) by Francophone peoples such as found in North Africa, West Africa, the Caribbean, South-East Asia, the Americas, and Metropolitan France. May be repeated for credit when topic differs and with consent of instructor.—Adejunmobi
(change in existing course—eff. spring 16)

250A. French Linguistics I (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. 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.—*(W.)* Russell Webb
(change in existing course—eff. spring 16)

250B. French Linguistics II (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. 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.—*(W.)* Russell Webb
(change in existing course—eff. spring 16)

251. Topics in the Linguistic Study of French (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing or consent of 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.—*S. (S.)* Russell Webb
(change in existing course—eff. spring 16)

291. Foreign Language Learning in the Classroom (4)
Seminar—3 hours; project. Prerequisite: graduate standing or consent of instructor. 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.)—*F. W. (F, W.)*
(change in existing course—eff. spring 16)

297. Individual Study (1-5)
Prerequisite: graduate standing or consent of instructor. (S/U grading only.)
(change in existing course—eff. spring 16)

298. Group Study (1-5)
Seminar—1-5 hours. Prerequisite: graduate standing or consent of instructor. May be repeated for credit with consent of instructor.
(change in existing course—eff. spring 16)

299. Research (1-12)
Prerequisite: graduate standing or consent of instructor. (S/U grading only.)
(change in existing course—eff. spring 16)

299D. Dissertation Research (1-12)
Prerequisite: graduate standing or consent of instructor. (S/U grading only.)
(change in existing course—eff. spring 16)

Genetics (A Graduate Group)

New and changed courses in Genetics (A Graduate Group) (GGG)

Graduate

201B. Genomics (5)
Lecture—3 hours; discussion—2 hours. Prerequisite: course 201A, course 201C or equivalents that provide a basic understanding of genetics and molecular biology. Class limited to 40 students; priority to Genetics Graduate Group students. Prokaryotic and eukaryotic genomes. Experimental strategies and analytical challenges of modern genomics research and the theory and mechanics of data analysis. Structural, functional, and comparative genomics. Related issues in bioinformatics.—*F. (F.)*
(change in existing course—eff. winter 15)

211. Concepts in Human Genetics and Genomics (3)
Lecture/discussion—3 hours. Prerequisite: course 201A or the equivalent; course 201B, 201C or the equivalent recommended. Pass One restricted to graduate students enrolled in the Human Genetics Focus Group; Pass Two restricted to graduate students enrolled in Genetics Graduate Group; after that, open enrollment for graduate students up to 12 students, then undergraduates. Human genomic organization; genetic structure of populations; positional cloning, application of linkage, association, and haplotypes; quantitative trait loci analyses; integrative genetic studies of gene expression; DNA repair mechanisms in genetic disease; mutation analyses; epigenetics; mitochondrial disease; gene manipulation and therapy.—*W.*
(change in existing course—eff. winter 15)

225. Gene Therapy (3)
Lecture/discussion—3 hours. Prerequisite: Genetics 201C, Molecular and Cellular Biology 214, or equivalent. Gene therapy from basic concepts to clinical applications. Topics include the human genome and genetic variation, genetic diseases, methods to manipulate gene expression, viral and non-viral delivery vectors, history and progress of gene therapy, case studies, and ethical issues. (Same course as Pharmacology & Toxicology 225.)—*S. (S.)* Anderson
(new course—eff. fall 14)

250. Functional Genomics: From Bench to Bedside (3)
Lecture/discussion—3 hours. Prerequisite: course 201C, Molecular and Cellular Biology 214, or equivalent. Functional genomics (how genetic variation and epigenomics affect gene expression), with an emphasis on clinical relevance and applications. Topics include genetic variation and human disease, cancer therapeutics, and biomarker discovery. (Same course as Pharmacology & Toxicology 250.)—*S. (S.)* Diaz, LaSalle, Segal
(new course—eff. spring 15)

290. Seminar in Evolutionary, Developmental and Population Genetics (1)
Seminar—1 hour. Topics of current interest in evolutionary, population, and developmental genetics. May be repeated for credit. (S/U grading only.) Offered in alternate years.—*S.*
(new course—eff. fall 14)

Geography (A Graduate Group)

New and changed courses in Geography (GEO)

Graduate

200CN. Quantitative Geography (4)
Lecture—2 hours; laboratory—6 hours. Class size limited to 25 students. Provides an overview of quantitative approaches in spatial data analysis. Overview of different approaches used for inference, modeling, and prediction. Also learn how to write computer programs to implement these methods.—*S. (S.)* Hijmans
(change in existing course—eff. winter 15)

210. Topics in Biogeography (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: Evolution and Ecology 147 or Wildlife, Fish, and Conservation Biology 156 (may be taken concurrently) or equivalent. Consent of instructor required for undergraduates. Current topics in historical and ecological biogeography, including macroecology and areography, GIS and remote sensing, phylogeography, vegetation, plant and animal community

and species geography. Systematics, climate change, and conservation will be addressed. Offered in alternate years.—Shapiro

(change in existing course—eff. winter 15)

211. Physical Geography Traditions and Methods (3)
Lecture/discussion—2 hours; term paper. Prerequisite: introductory course in physical geography. Graduate-level standing in geography or related discipline. Discussion of the physical science tradition in geography, including key concepts and current research in climatology, geomorphology, soils geography, biogeography, climate change, watershed science, and coastal studies. Research paradigms, programs, and methods as used by physical geographers will be discussed. May be repeated three times for credit. Offered in alternate years.—*F.*

(change in existing course—eff. winter 15)

215. Ecologies of Infrastructure (4)
Seminar—4 hours. Open to graduate standing or consent of instructor. Focus on design practices and theory associated with ecological conceptions of infrastructure, including networked infrastructure, region, bioregion, regionalization, ecological engineering, reconciliation ecology, novel ecosystems, and theory/articulation of landscape change. Offered in alternate years. (Same course as Landscape Architecture 215.)—Milligan

(new course—eff. winter 16)

220. Topics in Human Geography (4)
Seminar—4 hours. Prerequisite: graduate standing or consent of instructor. Class size limited to 20 students. Examination of philosophy and theory in human geography with an emphasis on contemporary debates and concepts in social, cultural, humanistic, political, and economic geographies. Specific discussion of space, place, scale and landscape; material and imagined geographies. Offered in alternate years.—*W. (W.)* Rios

(new course—eff. winter 16)

233. Urban Planning and Design (4)
Lecture—2 hours; discussion—2 hours. Limited to graduate students. 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. (Same course as Landscape Architecture 205.)—Wheeler

(change in existing course—eff. winter 16)

240. Geophysics of the Earth (3)
Lecture—3 hours. Prerequisite: Earth Sciences and Resources 201, Physics 9B, Mathematics 22B. Physics of the earth's crust, mantle, and core. Laplace's equation and spherical harmonic expression of gravity and magnetic fields. Elastic wave equation in geologic media. Body and surface seismic waves. Equations of state, thermal structure of the earth. Offered in alternate years.—*S. (S.)* Kellogg

(change in existing course—eff. fall 15)

241. The Economics of Community Development (4)
Seminar—4 hours. Prerequisite: graduate standing. Economic theories and methods of planning for communities. Human resources, community services and infrastructure, industrialization and technological change, and regional growth. The community's role in the greater economy. (Same course as Community and Regional Development 241.)—*F. (F.)* Kenney

(new course—eff. spring 15)

260. Global Political Ecology (4)
Seminar—3 hours; term paper or discussion—1 hour. Open to graduate students only or consent of instructor. Background, genesis, current debates in political ecology. Examination of political-economic and social-cultural causes of environmental change. Introduction to development theory, globalization, history of science and power/knowledge. Cases of social movements, justice, resistance, gender, race and class. Focus outside North America. Offered in alternate years.—*F, S.* Davis

(new course—eff. fall 14)

280. Field Studies in Geography (3)
Lecture—1 hour; fieldwork—6 hours. Prerequisite: undergraduate or graduate coursework in geography; consent of instructor required. Limited to 20 students. A topic or subdiscipline of geography will form the theme for the course in any given offering, with a focus on current research on this topic, field methodologies, and data analysis in human and physical geography. May be repeated two times for credit.

(change in existing course—eff. winter 15)

290. Seminar in Geography (1-3)
Seminar—1-3 hours. Prerequisite: graduate standing or consent of instructor. Seminar focuses on specified topical areas within geography, which will vary quarter to quarter. Students expected to present an oral seminar on an aspect of the general topic under discussion. May be repeated six times for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Geology

New and changed courses in Geology (GEL)

Lower Division

16G. The Oceans: Discussion (2)
Discussion/laboratory—2 hours; term paper or discussion. Prerequisite: course 16 concurrently. Scientific method applied to discovery of the processes, biota and history of the oceans. Group discussion and preparation of term paper. Not open for credit to students who have taken course 116G. GE credit: SciEng, Wrt | SE, WE.—*W. (W.)* Hill

(change in existing course—eff. fall 16)

18V. Energy and the Environment (3)
Web virtual lecture—1.5 hours; web electronic discussion—1.5 hours. Conventional and alternative energy resources and their environmental impacts. Basic principles, historical development, current advantages and disadvantages, future prospects. Oil, natural gas, coal, nuclear, wind, geothermal, water, tidal, solar, hydrogen, and other sources of energy for the 21st century. GE credit: SciEng | SE, SL, WE.—*W. (W.)* Verosub

(new course—eff. winter 15)

25V. Geology of National Parks (3)
Web virtual lecture— 1 hour; web electronic discussion—2 hours. Appreciation of the geologic framework underlying the inherent beauty of U.S. National Parks. Relationship of individual parks to geologic processes such as mountain building, volcanism, stream erosion, glacial action and landscape evolution. No credit for students who have completed course 25. GE credit: SciEng | SE.—*W, S. (W, S.)* Gee (UC San Diego), Osleger (UC Davis), Schwarz (UC Santa Cruz)

(new course—eff. spring 15)

50L. Physical Geology Laboratory (2)
Laboratory—6 hours. Prerequisite: course 50 concurrently. Introduction to classification and recognition of minerals and rocks and to interpretation of topographic and geologic maps and aerial photographs. Students with credit for course 1L or the equivalent may receive only 1 unit for course 50L. GE credit: SciEng | SE.—*F, W. (F, W.)* Billen, Lesher, Zierenberg

(change in existing course—eff. fall 16)

60. Earth Materials: Introduction (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Chemistry 2A; Mathematics 16A or 17A or 21A; course 1 or 50; course 50L. Physical and chemical properties of rocks, minerals and other earth materials; structure and composition of rock-forming minerals; formation of minerals by precipitation from silicate liquids and aqueous fluids and by solid state transformations. GE credit: SciEng | SE.—*F. (F.)*

(change in existing course—eff. fall 16)

62. Optical Mineralogy (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: course 60 (can be concurrent). Optical properties of inorganic crystals; techniques of mineral identification using the polarizing microscope; strategies for studying rocks in thin section. GE credit: SciEng | SE, VL.—*F. (F.)*

(change in existing course—eff. fall 16)

81. Learning in Science and Mathematics (2)
Lecture/discussion—2 hours; field work—2 hours. Limited to 26 students per section. 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. (Same course as Education 81.) (P/NP grading only.) GE credit: SS, VL, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 14)

Upper Division

101. Structural Geology (3)
Lecture—3 hours. Prerequisite: courses 50 and 50L; Physics 7A or 9A; Mathematics 16A or 17A or 21A; consent of instructor. Class size limited to 35 students. Study of processes and products of rock deformation. Introduction to structural geology through a survey of the features and geometries of faults and folds, techniques of strain analysis, and continuum mechanics of rock deformation. GE credit: SciEng | SE.—*W. (W.)* Cowgill, Oskin

(change in existing course—eff. fall 16)

101L. Structural Geology Lab (2)
Laboratory—6 hours; fieldwork—2 hours. Prerequisite: courses 50 and 50L; Physics 7A or 9A; course 101 concurrently; consent of instructor. Class size limited to 15 students per session. Laboratory study of the processes and products of rock deformation. Introduction to the practice of structural geology through observations and analysis of rock deformation, including field measurement techniques and geologic mapping. GE credit: SciEng | SE, VL.—*W. (W.)* Cowgill, Oskin

(change in existing course—eff. fall 16)

103. Field Geology (3)
Fieldwork; laboratory. Prerequisite: course 101 and 101L; consent of instructor. Field mapping projects and writing geological reports. Weekly classroom meetings devoted to preparation of maps, cross sections, stratigraphic sections, rock descriptions, and reports.Seven-eight days on weekends during quarter. GE credit: SciEng | SE, VL, WE.—*S. (S.)* Cowgill

(change in existing course—eff. fall 16)

105. Earth Materials: Igneous Rocks (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: courses 60, 62; Mathematics 16A or 17A or 21A; Chemistry 2B (can be concurrent). Origin and occurrence of igneous rocks. Laboratory exercises emphasize the study of these rocks in hand specimen and thin section. GE credit: SciEng, Wrt | SE, WE.—*W. (W.)* Cooper, Lesher

(change in existing course—eff. fall 16)

106. Earth Materials: Metamorphic Rocks (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: course 105. Physical and chemical properties of metamorphic rocks; interpretation of metamorphic environments. Laboratory exercises emphasize the study of these rocks in hand specimen and thin section. GE credit: SciEng, Wrt | SE, WE.—*S. (S.)*
(change in existing course—eff. fall 16)

107. Earth History: Paleobiology (3)
Lecture—3 hours. Prerequisite: course 3 or Biological Sciences 2A or Biological Sciences 10. Evolution and ecological structure of the biosphere from the origin of life to the present. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Carlson, Motani
(change in existing course—eff. fall 16)

107L. Earth History: Paleobiology Laboratory (2)
Laboratory—6 hours. Prerequisite: courses 3 and 3L or Biological Sciences 2B; course 107 concurrently. Exercises in determining the ecological functions and evolution of individuals, populations, and communities of fossil organisms in field and laboratory. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)* Carlson, Motani
(change in existing course—eff. fall 16)

108. Earth History: Paleoclimates (3)
Lecture—3 hours. Prerequisite: course 1 or 50 or 116N or Environmental Science and Policy 116N; Chemistry 2A; consent of instructor. Geological and environmental factors controlling climate change, the greenhouse effect with a detailed analysis of the history of Earth's climate fluctuations over the last 600 million years. Past and present climate records are used to examine potential future climatic scenarios. GE credit: SciEng, Wrt | SE, SL, WE.—*S. (S.)* Spero, Montañez
(change in existing course—eff. fall 16)

109. Earth History: Sediments and Strata (2)
Lecture—2 hours. Prerequisite: courses 50, 50L. Principles of stratigraphic and sedimentologic analysis. Evaluation of historical and modern global changes in sedimentation within terrestrial and marine environments. Examination of the plate tectonic, climatic and oceanographic factors controlling the distribution and exploitation of economic fluids within sedimentary rocks. GE credit: SciEng | SE.—*W. (W.)* Sumner
(change in existing course—eff. fall 16)

109L. Earth History: Sediments and Strata Laboratory (2)
Laboratory—6 hours. Prerequisite: course 109 concurrently. Methods of stratigraphic and sedimentologic analysis of modern and ancient sediments. Identification of major sediment and sedimentary rock types. Outcrop and subsurface analysis of sedimentary basins. GE credit with concurrent enrollment in course 109. Includes four one-day field trips. GE credit: SciEng, Wrt | SE, WE.—*W. (W.)* Sumner
(change in existing course—eff. fall 16)

110. Summer Field Geology (8)
Fieldwork. Prerequisite: course 103, course 109; course 105 recommended. Advanced application of geologic and geophysical field methods to the study of rocks. Includes development and interpretation of geologic maps and cross sections; gravity, magnetic, electrical resistivity and seismic surveys; and field analysis of plutonic and volcanic rock suites. Eight hours/day, six days/week for six weeks. GE credit: SciEng, Wrt | SE, VL, WE.—*Su. (Su.)* Oskin, Cowgill
(change in existing course—eff. fall 16)

129. Sample Preparation and Techniques for Petrology (1)
(cancelled course—eff. winter 16)

130. Non-Renewable Natural Resources (3)
Lecture—3 hours. Prerequisite: course 1 or 50. Origin, occurrence, and distribution of non-renewable resources, including metallic, nonmetallic, and energy-producing materials. Problems of discovery, production, and management. Estimations and limitations of reserves, and their sociological, political, and economic effects. Offered in alternate years. GE credit: SciEng | SE, SL.—*F. (F.)* Verosub
(change in existing course—eff. fall 16)

131. Risk: Natural Hazards and Related Phenomena (3)
Lecture—3 hours. Risk, prediction, prevention and response for earthquakes, volcanic eruptions, landslides, floods, storms, fires, impacts, global warming. GE credit: SciEng | SE, SL.—*F. (F.)* Rundle
(change in existing course—eff. fall 16)

132. Introductory Inorganic Geochemistry (3)
Lecture—3 hours. Prerequisite: course 60 (can be concurrent); Chemistry 2B. Nucleosynthesis of chemical elements, physical and chemical properties of elements, ionic substitution, elemental partition, distribution and transport among planetary materials, basic thermodynamics and phase diagrams, isotopic geochronometers, stable isotope fractionation, mixing and dilution, advection and diffusion, geochemical cycles. Offered in alternate years.—*F.* Yin
(change in existing course—eff. fall 16)

134. Environmental Geology and Land Use Planning (3)
Lecture—3 hours. Prerequisite: one course in Geology or course 1 or course 50; consent of instructor. Geologic aspects of land use and development planning. Geologic problems concerning volcanic and earthquake hazards, land stability, floods, erosion, coastal hazards, non-renewable resource extraction, waste disposal, water resources. GE credit: SciEng, Wrt | SE, WE.—*W. (W.)* Pinter
(change in existing course—eff. fall 16)

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.Restricted to advanced students in the physical sciences, biological sciences, or engineering. 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. GE credit: SciEng | SE, WE.—*S. (S.)*
(change in existing course—eff. winter 15)

138. Introductory Volcanology (4)
Lecture—2 hours; fieldwork—6 hours. Prerequisite: course 60 and 109; consent of instructor. Principles of physical and chemical volcanology. Taught in a volcanically active setting (e.g., Hawaii) with a strong field component. GE credit: SciEng | SE.—*F. (F.)* Zierenberg
(change in existing course—eff. fall 16)

139. Rivers: Form, Function and Management (4)
Lecture—3 hours; fieldwork—3 hours. Prerequisite: course 50 or 50L; Mathematics 16B or 21B recommended. Analysis of river form and processes, emphasis on fluvial geomorphology, and river and stream restoration; case studies to illustrate concepts and applications. Two weekend field trips required. Offered in alternate years. GE credit: SciEng | SE.—*F.* Pinter
(change in existing course—eff. fall 16)

140. Introduction to Process Geomorphology (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 1 or 50; Mathematics 16B or 21B. Quantitative description and interpretation of landscapes with emphasis on the relationships between physical processes, mass conservation, and landform evolution. Topics covered include physical and chemical weathering, hillslopes, debris flows, fluvial systems, alluvial fans, pedogenesis, eolian transport, glaciation and Quaternary geochronology. Offered in alternate years.—*(F.)* Oskin
(change in existing course—eff. fall 16)

141. Evolutionary History of Vertebrates (3)
Lecture—3 hours. Prerequisite: course 3 or Biological Sciences 2A. Evolutionary history of vertebrates; fossil record and phylogeny; timing of major evolutionary events; appearance of major vertebrate groups; physical constraints in vertebrate evolution; paleobiogeography of vertebrates; effect of continental movement on vertebrate evolution; dinosaurs and other strange vertebrates. Offered in alternate years. GE credit: SciEng | SE.—*(W.)* Motani
(change in existing course—eff. fall 16)

141L. Evolutionary History of Vertebrates Laboratory (1)
Laboratory—3 hours. Prerequisite: course 141 (can be concurrent). Augments lecture course 141 through handling of specimens enabling in-person examination of three dimensional features observed in vertebrate skeletons, both fossil and living. Offered in alternate years. GE credit: SciEng | SE.—*(W.)* Motani
(change in existing course—eff. fall 16)

149. Geothermal Systems (3)
Lecture—3 hours; fieldwork. Prerequisite: courses 50 and 50L; Chemistry 2B. Geology, geochemistry, and geophysics of geothermal systems, including electrical power generation and direct use applications. Includes one day field trip on a weekend during the quarter. GE credit: SciEng | SE.—*W. (W.)* Zierenberg
(change in existing course—eff. fall 16)

152. Paleobiology of Protista (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: course 107 or Biological Sciences 2A; consent of instructor. Morphology, systematics, evolution, and ecology of single-celled organisms that are preserved in the fossil record. Offered in alternate years. GE credit: SciEng | SE.—Hill
(change in existing course—eff. fall 16)

160. Geological Data Analysis (3)
Lecture/discussion—3 hours. Prerequisite: Mathematics 21A. Introduction to quantitative methods in analyzing geological data including basic principles of statistics and probability, error analysis, hypothesis testing, inverse theory, time series analysis and directional data analyses. Use of computer in lectures and homework. GE credit: SciEng | QL, SE.—*W. (W.)* Rundle
(change in existing course—eff. fall 16)

161. Geophysical Field Methods (3)
Lecture/discussion—3 hours; term paper. Prerequisite: course 1 or 50; Mathematics 21C; Physics 7C or 9C. Geophysical methods applied to determining subsurface structure in tectonics, hydrogeology, geotechnical engineering, hydrocarbon and mineral exploration. Theory, survey design and interpretation of gravity, electrical resistivity, electromagnetic, reflection and refraction seismology, and ground-penetrating radar measurements. GE credit: SciEng | QL, SE.—*F. (F.)* Billen
(change in existing course—eff. fall 16)

162. Geophysics of the Solid Earth (3)
Lecture—3 hours. Prerequisite: Mathematics 21C; Physics 7C or Physics 9C; consent of instructor. Theory and use of physics in the study of the solid earth. Gravity, magnetism, paleomagnetism, and heat flow. Application to the interpretation of the regional and large-scale structure of the earth and to plate tectonics. Offered in alternate years. GE credit: SciEng | QL, SE.—*(W.)* Kellogg
(change in existing course—eff. fall 16)

163. Planetary Geology and Geophysics (3)
Lecture—3 hours. Prerequisite: Mathematics 21C; Physics 7C or Physics 9C; course 50 or course 36 or Astronomy 10G or Astronomy 10L or Astronomy 10S; consent of instructor. Principles of planetary science. Planetary dynamics, including orbital mechanics, tidal interactions and ring dynamics. Theory of planetary interiors, gravitational fields, rotational dynamics. Physics of planetary atmospheres. Geological processes, landforms and their modification. Methods of analysis from Earth-based observations and spacecraft. Offered in alternate years. GE credit: SciEng | QL, SE.—*(S.)* Yin
(change in existing course—eff. fall 16)

190. Seminar in Geology (1)
Discussion—1 hour; seminar—1 hour; Presentation and discussion of current topics in geology by visiting lecturers, staff, and students. Written abstracts. May be repeated for credit. (P/NP grading only.) GE credit: SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

194A. Senior Thesis (3)
Prerequisite: open to Geology majors who have completed 135 units and who do not qualify for the honors program. Guided independent study of a selected topic, leading to the writing of a senior thesis. (Deferred grading only, pending completion of course sequence.) GE credit: SciEng | SE, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194B. Senior Thesis (3)
Prerequisite: open to Geology majors who have completed 135 units and who do not qualify for the honors program. Guided independent study of a selected topic, leading to the writing of a senior thesis. (Deferred grading only, pending completion of course sequence.) GE credit: SciEng | SE, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HA. Senior Honors Project (3)
Independent study—9 hours. Prerequisite: open to Geology majors who have completed 135 units and who qualify for the honors program. Guided independent study of a selected topic, leading to the writing of an honors thesis. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HB. Senior Honors Project (3)
Independent study—9 hours. Prerequisite: open to Geology majors who have completed 135 units and who qualify for the honors program. Guided independent study of a selected topic, leading to the writing of an honors thesis. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

198. Directed Group Study (1-5)
Prerequisite: senior standing in Geology or consent of instructor. GE credit: SciEng | SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

Graduate

298. Group Study (1-5)
Prerequisite: graduate standing or consent of instructor. May be repeated up to 10 units for credit. (S/U grading only.)
(change in existing course—eff. spring 15)

German

New and changed courses in German (GER)

Lower Division

1. Elementary German (5)
Discussion—5 hours; laboratory—1 hour. Not open to students who have taken course 1A. 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. GE credit: ArtHum | AH, WC.—*F, W, S. (F, W, S.)* Arnett
(change in existing course—eff. winter 15)

2. Elementary German (5)
Discussion—5 hours; laboratory—1 hour. Prerequisite: course 1. Not open for credit to students who have taken course 1A. Continuation of course 1 in areas of grammar and basic language skills. GE credit: ArtHum | AH, WC.—*F. W. (F, W.)* Arnett
(change in existing course—eff. fall 14)

3. Elementary German (5)
Discussion—5 hours; laboratory—1 hour. Prerequisite: course 2. Not open to students who have taken course 1A. Completion of grammar sequence and continuing practice of all language skills through cultural texts. GE credit: ArtHum | AH, OL, WC.—*F. W. (F, W.)* Arnett
(change in existing course—eff. winter 15)

11. Travel and the Modern World (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: completion of entry level writing requirement. Examination of travel as an essential human activity and experience of global modernity and cross-cultural encounters from the 18th to the 21st century with an emphasis on German-speaking culture. Travelogues, literature, art, memoirs, and films in English translation. (Same course as Comparative Literature 11.) GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*F, W, S. (F, W, S.)* Zhang
(new course—eff. spring 16)

20. Intermediate German (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 3; may be taken concurrently with course 6. Review of grammatical principles by means of written exercises; expanding of vocabulary through readings of modern texts. GE credit: ArtHum | AH, OL, WC, WE.—*F. W. (F, W.)*
(change in existing course—eff. winter 15)

21. Intermediate German (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 20. Review of grammatical principles by means of written exercises; expanding of vocabulary through readings of modern texts; addresses social relations and cultural practices in Germany; discusses history of Germany. GE credit: ArtHum | AH, OL, WC, WE.
(change in existing course—eff. winter 16)

22. Intermediate German (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 21. Review of grammatical principles by means of written exercises; expanding of vocabulary through readings of modern texts. GE credit: ArtHum | AH, OL, WC, WE.—*F. W. (F, W.)*
(change in existing course—eff. winter 15)

48. Myth and Saga in the Germanic Cultures (4)
Lecture—3 hours; term paper. Knowledge of German not required. English translation from the Norse Eddas, the Volsung and Sigurd-Siegfried cycles, and the Gudrun lays; literary mythology in German Romanticism culminating in Wagner's "total artwork" concept and The Ring of the Nibelung cycle. May not be counted toward major in German. GE credit: ArtHum, Wrt | AH, VL, WC, WE.—*F. (F.)*
(change in existing course—eff. winter 15)

92. Field Work in German (1-12)
Internship—3-36 hours. Prerequisite: lower division standing. Restricted to lower-division standing. Total immersion program in Germany or a German speaking setting in the U.S. to further develop students' proficiency in the German language. (P/NP grading only.)—*F, W, S. (F, W, S.)* Henderson
(change in existing course—eff. winter 15)

Upper Division

101A. Survey of German Literature, 800-1800 (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 22 or consent of instructor. German literature from the Middle Ages to Classicism (800-1800) with an overview of major movements and authors. GE credit: ArtHum | AH, OL, VL, WC, WE.—*F. (F.)* Arnett
(change in existing course—eff. spring 16)

103. Writing Skills in German (4)
Lecture—3 hours; extensive writing—1 hour. Prerequisite: course 22 or consent of instructor. Practice in different kinds of writing, such as abstracts, correspondence, lecture summaries, analysis of or response to short literary texts. GE credit: ArtHum | AH, OL, WC, WE.—*F, W, S. (F, W, S.)* Zhang
(change in existing course—eff. fall 16)

104. Translation (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 22 or consent of instructor. Exercises in German-to-English, English-to-German translation using texts from the areas of culture and commerce. Not open for credit to students who have completed course 104A. Offered irregularly. GE credit: ArtHum | AH, OL, VL, WC, WE.—Fisher
(change in existing course—eff. spring 16)

105. The Modern German Language (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 22 or consent of instructor. Introduction to the linguistic analysis of contemporary German, including its phonology, morphology, syntax and semantics, as well as sociolinguistic considerations. Offered irregularly. GE credit: ArtHum, Wrt | AH, OL, WC, WE.—Arnett
(change in existing course—eff. spring 16)

112. Topics in German Literature (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: upper-division standing or consent of instructor. Investigation of significant themes and issues within their European context. Knowledge of German is not required. May be repeated one time for credit. Offered irregularly. GE credit: ArtHum, Wrt | AH, WC.
(change in existing course—eff. spring 16)

114. From Marlene Dietrich to Run, Lola Run: German Women and Film (4)
Lecture/discussion—3 hours; extensive writing; film viewing—3 hours. 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 | AH, OL, VL, WC, WE.—*S. (S.)* Krimmer

(change in existing course—eff. winter 15)

118E. Contemporary German Culture (4)
Lecture/discussion—3 hours. Prerequisite: course 22 or consent of instructor. The political, economic, social and cultural scene of Germany today. Offered irregularly. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. fall 16)

120. Survey of German Culture (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 22 or consent of instructor. Major developments in German arts, philosophical thought, social institutions, and political history. GE credit: ArtHum | AH, OL, VL, WC, WE.—Zhang

(change in existing course—eff. spring 16)

121. The Medieval Period in German Literature (4)
Discussion—3 hours; extensive writing. Prerequisite: course 22 or consent of instructor. Literary-philosophical profile of the Mittelhochdeutsche Blütezeit in terms of the significant epics, romances, and lyric poetry. Readings in German. Offered irregularly. GE credit: ArtHum | AH.—Arnett

(change in existing course—eff. spring 16)

122. Reformation and Baroque (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Exemplary literary works of the 16th and 17th centuries tracing the principal lines of development and showing the reflection in literature of the social, as well as religious, scenes. Offered irregularly. GE credit: ArtHum | AH, OL, VL, WC, WE.

(change in existing course—eff. fall 16)

123. Literature of the Classical Age (4)
Discussion—3 hours; term paper. Prerequisite: course 22 or consent of instructor. A critical assessment of principal works of Goethe and Schiller within the historical and philosophical context of their times. Offered irregularly. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. fall 16)

124. Major Movements in German Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Significant movements and schools in German literary history (e.g., the medieval troubadours, Storm and Stress, the romanticists, the George Circle, the expressionists), with emphasis on the broader cultural dynamics and ideologies as these apply to individual literary works. May be repeated one time for credit when topic differs. Offered irregularly. GE credit: ArtHum | AH, WC.—Finney

(change in existing course—eff. fall 16)

125. Short Fiction: 1880-1914 (4)
Lecture—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Reading of short German fiction from the fin-de-siècle period and representative of various prose styles and cultural currents. Offered irregularly. GE credit: ArtHum | AH, WC, WE.—Finney

(change in existing course—eff. spring 16)

126. Modern German Literature (4)
Discussion—3 hours; extensive writing. Prerequisite: course 22. Selections from significant works of major contemporary writers, such as Hesse, Mann, Kafka, Rilke, Brecht, Grass. May be repeated one time for credit with consent of adviser. Offered irregularly. GE credit: ArtHum | AH, WC, WE.—Finney

(change in existing course—eff. spring 16)

127. Major Writers in German (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 22 or consent of instructor. Examination of representative works by a major writer, set in the broader cultural context of the relevant period or movement. May be repeated one time for credit when topic differs. Offered irregularly. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. spring 16)

129. Postwar Women Writers (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 22 or consent of instructor. Major writers in both Germanies, Austria, and Switzerland since 1945. Topics include the concept of a feminist aesthetics, East vs. West German writers, and the status of minority women writers in Germany (Jewish, Turkish-German, Afro-German). Offered irregularly. GE credit: ArtHum, Div | AH, WC, WE.—Finney

(change in existing course—eff. spring 16)

131. German Lyric Poetry (4)
Lecture—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Study of the genre of lyric poetry from the late Middle Ages through Renaissance, Baroque, Classical, Romantic, and Modern periods in correlation with other literary forms and the social climate of each period. Offered irregularly. GE credit: ArtHum | AH, WC, WE.—Finney

(change in existing course—eff. fall 16)

132. The German Novelle (4)
Lecture—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Inquiry into the art of the "Novelle" through analysis of the materials and formal devices of representative authors from Goethe to Kafka. Offered irregularly. GE credit: ArtHum | AH, WC, WE.

133. The German Drama (4)
Lecture—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Readings in the works of Germany's leading dramatists from the eighteenth century to the present day, such as Lessing, Goethe, Schiller, Kleist, Büchner, Hauptmann, Brecht. Offered irregularly. GE credit: ArtHum | AH, OL, VL, WC, WE.—Krimmer

(change in existing course—eff. spring 16)

134. Topics in German Intellectual History (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 22 or consent of instructor. 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. Offered irregularly. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. spring 16)

143. Language Through Media (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Study of contemporary German-language news media (press, video, film, CD-ROM, internet) for insight into political and cultural developments in the German-speaking countries. Offered irregularly. GE credit: ArtHum | AH, OL, VL, WC, WE.—Arnett

(change in existing course—eff. spring 16)

160. Love in the Middle Ages (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 22 or consent of instructor. Analysis of the phenomenon of love in selected medieval lyrical poems and romances of the twelfth and thirteenth century Blütezeit. Origins of courtly love, love and individualism, love and the Church, love and adultery. Offered irregularly. GE credit: ArtHum | AH, WC, WE.—Arnett

(change in existing course—eff. fall 16)

168. Multiculturalism in German Literature (4)
Lecture/discussion—3 hours; term paper or discussion—1 hour. Prerequisite: course 22 or consent of instructor. Examples of German Literature from the High Middle Ages to the present that explore the "encounter with the other" (people of color, different beliefs and cultures, and inner-German minorities). Offered irregularly. GE credit: ArtHum, Div | AH, OL, VL, WC, WE.—Arnett

(change in existing course—eff. spring 16)

185. The Age of Bismarck (4)
Discussion—3 hours; term paper. Prerequisite: course 22 or consent of instructor. Notable literary repercussions of the zenith of Germany's international status at the time of Bismarck's Chancellorship. The poetry of Storm, the prose of Fontane, the drama of Hauptmann. Offered irregularly. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. spring 16)

194HA. Honors Program (3)
Independent study—2 hours; term paper. Prerequisite: open only to majors with a 3.500 minimum GPA in at least 135 graduation units. Research of an integrative nature (in either "General" or "Area Studies Emphasis" fields of major), guided by thesis advisor chosen by student. (P/NP grading only. Deferred grading only, pending completion of course sequence.)

(change in existing course—eff. summer 15)

194HB. Honors Program (3)
Independent study—2 hours; term paper. Prerequisite: open only to majors with a 3.500 minimum GPA in at least 135 graduation units. Writing of Honors Thesis on topic selected by student in consultation with thesis advisor. (P/NP grading only. Deferred grading only, pending completion of course sequence.)

(change in existing course—eff. summer 15)

Graduate

202. Middle High German (4)
Discussion—3 hours; lecture—1 hour. Prerequisite: graduate standing. Outline of grammar; selections from Middle High German epic, romance, and lyric poetry.

(change in existing course—eff. spring 16)

210. Techniques of Literary Scholarship (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. The bibliographical, organizational, and methodological tools and re-sources for advanced, independent research. Offered irregularly.

(change in existing course—eff. spring 16)

211. Concepts in Literary Theory (4)
Seminar—3 hours. Prerequisite: graduate standing. Advanced course in concepts of literary theory and criticism. Discussion of the emergence of theoretical concepts and their impact on the understanding and appreciation of literary works. Discussion in German and English, readings in German. Offered irregularly.

(change in existing course—eff. spring 16)

212. Contemporary Approaches to Literary Theory (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Study of contemporary theoretical approaches such as structuralism, deconstruction, feminism, Marxism/Frankfurt School, and reception theory in conjunction with the works of major authors. Offered irregularly.—Finney

(change in existing course—eff. spring 16)

239. Narrative and Narrative Theory (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Studies, in a theoretical and literary historical context, major elements of 19th- and 20th-century narrative, such as techniques of framing, refraction, and montage; narrative perspective; mimesis; and self-consciousness. Focuses on paradigmatic prose texts alongside a spectrum of critical approaches. Finney—Finney
(change in existing course—eff. spring 16)

240. Forms of German Verse (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. The development of German verse from the Middle Ages to the present, with special emphasis on different techniques of text analysis and interpretation. May be repeated for credit with consent of instructor. Offered irregularly.
(change in existing course—eff. spring 16)

241. The German Drama (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. The major forms of German drama from its origins to the middle of the twentieth century. May be repeated for credit with consent of instructor. Offered irregularly.—Finney
(change in existing course—eff. spring 16)

242. The German Novelle (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. The major German Novellisten, with particular emphasis on the flowering of this genre in the nineteenth century. May be repeated for credit with consent of instructor. Offered irregularly.
(change in existing course—eff. spring 16)

243. Fontane and the Rise of the Modern German Novel (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fontane, the father of the modern German novel and the chief German representative of the European novel at its greatest, in the context of the nineteenth-century European political and social scene. Offered irregularly.
(change in existing course—eff. spring 16)

244. Gender and Comedy (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Studies of genre and gender in German-language comedy by male and female writers from the 18th century to the present. Authors treated include Lessing, Kleist, Büchner, Ebner-Eschenbach, Hauptmann, Hofmannsthal, Frisch, Langner, and Jelinek. Offered irregularly.—Finney
(change in existing course—eff. spring 16)

252. The Writings of Lessing (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Study of Lessing's theory of literature with particular emphasis upon his critical attacks on French drama. Offered irregularly.
(change in existing course—eff. spring 16)

253. Goethe (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. The Study of the origins of Goethe's thought in German Pietism, and his principal artistic, autobiographical, scientific, and philosophical works. Offered irregularly.—Krimmer
(change in existing course—eff. spring 16)

254. Schiller (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. A critical analysis of Schiller's major works and his impact on the intellectual climate in Germany during the late eighteenth and early nineteenth centuries. Offered irregularly.—Krimmer
(change in existing course—eff. spring 16)

257. Heinrich von Kleist (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Kleist's important dramatic and prose works; special attention will be given to the peculiar hermeneutic problems in modern German, French, and Anglo-American Kleist criticism. Offered irregularly.—Krimmer
(change in existing course—eff. spring 16)

258. The Novels of Thomas Mann (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Reading of selected novels with emphasis on aesthetic techniques, originality, ethical and political views, and influence on the contemporary literary scene in Germany. Offered irregularly.
(change in existing course—eff. spring 16)

259. Studies in Kafka (4)
Seminar—3 hours; term paper.Prerequisite: graduate standing. Study of Kafka's narrative techniques with special emphasis in the shorter works on the existential development from its roots in Expressionism. Offered irregularly.—Rose
(change in existing course—eff. spring 16)

260. The Poetry of Rilke (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Study of the principal motifs, myths, images, and problems in the poetry of Rainer Maria Rilke. Offered irregularly.
(change in existing course—eff. spring 16)

261. Brecht and the Epic Theater (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. A reading of Brecht's works with emphasis on the ideas which impelled the development of new literary forms and concepts.—*S. (S.)* Fisher
(change in existing course—eff. spring 16)

262. Studies in Turn-of-the-Century Culture (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Investigates literary currents in turn-of-the-century Germany and Austria against the background of contemporaneous developments in psychology, the visual arts, philosophy, and music. Authors treated include Hauptmann, Holz and Schlaf, Schnitzler, T. Mann, Wedekind, Musil, Hofmannsthal. Offered irregularly.—Finney
(change in existing course—eff. spring 16)

285. Middle High German Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: graduate standing or consent of instructor. Extensive reading of Middle High German texts in the original language. Examines linguistic and literary problems. May be repeated for credit when topic differs. Offered irregularly.
(change in existing course—eff. spring 16)

288. The Renaissance and Reformation in German Literature (4)
Seminar—3 hours; term paper. Restricted to graduate standing. The parabolic and didactic style in Germany's literature during the sixteenth century. May be repeated for credit with consent of instructor. Offered irregularly.
(change in existing course—eff. fall 16)

289. German Literature of the Baroque (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. The "Elegantiaideal" and the varying methods used to portray it in seventeenth-century German literature. May be repeated for credit with consent of instructor. Offered irregularly.
(change in existing course—eff. spring 16)

Global Disease Biology

New and changed courses in Global Disease Biology (GDB)

Lower Division

90. Introduction to Global Disease Biology (1)
Seminar—1 hour; fieldwork—1 hours. Introduction to the Global Disease Biology major, research and internship opportunities, and potential career paths in human, animal, and plant health. Communication, ethics and the nature of science. (P/NP grading only.)—*F. (F.)* Rizzo
(new course—eff. fall 14)

Upper Division

101. Epidemiology (4)
Lecture—2 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: Science and Society 13; Biological Science 2A, 2B, 2C; Statistics 13, 100 or Plant Sciences 120. Principles and practice of epidemiology as applied to human, animal, and plant populations and the environment in which these populations co-exist. Quantitative analysis of both infectious and non-infectious disease. Inter-dependence between epidemiological analysis, decision-making and policy formulation will be highlighted. GE credit: SciEng | SE, QL.—*W. (W.)* McRoberts, Papageorgiou
(new course—eff. winter 15)

102. Disease Intervention and Policy (4)
Lecture—3 hours; discussion—1 hour; project. Prerequisite: course 101; Science and Society 13; Biological Sciences 2A, 2B, 2C; Pathology, Microbiology and Immunology 129Y; VM-Medicine and Epidemiology 158. Examination of the prevention and treatment of diseases affecting humans, animals, and plants. Case studies will illustrate the merits of a unified approach to promoting health at local, regional, and global scales. GE credit: SciEng | OL, SE, SL.—*S. (S.)* Rizzo
(change in existing course—eff. spring 15)

103. The Microbiome of People, Animals, and Plants (3)
Lecture—3 hours. Prerequisite: Biological Science 2A, 2B, 2C. Examination of the structure and function of microbial communities that live inside and on host organisms. Introduction to general concepts of the microbiome and microbiota, and their relationship to host health and disease. GE credit: SciEng | SE, SL.—*F. (F.)* Cook, Leveau
(new course—eff. fall 15)

187. Global Disease Biology Seminar (3)
Seminar—1 hour; discussion—1 hour; term paper. Prerequisite: course 90, Science and Society 13. Open to junior standing; Global Disease Biology majors. Seminar leading to development of the research proposal and academic plan for the Global Disease Biology major.—*F. (F.)*
(new course—eff. fall 15)

189. Global Disease Biology Senior Research (3)
Independent study—3 hours. Prerequisite: courses 90, 189D; (course 189D concurrently the first time course 189 is taken), Science and Society 13. Restricted to senior standing; Global Disease Biology majors only. Capstone research experience for the Global Disease Biology major. Project may be experimental, library research, or some other creative activity. May be repeated one time for credit for student research conducted over two quarters;

second quarter used to finish writing the research paper. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. fall 15)

189D. Global Disease Biology Research Discussion (1)
Discussion—1 hour. Prerequisite: courses 90, 187, Science and Society 13; course 189 required concurrently. Restricted to junior standing; Global Disease Biology majors only. Course helps prevent or solve problems during the students' research activity. Independent advising and assistance on research proposal. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(new course—eff. fall 15)

Greek

New and changed courses in Greek (GRK)

Lower Division

2. Elementary Greek (5)
Lecture—5 hours. Prerequisite: course 1 or the equivalent. Continuation of course 1. GE credit: ArtHum | AH.—*W. (W.)* Popescu

(change in existing course—eff. spring 16)

2NT. Elementary New Testament Greek (1)
Lecture—1 hour. Prerequisite: course 2 (required concurrently) or consent of instructor. Supplementary study of New Testament Greek. GE credit: ArtHum | AH.—*W. (W.)* Popescu

(change in existing course—eff. spring 16)

3. Intermediate Greek (5)
Lecture—5 hours. Prerequisite: course 2 or the equivalent. Continuation of course 2. Selected readings from Greek authors. GE credit: ArtHum | AH.—*S. (S.)* Popescu

(change in existing course—eff. spring 16)

3NT. Elementary New Testament Greek (1)
Lecture—1 hour. Prerequisite: course 3 (required concurrently) or consent of instructor. Supplementary study of New Testament Greek. GE credit: ArtHum | AH.—*S. (S.)* Popescu

(change in existing course—eff. spring 16)

Upper Division

100. Readings in Greek Prose (4)
Lecture/discussion—4 hours. Prerequisite: course 3 or equivalent. Review of Greek morphology, syntax, and vocabulary. Readings in Greek prose authors, including Xenophon. GE credit: ArtHum | AH.—*F. (F.)* Rundin, Seal

(change in existing course—eff. spring 15)

101. Plato (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

102. Euripides (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Popescu

(change in existing course—eff. spring 16)

103A. Homer: Iliad (4)
Recitation—3 hours; term paper. Prerequisite: course 3. GE credit: ArtHum, Wrt | AH, WE.—Brelinski

(change in existing course—eff. spring 15)

103B. Homer: Odyssey (4)
Recitation—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

104. Menander (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

105. Attic Orators (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Selected readings from the orators of 4th and 5th century Athens. May be repeated for credit if topic differs and with consent of instructor. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)* Seal

(change in existing course—eff. spring 16)

110. Readings in the Greek Novel (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Selected readings from Greek prose fiction of the late classical, Hellenistic and imperial periods. May be repeated two times for credit with consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

111. Sophocles (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Uhlig

(change in existing course—eff. fall 16)

112. Aristophanes (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

113. Thucydides (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—Popescu, Seal

(change in existing course—eff. spring 16)

114. Lyric Poetry (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Offered in alternate years. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Popescu

(change in existing course—eff. spring 16)

115. Aeschylus (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Offered in alternate years. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

116. Herodotus (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

121. Greek Prose Composition (4)
Lecture/discussion—4 hours. Prerequisite: course 100 or consent of instructor. Intensive grammar and vocabulary review through exercises in Greek prose composition. Offered in alternate years. GE credit: ArtHum | AH.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

130. Readings in Later Greek (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Translation and discussion of selected readings from Hellenistic to Byzantine Greek literature. Offered in alternate years. GE credit: ArtHum | AH, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

(change in existing course—eff. winter 15)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)

(change in existing course—eff. winter 15)

Health Informatics

New and changed courses in Health Informatics (MHI)

Graduate

289A. Special Topics in Medical Informatics; Data Acquisition (1-5)
Lecture; laboratory. Prerequisite: consent of instructor. Special topics in Data Acquisition. May be repeated for credit when topic differs.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

289B. Special Topics in Health Informatics; Seminars in Clinical Translational Informatics (1-5)
Seminar—1 hour. Seminars in current clinical translational informatics research topics. Guest presenters and faculty led discussion.—*F, W, S. (F, W, S.)* Anderson, Nicholas

(change in existing course—eff. summer 15)

289F. Database and Knowledge Management (4)
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Class size limited to 20 students. Course objectives include understanding the informatics techniques for data capture, information management, and knowledge generation that a student will use throughout their career. May be repeated for credit.—*F, W, S. (F, W, S.)* Lynch

(change in existing course—eff. winter 15)

289G. Special Topics in Health Informatics; Biostatistics (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: consent of instructor. Special topics in Biostatistics. Evaluation Methods and Statistics in Biomedical Informatics. Research design and analysis with special emphasis on Biomedical Informatics.—*F, S. (F, S.)* Odor

(new course—eff. spring 16)

Hebrew

New and changed courses in Hebrew (HEB)

Lower Division

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. GE credit: ArtHum | AH, WC.—*Su. (Su.)*

(change in existing course—eff. spring 15)

10. Introduction to Biblical Hebrew (3)
Lecture/discussion—3 hours. Introduction to the Hebrew Alphabet and basic grammar rules of the biblical language. Students will learn to read most any biblical text and learn how to find the meaning of words by their roots and morphological structure. GE credit: ArtHum | AH, WC.

(change in existing course—eff. spring 15)

21. Intermediate Mod Hebrew I (5)
Lecture/discussion—5 hours. Prerequisite: course 3 or consent of instructor. Development and refinement of grammar, composition, and language skills required for reading literary texts and conversing about contemporary topics at an advanced level. History of the Hebrew language. Not open to students who have taken courses 100 or 100A.—Franco

(change in existing course—eff. spring 15)

22. Intermediate Modern Hebrew II (5)
Lecture/discussion—5 hours. Prerequisite: course 21 or consent of instructor. Continued development and refinement of grammar, composition, and language skills required for reading literary texts and conversing about contemporary topics at an advanced level. History of the Hebrew language. Not open to students who have taken course 101 or 100B.—Franco

(change in existing course—eff. spring 15)

23. Intermediate Modern Hebrew III (5)
Lecture/discussion—5 hours. Prerequisite: course 22 or consent of instructor. Continued development and refinement of grammar, composition, and language skills required for reading literary texts and conversing about contemporary topics at an advanced level. History of the Hebrew language. Further development of writing and translating skills. Not open to students who have taken course 100C or 102.

(change in existing course—eff. spring 15)

Upper Division

100AN. Advanced Modern Hebrew I (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 23 or consent of instructor. Students who have taken course 100A as 2nd year Hebrew may take course 100AN. Third year Hebrew. Advanced grammar and composition. Focus on reading of literary texts, oral skills and accuracy in writing. GE credit: ArtHum | AH.

(change in existing course—eff. spring 15)

100BN. Advanced Modern Hebrew II (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100AN or consent of instructor. Students who have taken course 100B as 2nd year Hebrew may take course 100BN. Third year Hebrew. Advanced grammar and composition. Focus on reading of literary texts, oral skills and accuracy in writing. GE credit: ArtHum | AH.

(change in existing course—eff. spring 15)

100CN. Advanced Modern Hebrew III (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100BN. Students who have taken course 100C as 2nd year Hebrew may take course 100CN. Third year Hebrew. Advanced grammar and composition. Focus on reading of literary texts, oral skills and accuracy in writing. GE credit: ArtHum | AH.

(change in existing course—eff. spring 15)

Hindi

New and changed courses in Hindi (HIN)

Lower Division

1. Elementary Hindi/Urdu I (5)
Lecture/discussion—5 hours. Introduction to Devanagari Script through development of all language skills in a cultural context with emphasis on communicative proficiency.GE credit: ArtHum | AH, WC.—*F. (F.)* Chauhan

(change in existing course—eff. fall14)

1A. Accelerated Intensive Elementary Hindi (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 Devnagari Script through development of all language skills in cultural context with emphasis on communicative proficiency. Not open for credit to students who have completed course 1, 2 or 3. GE credit: ArtHum | AH.

(change in existing course—eff. spring 15)

2. Elementary Hindi/Urdu II (5)
Lecture/discussion—5 hours. Prerequisite: course 1. Continuation of course 1. Devanagari Script through development of all language skills in a cultural context with emphasis on communicative proficiency. GE credit: ArtHum | AH, WC.—*W. (W.)* Chauhan

(change in existing course—eff. winter 15)

3. Elementary Hindi/Urdu III (5)
Lecture/discussion—5 hours. Prerequisite: course 2. Introduction to Devanagari Script through development of all language skills in a cultural context with emphasis on communicative proficiency. GE credit: ArtHum | AH, WC.—*S. (S.)* Chauhan

(change in existing course—eff. spring 15)

History

New and changed courses in History (HIS)

Lower Division

1. Introduction to History (2)
Lecture—1 hour; discussion—1 hour. Introduction to history, its key methodologies, writing tasks, and research practices. Examination of the development of history as an academic discipline; ethics in historical research. Topical focus changes regularly. GE credit: SS, WC, WE.

(new course—eff. spring 16)

4B. History of Western Civilization (4)
Lecture—3 hours; discussion—1 hour. History of western civilization from the Renaissance to the Eighteenth Century. GE credit: ArtHum or SocSci, Wrt | AH or SS, VL, WC, WE.—*S. (S.)* Stuart

(change in existing course—eff. winter 15)

12. Food and History (4)
Lecture—3 hours; discussion—1 hour. Survey of the ways humans have fed themselves from the dawn of humanity to the present. Transformation of plants and animals into food, cooking into cuisine, and ceremony into etiquette. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, OL, VL, WC, WE.—McKee, Resendez

(change in existing course—eff. fall 14)

72A. Women and Gender in America, to 1865 (4)
Lecture—3 hours; discussion—1 hour. History of women and gender in America through 1865, emphasizing intersections of gender, race, class, and sexuality. Topics include interracial marriage, slavery, witchcraft, meanings of motherhood, war, domestic labor, moral reform, women's rights, migrations, the effects of commercialization and industrialization. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.—*W. (W.)* Hartigan-O'Connor

(change in existing course—eff. fall 14)

72B. Women and Gender in America, 1865-Present (4)
Lecture—3 hours; discussion—1 hour. History of women and gender in America since 1865, emphasizing intersections of gender, race, class, and sexuality. Covers emancipation, migration, immigration, war, media, same-sex and opposite-sex relationships, and the birth control, suffrage, labor, civil rights, feminist, and anti-feminist movements. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.— Materson

(change in existing course—eff. fall 14)

80. The History of the United States in the Middle East (2)
Lecture/discussion—2 hours. History of the United States in the Middle East from 1900 to the present. Examination of U.S. foreign relations toward the Middle East, their regional ramifications and domestic repercussions. GE credit: ArtHum or SocSci | ACGH, AH or SS, WC, WE.—Oropeza, Tezcan

(new course—eff. spring 15)

85. Nature, Man, and the Machine in America (4)
Seminar—4 hours; term paper. Limited enrollment. History of the attitudes and behavior of Americans toward their natural environment and their technology, from colonial times to the present. No final examination. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS, WE.

(change in existing course—eff. spring 16)

Upper Division

101. Introduction to Historical Thought and Writing (5)
Lecture/discussion—4 hours; term paper. Study of the history of historical thought and writing, analysis of critical and speculative philosophies of history and evaluation of modes of organization, interpretation, and style in historical writing. Offered in alternate years. GE credit: WE.

(change in existing course—eff. fall 16)

102A. Undergraduate Proseminar in History; Ancient (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Ancient. May be repeated for credit.

(change in existing course—eff. summer 15)

102B. Undergraduate Proseminar in History; Medieval (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Medieval. May be repeated for credit. Offered in alternate years.

(change in existing course—eff. summer 15)

102C. Undergraduate Proseminar in History (5)
(cancelled course—eff. fall 99)

102D. Undergraduate Proseminar in History; Modern Europe to 1815 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Modern Europe to 1815. May be repeated for credit.
(change in existing course—eff. summer 15)

102E. Undergraduate Proseminar in History; Europe Since 1815 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Europe since 1815. May be repeated for credit.
(change in existing course—eff. summer 15)

102F. Undergraduate Proseminar in History; Russia (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Russia. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102G. Undergraduate Proseminar in History (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. China to 1800. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102H. Undergraduate Proseminar in History; China Since 1800 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. China since 1800. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102I. Undergraduate Proseminar in History; Britain (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Britain. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102J. Undergraduate Proseminar in History; Latin America Since 1810 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Latin America since 1810. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102K. Undergraduate Proseminar in History; American History to 1787 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. American History to 1787. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102L. Undergraduate Proseminar in History; United States, 1787-1896 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. United States, 1787-1896. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102M. Undergraduate Proseminar in History; United States Since 1896 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. United States since 1896. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102N. Undergraduate Proseminar in History; Japan (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Japan. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102O. Undergraduate Proseminar in History; Africa (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Africa. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102P. Undergraduate Proseminar in History; Christianity and Culture in Europe, 50-1850 (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Christianity and Culture in Europe, 50-1850. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102Q. Undergraduate Proseminar in History; India (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. India. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102R. Undergraduate Proseminar in History; Muslim Societies (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Muslim Societies. May be repeated for credit. Offered in alternate years.
(change in existing course—eff. summer 15)

102S. Undergraduate Proseminar in History; Education Abroad Program (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. Education Abroad Program. May be repeated for credit. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | AH or SS, WE.
(change in existing course—eff. summer 15)

102X. Undergraduate Proseminar in History (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. 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.
(change in existing course—eff. summer 15)

105. Teaching History (4)
Lecture—3 hours; term paper. Teaching of American and world history at the K-12 level. Emphasis on introducing college students to the multiple ways in which history is taught, and on understanding how history education is determined. GE credit: ArtHum or SocSci | ACGH, AH or SS, WE.— Olmsted
(new course—eff. fall 14)

112C. History of Jews in the Muslim World (4)
Lecture—3 hours; term paper. History of Jewish communities in the lands of Islam from the time of the Prophet Muhammad to the present day. GE credit: SocSci | SS, WC, WE.
(change in existing course—eff. fall 16)

115F. History of Modern North Africa, 1800 to the Present (4)
Lecture—3 hours; term paper. History of Morocco, Algeria, Tunisia and Libya (the Maghrib), 1800 to the present. Topics include conquest and pacification, reform movements, the rise of nationalism, decolonization, state capitalism, economic liberalization, Islamism, democratization and human rights, the interplay of history and memory. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.
(change in existing course—eff. fall 11)

116. African History: Special Themes (4)
Lecture—3 hours; term paper. Prerequisite: course 15 recommended. Themes of African history, such as African states and empires, slave trade, relationship of Egypt to rest of Africa, Bantu origins and migrations, and French policy of Assimilation and Association. Offered in alternate years. GE credit: ArtHum or SocSci | AH or SS, WC, WE.
(change in existing course—eff. fall 16)

119. World War I (4)
Lecture—3 hours; extensive writing. The First World War and the settlement that followed from 1914-1919. Causes, conduct, and consequences of the war including military, political, economic, social, and cultural factors, with special emphasis on connections between the home front and the battlefield. Offered in alternate years. GE credit: SS, WC, WE.
(new course—eff. spring 16)

125. Topics in Early Modern European History (4)
Laboratory/discussion—3 hours; term paper. Social and cultural history, 1300-1800. Topics such as medieval and Renaissance Italy, early modern Italy, Ancient Regime France, family and sexuality, and material culture and daily life. May be repeated for credit. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.
(change in existing course—eff. spring 16)

131A. Early Modern European History (4)
Lecture—3 hours; written reports. Western European history from about 1350 to about 1500. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS, WC, WE.—Stuart
(change in existing course—eff. fall 16)

135A. History of Science to the 18th Century (4)
Lecture/discussion—3 hours; term paper. Survey of the historical development of science, technology, and medicine from the ancient world to the eighteenth century, with special emphasis on Isaac Newton as the culmination of the seventeenth century

scientific revolution. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS, WC, WE.—Stolzenberg

(change in existing course—eff. fall 16)

135B. History of Science, 18th to 20th Centuries (4)
Lecture/discussion—3 hours; term paper. Survey of the historical development of scientific thought in geology, biology, chemistry, physics, and cosmology from the eighteenth to the twentieth century, with special emphasis on emergence of broad explanatory principles that serve more than one science. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

136. Scientific Revolution (4)
Lecture/discussion—3 hours; term paper. History of science in Western Europe (1400-1750). Investigates the changing definitions of science in the age of Copernicus, Versalius, Harvey, Galileo and Newton. Considers the evolution of new ideas about nature, experiment, observation, and scientific theory. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

138A. The Rise of the Russian Empire, 1304-1825 (4)
Lecture—3 hours; term paper. Expansion of the Russian state in Muscovite and imperial era. Emphasis on autocratic rule, the incorporation of non-Russian peoples, and emergence of Russia as a Great Power. Only two units of credit will be allowed to students who have completed former course 137B. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.—Campbell

(change in existing course—eff. fall 16)

138B. Reform and Revolution in Tsarist Russia, 1825-1917 (4)
Lecture—3 hours; term paper. Processes of state reform and social change in the 19th century; failure of reform and collapse of the Russian Empire; the revolutions of 1917. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

138C. Russian History: The Rise and Fall of the Soviet Union, 1917 to the Present (4)
Lecture—3 hours; term paper. The emergence of the Soviet Union as a socialist system and a Great Power; the decline and collapse of the Soviet Union and the formation of independent nation states in its place. Not open for credit to students who have completed former course 137C. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

140. The Rise of Capitalism in Europe (4)
Lecture—3 hours; term paper. Comparative analysis of major interpretations of the rise of merchant capitalism during the Middle Ages and Renaissance; European expansion overseas, 1450-1815; the transition to modern capitalism via industrial revolution. Interplay of social, political, cultural, and economic history. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

142A. History of the Holocaust (4)
Lecture—3 hours; term paper. Topics include comparative genocide, medieval and modern antisemitism, modern German history, the rise of Nazism, Jewish life in Europe before the Nazi period, and the fate of the Jewish communities and other persecuted groups in Europe from 1933-1945. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

142B. The Memory of the Holocaust (4)
Lecture—3 hours; term paper. Examination of the literary, philosophical, theological and artistic responses to the Holocaust of the European Jews. Exploration of how memory is constructed, by whom and for what purposes. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

144B. History of Germany since 1789 (4)
Lecture/discussion—3 hours; extensive writing. History of the German lands in the age of the French Revolution; 19th-century liberalism, nationalism, and industrialization; the World Wars, National Socialism, and the Holocaust; east and west Germany in the Cold War; the post-reunification scene. (Not open for credit to students who have completed former course 144.) Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

148A. Women and Society in Europe: 1500-1789 (4)
Lecture—3 hours; term paper. Roles and perceptions of women from the Renaissance to the French Revolution. Emphasis on social and economic factors as well as on discussions of women in the writings of political theorists and social commentators. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

148B. Women and Society in Europe: 1789-1920 (4)
Lecture—3 hours; term paper. Roles and perceptions of women from the French Revolution to World War I, primarily in France and England. Emphasis on social and economic developments within a loosely chronological and comparative framework. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

148C. Women and Society in Europe: 1914-Present (4)
Lecture—3 hours; term paper. The history of 20th-century Europe from the perspective of women and the family, and of sexual and gender relations. Emphasis on the impact on women of major events and movements, such as World War I, fascism, Soviet communism, World War II, the welfare state, feminism, and mass culture. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

151A. England: The Middle Ages (4)
Lecture—3 hours; term paper. Origins of England to the accession of the Lancastrians. Survey includes: impact of Norman Conquest on Anglo-Saxon institutions; rise of the Church, common law, parliament, and the economy; thought, arts, and literature to the age of Chaucer and Wyclif. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

151B. England: The Early Modern Centuries (4)
Lecture—3 hours; term paper. From Lancaster and York to the Glorious Revolution. Includes growth of the Church of England; beginnings of modern world-wide economy; rise of the gentry and parliament; thought, arts, and literature in the times of More, Shakespeare, Hobbes, Wren, and Newton. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

159. Women and Gender in Latin American History (4)
Lecture—3 hours; extensive writing. Roles of women and men in the history of Latin America, with an emphasis on the intersection of gender with racial and class categories. Introduction to the theoretical premises of women's and gender history. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

160. Spain and America in the 16th Century (4)
Lecture—3 hours; term paper. The Atlantic world in the 16th century, particularly the transcultural and reciprocal social and economic relations between Spain and America in the course of colonization. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

164. History of Chile (4)
Lecture—3 hours; term paper. Emphasis on the history of Chilean political economy from 1930 to the present. Various strategies of development (modernization, Marxism, Neo-Liberalism); the rise of mass politics; the course of foreign relations; and the richness of Chilean literature. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

167. Modern Latin American Cultural and Intellectual History (4)
Lecture—3 hours; term paper. Introduction to the cultural and intellectual history of modern Latin America including architecture, cinema, painting, music, and literature. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.

(change in existing course—eff. fall 16)

171A. Jacksonian America (4)
Lecture—3 hours; term paper. The political and social history of the United States from the end of the War of 1812 to the Compromise of 1850. How the market revolution transformed American life, and led the nation towards war. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. fall 16)

171B. Civil War and Reconstruction (4)
Lecture—3 hours; term paper. Examination of the political and social history of the United States from the Compromise of 1850 to the end of Reconstruction in 1876. Causes of the war, the war itself, and the problems of reconstruction after the war. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. fall 16)

171D. Selected Themes in 19th Century American History (4)
Lecture—3 hours; term paper. Interpretative overview of a single topic in the history of the United States in the 19th century. Sample topics include social history, the 1850s, and southern history. May be repeated one time for credit when topic differs. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, WE.

(change in existing course—eff. fall 16)

173. Becoming an American: Immigration and American Culture (4)
Lecture—3 hours; term paper. An introduction to the wide range of immigrant experiences and cycles of nativism that have shaped American culture in the twentieth century. From novels, memoirs and films, students will explore how external and internal immigration has created a multicultural society. Offered alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. fall 16)

174A. The Gilded Age and Progressive Era: United States, 1876-1917 (4)
Lecture—3 hours; term paper. Includes Southern redemption, Western incorporation, electoral corruption, labor movements, Populism, Progressivism, women's suffrage, U.S. imperial expansion, and immigration restriction. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. fall 16)

174B. War, Prosperity, and Depression: United States, 1917-1945 (4)
Lecture—3 hours; term paper. America's emergence as a world power, the business culture of the 1920s, the New Deal and World War II. Emphasis on such issues as government regulation of the economy, welfare capitalism, and class, racial, ethnic, and gender conflicts. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, DD, WE.

174D. Selected Themes in 20th Century American History (4)
Lecture—3 hours; term paper. Interpretive overview of a single topic in the history of the United States in the 20th century with attention to the phases and processes of historical change. May be repeated one time for credit when topic differs. Offered in alternate years. GE credit: ArtHum or SocSci | ACGH, AH or SS, WE.
(change in existing course—eff. fall 16)

175. American Intellectual History (4)
Lecture—3 hours; term paper. Ideas that have shaped politics and society in the United States from colonial times to the present. Topics include American liberalism, republicanism, democracy, constitutionalism, communitarianism, utopianism, pragmatism, feminism, Darwinism, nationalism, conservatism, and economics. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, WE.
(change in existing course—eff. fall 16)

178A. Race in America, 1492-1865 (4)
Lecture—4 hours. Racial formation during the Age of Discovery, the Colonial Period, Early National and Antebellum periods up to the Civil War. Not open for credit to students who have completed course 178. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. fall 16)

179. Asian American History, 1850-Present (4)
Lecture—3 hours; term paper. The historical experience of people of Asian ancestry in the United States from the mid-nineteenth century to the present. Migration, labor, community formation, race relations, women and gender, popular culture. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.
(change in existing course—eff. fall 16)

180AN. American Political History, 1789-1896 (4)
Lecture—3 hours; term paper. Growth of American politics from the birth of the republic to the end of the nineteenth century. Development of political parties, the expanding electorate, and how social issues such as slavery shaped the political process. Not open for credit to students who have completed course 180A. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, WE.
(change in existing course—eff. fall 16)

180BN. American Political History, 1896-present (4)
Lecture—3 hours; term paper. Politics in the United States from 1896 to the present. Topics include race and partisan politics; communism and anti-communism; the New Deal and the centralization of government; and the rise of the imperial presidency. Not open for credit to students who have completed course 180A or 180C. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, WE.
(change in existing course—eff. fall 16)

181. Religion in American History to 1890 (4)
Lecture—3 hours; term paper. American religious history from colonization through the Gilded Age. Topics include religious diversity in America; native American religion; Protestant evangelism; gender and religion; religion and bigotry; African American religion; religion in the Civil War; and religion's response to modernization. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, WE.—Smolenski
(change in existing course—eff. fall 16)

182. Gender and Justice in American History (4)
Lecture/discussion—3 hours; term paper. Intersection of gender and law in North America from the colonial period through the 20th century. Topics include witchcraft, suffrage, child custody, protective labor laws, regulation of sexuality. Analysis of legal change, trials, and cultural influences. Offered irregularly. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, WE.
(change in existing course—eff. fall 16)

189. California History (4)
Lecture—3 hours; term paper. California history from the pre-colonial period to the present including dispossession of California's Indians, political economy of the Spanish and Mexican periods, Gold Rush effects, industrialization, Hollywood, water politics, World War II, Proposition 13, and the emergence of the Silicon Valley. Not open for credit to students who have completed two courses of course 189A, 189B, 189C. Offered in alternate years. GE credit: ArtHum or SocSci, Wrt|ACGH, AH or SS, DD, WE.
(change in existing course—eff. fall 16)

190C. Middle Eastern History III: The Ottomans, 1401-1730 (4)
Lecture—3 hours; extensive writing. Middle Eastern history from the foundation of the Ottoman Empire on the borderlands of Byzantine Anatolia through its expansion into Europe, Asia, and Africa, creating a new cultural synthesis including the Arab, Greek, Islamic, Mongol, Persian, Slavic, and Turkish traditions. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.
(change in existing course—eff. fall 16)

191C. Late Imperial China (4)
Lecture—2 hours; discussion—1 hour; two long papers. Prerequisite: course 9A or upper division standing recommended. Patterns and problems of Chinese life traced through the Ming and Ch'ing dynasties (c. 1500–1800), prior to the confrontation with the West in the Opium War. Readings include primary sources and novels portraying elite ethos as well as popular culture. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.
(change in existing course—eff. fall 16)

191D. Nineteenth Century China: The Empire Confronts the West (4)
Lecture—2 hours; discussion—1 hour; term paper. Prerequisite: course 9A or upper division standing recommended. The decline and fall of the Chinese Empire, with particular attention to the social and political crises of the 19th century, and the response of government officials, intellectuals, and ordinary people to the increasing pressures of Western imperialism. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.
(change in existing course—eff. fall 16)

191E. The Chinese Revolution (4)
Lecture—2 hours; discussion—1 hour; extensive writing. Prerequisite: upper division standing recommended. Analysis of China's cultural and political transformation from Confucian empire into Communist state. Emphasis on emergence and triumph of peasant revolutionary strategy (to 1949), with some attention to its implications for post-revolutionary culture and politics. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.—*W.*
(change in existing course—eff. fall 16)

191F. History of the People's Republic of China (4)
Lecture—2 hours; discussion—1 hour; extensive writing. Prerequisite: upper division standing recommended. Comprehensive analysis of recent Chinese history, including land reform, the Cultural Revolution, the post-Mao era, and the consequences of the new economic policies of the 1980s. Not open for credit to students who have completed course 190C. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.
(change in existing course—eff. fall 16)

191G. Special Topics in Chinese History to 1800 (4)
Lecture—3 hours; extensive writing. Prerequisite: course 9A recommended. Topics in the history of China from the beginning of the imperial period through the high Qing dynasty. Topics may be framed chronologically (e.g.,the Ming Dynasty) or thematically (e.g., Trade in early Chinese history). May be repeated one time for credit when topic differs. Offered irregularly. GE credit: AH, WC, WE.
(change in existing course—eff. fall 16)

191H. Special Topics in Chinese History after 1800 (4)
Lecture—3 hours; extensive writing. Prerequisite: course 9A recommended. Topics in the history of China since 1800. Topics may be framed chronologically (e.g., The Republican Period (1911-1948)) or thematically (e.g., The Modern Evolution of Chinese Law). May be repeated one time for credit when topic differs. Offered irregularly. GE credit: AH, WC, WE.
(change in existing course—eff. fall 16)

193C. The Middle East Environment: Historical Change and Current Challenges (4)
Lecture/discussion—3 hours; project. Examines Middle East environment and human use of nature over last 10,000 years. Introduction to desert ecology, environmental history and current environmental problems. Case Studies of Egypt, Maghreb countries, Arabian peninsula/Gulf countries, desertification, water, indigenous knowledge, and national parks. GE credit: ArtHum or SocSci | AH or SS.
(change in existing course—eff. fall 16)

195B. History of Modern Korea (4)
Lecture—3 hours; laboratory/discussion—1 hour. Prerequisite: upper division standing recommended. History of Modern Korea, from Yi dynasty period to 1990s. Covers the political and socioeconomic changes in 19th century, modernization under Japanese colonialism, postwar economic growth and effects of the Cold War. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE.
(change in existing course—eff. fall 16)

Graduate

201A. Sources and General Literature of History; Ancient (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Ancient. May be repeated for credit when different subject area is studied.
(change in existing course—eff. summer 15)

201B. Sources and General Literature of History; Medieval (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Medieval. May be repeated for credit when different subject area is studied.
(change in existing course—eff. summer 15)

201C. Sources and General Literature of History; Renaissance and Reformation (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Renaissance and Reformation. May be repeated for credit when different subject area is studied.
(change in existing course—eff. summer 15)

201D. Sources and General Literature of History; Early Modern Europe (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Early Modern Europe. May be repeated for credit when different subject area is studied.
(change in existing course—eff. summer 15)

201E. Sources and General Literature of History; Europe Since 1815 (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Europe since 1815. May be repeated for credit when different subject area is studied.
(change in existing course—eff. summer 15)

201F. Sources and General Literature of History; China to 1880 (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. China to 1880. May be repeated for credit when different subject area is studied. Offered irregularly.
(change in existing course—eff. summer 15)

201G. Sources and General Literature of History; China Since 1880 (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. China since 1880. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201H. Sources and General Literature of History; Britain (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Britain. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201I. Sources and General Literature of History; Latin America Since 1810 (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Latin America since 1810. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201J. Sources and General Literature of History; American History to 1787 (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. American History to 1787. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201K. Sources and General Literature of History; United States, 1787-1896 (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. United States, 1787-1896. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201L. Sources and General Literature of History; United States Since 1896 (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. United States since 1896. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201M. Sources and General Literature of History; Middle East (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Addresses various theoretical and methodological approaches to the study of the Modern Middle East. Survey Modern Middle East historiography in light of theoretical innovations such as post-Orientalism, World Systems theory, and postcolonial theory. May be repeated for credit when subject differs. Offered in alternate years.
(change in existing course—eff. summer 15)

201N. Sources and General Literature of History; Modern Japan (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Modern Japan. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201P. Sources and General Literature of History; African Historiography (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. African Historiography. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201Q. Sources and General Literature of History; Cross-Cultural Women's History (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Cross-Cultural Women's History. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201S. Sources and General Literature of History; History of Science and Medicine (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. History of Science and Medicine. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201T. Sources and General Literature of History; Jewish History (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Jewish History. May be repeated for credit when different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

201W. Sources and General Literature of History; Advanced Topics in World History (4)
Seminar—3 hours; term paper. Prerequisite: consent on instructor. Designed primarily for students preparing for higher degrees in history. Advanced Topics in World History. May be repeated for credit when different subject area is studied.
(change in existing course—eff. summer 15)

201X. Undergraduate Proseminar in History; Comparative History (5)
Seminar—3 hours; term paper. Limited enrollment. Designed primarily for history majors. Intensive reading, discussion, research, and writing in selected topics in the various fields of history. 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 when different subject area is studied. GE credit: WE.
(change in existing course—eff. summer 15)

202A. Major Issues in Historical Interpretation; Ancient (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. Ancient. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied.
(change in existing course—eff. summer 15)

202B. Major Issues in Historical Interpretation; Medieval Europe (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. Medieval Europe. Readings, papers, and class reports. Offered in alternate years.
(change in existing course—eff. summer 15)

202C. Major Issues in Historical Interpretation; Modern Europe (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. Modern Europe. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

202D. Major Issues in Historical Interpretation (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. India. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

202E. Major Issues in Historical Interpretation; India (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. Africa. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

202F. Major Issues in Historical Interpretation; China (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. China. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

202G. Major Issues in Historical Interpretation; Japan (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. Japan. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

202H. Major Issues in Historical Interpretation; United States (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. United States. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

202I. Major Issues in Historical Interpretation; Latin America (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Fundamental issues and debates in the study of history. Latin America. Readings, papers, and class reports. May be repeated for credit when a different subject area is studied. Offered in alternate years.
(change in existing course—eff. summer 15)

203B. Research Seminar (4)
Seminar—3 hours; tutorial—1 hour. Prerequisite: course 203A. Designed for students preparing for higher degrees in history. Individual research and analysis resulting in substantial research paper of publishable quality. Completion required of all Ph.D. candidates. The three courses must be taken in continuous sequence, ordinarily during second year. (Deferred grading only, pending completion of sequence.)—*W. (W.)*
(change in existing course—eff. summer 15)

203C. Research Seminar (4)
Seminar—3 hours; tutorial—1 hour. Prerequisite: course 203A. Designed for students preparing for higher degrees in history. Individual research and analysis resulting in substantial research paper of publishable quality. Completion required of all Ph.D. candidates. The three courses must be taken in continuous sequence, ordinarily during second year. (Deferred grading only, pending completion of sequence.)—*S. (S.)*
(change in existing course—eff. summer 15)

271A. United States History (4)
Seminar—3 hours; term paper. Prerequisite: course 201J-L or 202H. Research in literature, methods, and sources on aspects of United States history, culminating in each student completing a research paper in the field by the end of the second quarter. May be repeated for credit. (Deferred grading only, pending completion of sequence.) Offered irregularly.
(change in existing course—eff. summer 15)

271B. United States History (4)
Seminar—3 hours; term paper. Prerequisite: course 201J-L or 202H. Research in literature, methods, and sources on aspects of United States history, culminating in each student completing a research paper in the field by the end of the second quarter. May be repeated for credit. (Deferred grading only, pending completion of sequence.) Offered irregularly.
(change in existing course—eff. summer 15)

Horticulture

New and changed courses in Horticulture (HRT)

Graduate

200A. Horticulture & Agronomy: Principles (4)
Lecture/discussion—4 hours. Prerequisite: graduate standing. Core course to introduce students to the principles that are of general importance in horticultural and agronomic research, including agroecology, plant developmental physiology, crop improvement, and biotechnology. Generally taken in the first year of the graduate program.—*F. (F.)* Jernstedt
(new course—eff. winter 16)

200B. Horticulture & Agronomy: Practices (4)
Lecture/discussion—2 hours; fieldwork—3 hours; seminar—3 hours. Prerequisite: course 200A recommended; graduate standing. Introduction to horticultural and agronomic cropping systems. Covers current applied research within agroecology, crop improvement, crop production, postharvest biology.—*S. (S.)* Walker
(new course—eff. spring 16)

299. Research (1-12)
Prerequisite: consent of instructor. Research. May be repeated for credit. (S/U grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(new course—eff. winter 16)

Human Development

New and changed courses in Human Development (HDE)

Upper Division

100A. Infancy and Early Childhood (4)
Lecture—4 hours. Prerequisite: Psychology 1, Biological Sciences 1A, or 2A, or 10 or 10V; or Molecular and Cellular Biology 10; or Neurology, Physiology, and Behavior 10 or 12; or Microbiology 10. Biological, social, and cultural influences in the psychological growth and development of children, prenatal through age six. Two observations of preschool children required.—*F, W, Su. (F, W, Su.)* Hibel
(change in existing course—eff. fall 16)

100B. Middle Childhood and Adolescence (4)
Lecture—4 hours. Prerequisite: Psychology 1; and either course 100A or Psychology 140. Interplay of biological and social-cultural factors in the emotional, cognitive and social development from middle childhood through adolescence.—*W, S. (W, S.)* Guyer, Nishina
(change in existing course—eff. fall 16)

100C. Adulthood and Aging (4)
Lecture—4 hours. Prerequisite: Psychology 1. Development during early, middle, and late adulthood; biological, cognitive, and psycho-social aspects of adult development. Emphasis on normative patterns of development which characterize "successful aging."—*F, S.* Miller, Ober
(change in existing course—eff. fall 16)

103. Cross-Cultural Study of Children (4)
Lecture—4 hours. Prerequisite: course 100A or Psychology 140; consent of instructor. Cross-cultural studies of children in developing countries and among minority groups in the U.S. GE credit: SocSci, Div | ACGH, DD, SS, WC.—*F. (F.)*
(change in existing course—eff. fall 16)

110. Contemporary American Family (4)
Lecture—4 hours. Prerequisite: Psychology 1 or Sociology 1 or Sociology 2. Factors currently influencing American families including changing economic conditions, changing sex roles, divorce, and parenthood; theories and research on family interaction.—*W. (W.)* Conger
(change in existing course—eff. fall 16)

120. Research Methods in Human Development (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Statistics 13 or 13V or Education 114 or Psychology 41 or Sociology 46A and 46B. Scientific process, research designs, and experimental controls; APA manuscript style and scientific writing; statistical analysis and interpretation of results. Laboratory exercises to collect data, analyze and interpret results, and write scientific papers. GE credit: SocSci, Wrt | SS, WE.—*F, S. (F, S.)* Liu, Nishina
(change in existing course—eff. fall 16)

121. Psychological Assessment (4)
Lecture—4 hours. Prerequisite: courses 100A or 100B; Statistics 13 or 13V or Psychology 41 or Sociology 46A and 46B. Current issues and methodology related to the process of psychological assessment with children. Offered irregularly.
(change in existing course—eff. fall 16)

130. Emotionally Disturbed Children (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 100A and 100B; or Psychology 140; consent of instructor. Discussion of psychosis, neurosis, behavior disorders, and learning difficulties in children.—*W. (W.)* Choe
(change in existing course—eff. fall 16)

132. Individual Differences in Cognition (4)
Lecture—4 hours. Prerequisite: Psychology 1; course 100A or 100B. Individual differences in cognition, including learning disabilities and giftedness. Education implications and neurodevelopmental substrates of individual differences in cognition. Offered irregularly.
(change in existing course—eff. fall 16)

140. Communication and Interaction with Young Children (2)
Lecture—2 hours. Prerequisite: course 100A; concurrent enrollment in course 140L required; consent of instructor. Enrollment requires sign up for laboratory time at the Child and Family Studies Center located at 244 First Street, Davis, CA. Integration of research, theory and practice in child development, emphasizing the role of relationships in creating a growth-promoting environment for young children. Includes: peer relationships, emotional understanding and self regulation, attachment, communication and school readiness.—*F, W, S. (F, W, S.)* Chen
(change in existing course—eff. winter 15)

140L. Laboratory in Early Childhood (3-5)
Laboratory—6-15 hours; laboratory/discussion—3 hours. Prerequisite: course 140, must be taken concurrently for first 3 units of credit; students must contact the Center for Child and Family Studies to enroll; consent of instructor. Limited enrollment. Application of theories of learning and development to interaction with infants, toddlers, and preschoolers at Early Childhood Laboratory. Applied skills in communication, guidance and curriculum. May be repeated two times for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)* Chen
(change in existing course—eff. winter 15)

143. Field Studies of the Elderly (4-6)
Discussion—2 hours; field work—6-12 hours. Prerequisite: course 100C or 160 may be taken concurrently; consent of instructor. Apply theory and research on adult development and aging, work

with older adults in a variety of settings, and develop skills relevant to that application. Develop a small research project.—*W. (W.)* Miller, Ober

(change in existing course—eff. fall 16)

160. Social Aspects of Aging (4)
Lecture—4 hours. Prerequisite: course 100C. How the social context affects adult development and aging. Emphasis on demography, social policy, culture, and adaptation. Oral histories as class projects. Offered in alternate years. GE credit: Div.—*F. (F.)*

(change in existing course—eff. fall 16)

161. Applied Cognition and Aging (4)
Lecture/discussion—4 hours. Prerequisite: Psychology 1; course 100C. Principles from cognition and aging and applies these to real-world concerns in areas including education, technology, job performance, and health. Considers physical and social changes in later life that impact functioning. Offered in alternate years. GE credit: SocSci, Wrt | SS, WE.—*S. (S.)* Miller

(change in existing course—eff. fall 16)

163. Cognitive Neuropsychology in Adulthood and Aging (4)
Lecture/discussion—4 hours. Prerequisite: Psychology 1; course 100C recommended. Theories, methods, and findings concerning the relationship between cognitive processes and brain functioning. Readings, lectures, and in-class discussions cover research on normal younger and older adults, neuropsychological case studies, and selected patient groups (e.g., amnesia, schizophrenia, Alzheimer's disease). Offered in alternate years.—*F. (F.)* Ober

(change in existing course—eff. fall 16)

190C. Introductory Research Conference (1)
Discussion—1 hour. Prerequisite: involvement in ongoing research; consent of instructor. Instructors lead discussions with undergraduate students who involve themselves in a research project. Research papers are reviewed and aspects of project proposals developed out of class are presented and evaluated. May be repeated for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

Graduate

200C. Development in Adulthood (4)
Lecture/discussion—4 hours. Theory and research focusing on social, personality, cognitive, and biological development from early to late adulthood. Emphasis is on theory development and continuity and change.—*S. (S.)* Miller, Ober

(change in existing course—eff. fall 16)

240. Peer Relationships During Adolescence (4)
Lecture/discussion—4 hours. 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. Offered irregularly.—K. Conger

(change in existing course—eff. winter 15)

250. Current Research on Family Relationships (4)
Lecture/discussion—6 hours; term paper. Graduate standing in Human Development Graduate Group, Psychology, Sociology, a related social science, or consent of 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.—*S.* K. Conger

(change in existing course—eff. winter 15)

252. Family Research, Programs and Policy (4)
Seminar—3 hours; term paper. 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.—*(S.)* K. Conger

(change in existing course—eff. winter 15)

Human Rights

New and changed courses in Human Rights (HMR)

Lower Division

1. Human Wrongs/Human Rights (4)
Lecture—3 hours; discussion—1 hour. Introduction to Human Rights and the problems they seek to address. Using key episodes of inhumanity like slavery, genocide, and racism. Examines how international movements for social justice led to the emergence of the international Human Rights system. GE credit: ArtHum or SocSci | AH or SS, WC, WE.—*F. (F.)* Watenpaugh

(new course—eff. fall 15)

Upper Division

136. Human Rights in the Middle East (4)
Lecture/discussion—3 hours; term paper. Study of the experience of Human Rights in the modern Middle East, with special attention to the Human Rights issues raised by events of Arab Spring; Palestine-Israel conflict; history of genocide, mass killing and totalitarianism in the region. Offered in alternate years. GE credit: ArtHum or SocSci | AH or SS, WC, WE.—*S. (S.)* Watenpaugh

(new course—eff. fall 15)

138. Human Rights, Gender, and Sexuality (4)
Lecture/discussion—3 hours; term paper. Gender and sexuality in the context of human rights. Topics include women's participation in the public sphere, the right to change gender, the right for family privacy, and the right to marriage. (Same course as Religious Studies 138.) Offered in alternate years. GE credit: ArtHum | AH, WC, WE.—*F, W, S, Su. (F, W, S, Su.)* O'Keefe

(new course—eff. fall 15)

161. Human Rights in Latin America (4)
Lecture—3 hours; term paper. History of the origins, denial and protection of Human Rights in Latin America. Emphasis on dictatorships, political violence, social resistance, democracy, justice, accountability, truth commissions, memory. Offered in alternate years. (Same course as History 161.) GE credit: ArtHum or SocSci | AH or SS, VL, WC, WE.—*S.* Schlotterbeck

(new course—eff. spring 15)

Graduate

298. Group Study (1-4)
Prerequisite: consent of instructor. Restricted to graduate students. Group study on focused topics in human rights. Four-unit courses may serve as electives for the Designated Emphasis in Human Rights. May be repeated up to 16 units for credit when topic differs. Offered irregularly. (S/U grading only.)—*F, W, S. (F, W, S.)*

(new course—eff. spring 16)

299. Individual Study (1-12)
Prerequisite: consent of instructor. Restricted to graduate students. Individual study for the designated emphasis in human rights. (S/U grading only.) May be repeated for credit.—*F, W, S. (F, W, S.)*

(new course—eff. fall 14)

Humanities

New and changed courses in Humanities (HUM)

Lower Division

18. Performance and the 21st Century (4)
(cancelled course—eff. winter 16)

Professional

396. Teaching Assistant Training Practicum (1-4)
Prerequisite: graduate standing; consent of instructor. May be repeated for credit. (S/U grading only.)

(change in existing course—eff. winter 15)

Hydrology

New and changed courses in Hydrology (HYD)

Upper Division

147. Runoff, Erosion and Water Quality Management in the Tahoe Basin (3)
Lecture/laboratory—30 hours; fieldwork—15 hours; discussion—10 hours; term paper. Prerequisite: Physics 7B or 9B, Mathematics 16C or 21C, Civil and Environmental Engineering 142 or course 141 or Environmental and Resource Sciences 100. Practical hydrology and runoff water quality management from Tahoe Basin slopes. Development of hillslope and riparian restoration concepts, modeling and applications from physical science perspectives including precipitation-runoff relationships, sediment transport, and detention ponds. Five days of instruction in Tahoe City. (Same course as Biological Systems Engineering 147.) GE credit: SciEng | QL, SE, SL.—*Su. (Su.)* Grismer

(change in existing course—eff. winter 15)

150. Water Law (3)
Lecture—3 hours. Prerequisite: consent of instructor or upper division standing. Principles and issues of California Water Law. Types of water rights, groundwater rights and management, and protection of instream uses. Water projects, role of federal government and federal/state relations. Basic water quality acts, endangered species act, water transfers and current water issues. GE credit: SocSci | ACGH, SS.—*W. (W.)* Cahill

(change in existing course—eff. fall 16)

Hydrologic Science (A Graduate Group)

New and changed courses in Hydrologic Science (HYD)

Graduate

210. Vadose Modeling and Characterization (3)
Lecture—1.5 hours; laboratory—3 hours; discussion—0.5 hours. Prerequisite: Soil Science 107, or consent of instructor. Principles and modeling of water flow and chemical transport in the vadose zone, with specific applications to soils. Topics include hydraulic properties, finite difference application to unsaturated water flow, parameter optimization, diffusive and convective transport in gaseous and liquid phases. Offered in alternate years.—*S.* Hopmans
(change in existing course—eff. spring 15)

245. Climate Change, Water and Society (4)
Lecture—4 hours. Class size limited to 25 students. Integration of climate science and hydrology with policy to understand hydroclimatology and its impact upon natural and human systems. Assignments: readings, take-home examination on climate and hydrologic science, paper that integrates course concepts into a research prospectus or review article. (Same course as Atmospheric Science 245 and Ecology 245.)—*F. (F.)* Fogg, Lubell, Ullrich
(new course—eff. spring 15)

254Y. Ecohydraulics (3)
Web virtual lecture—1 hour; discussion—1 hour; extensive problem solving. Use of 2D hydrodynamic modeling to perform instream flow assessment by exploring flow-dependent hydraulic patterns at multiple spatial scales and extrapolating results with empirical and analytical functions to evaluate geomorphic resilience and ecological functions. Offered in alternate years.—*(F.)* Pasternack
(new course—eff. fall 14)

Immunology

New and changed courses in Immunology (IMM)

Professional

201. Introductory Immunology (4)
Lecture—4 hours. Prerequisite: graduate standing. Enrollment limited to 30 students. Comprehensive introduction to the principles of immunology.—*F. (F.)* Miller
(change in existing course—eff. winter 15)

204. Topics in Innate Immunity (2)
Extensive writing or discussion—1 hour; performance instruction—1 hour. Prerequisite: course 201 or equivalent; course 293 preferred. Restricted to first- or second-year GGI and MGG students; others with permission of instructor; enrollment limited to 18 students. Covers current topics in the field of innate immunity through student seminar presentations and critical evaluation of the literature. Concepts include: pathogen recognition, intercellular communication, specialized cellular function and effector/signaling molecules. Offered in alternate years.—*(Su.)* Bevins
(change in existing course—eff. winter 15)

210. Topics on Neuroimmunology and Neuroinflammation (1)
Seminar—1 hours. Prerequisite: consent of instructor. Topics will include a broad range of frontiers in neuroimmunology and neuroinflammation. Research articles in current literature will serve to guide in-depth discussions of experimental approaches, technical aspects of experimental techniques, data interpretation, and other relevant aspects of each topic. (S/U grading only.)—*F. (F.)* Soulika
(new course—eff. winter 16)

Integrated Studies

New and changed courses in Integrated Studies (IST)

Lower Division

8A. Special Topics in Natural Science and Mathematics (4)
Lecture—3 hours; discussion—1 hour. Limited enrollment. Group study of a special topic in natural sciences and mathematics. Course varies with topic offered.May be repeated for credit. GE credit: SciEng, Wrt | SE, SL.—*F, W, S.* (I, II.)
(change in existing course—eff. winter 15)

8B. Special Topics in Humanities (4)
Lecture—3 hours; discussion—1 hour. Limited enrollment. Group study of a special topic in humanities. Course varies with topic offered. May be repeated for credit. GE credit: ArtHum, Wrt | AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. winter 15)

8C. Special Topics in the Social Sciences (4)
Lecture—3 hours; discussion—1 hour. Limited enrollment. Group study of a special topic in social sciences. Course varies with topic offered. May be repeated for credit. GE credit: SocSci, Wrt | SS.—*F, W, S. (F, W, S.)*
(change in existing course—eff. winter 15)

90. Seminar (1)
Seminar—1 hour. Prerequisite: course 9; consent of instructor; completion of 45 units with a minimum GPA of 3.250. Limited to sophomores who participated in the Integrated Studies Honors Program during their freshman year and transfer students by consent of instructor. Interrelation between the arts and sciences, focusing on a special topic. (P/NP grading only.)—*F. (F.)*
(change in existing course—eff. winter 15)

Upper Division

197T. Tutoring in Integrated Studies (1-4)
Tutorial—1 hour. Prerequisite: consent of Director of Integrated Studies Honors Program. Open to students in the Integrated Studies Program only. Tutoring in Integrated Studies courses, usually in small discussion groups. Weekly discussions with the instructor on the subject matter of the course being tutored and on the art and craft of teaching. May be repeated eight times for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. winter 15)

International Agricultural Development

New and changed courses in International Agricultural Development (IAD)

Upper Division

160. Agroforestry: Global and Local Perspectives (3)
Lecture/discussion—3 hours. Prerequisite: Plant Sciences 2 or Biological Sciences 1C or 2C; Plant Sciences 142 or 150 or Biological Sciences 2B or a general ecology course. 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 previously taken Agricultural Management and Rangeland Resources 160. (Former course Agricultural Management and Rangeland Resources 160.) Offered in alternate years. GE credit: SciEng | SE.—*F.* Gradziel
(change in existing course—eff. fall 15)

195A. Field Study in Agricultural Development—California (3)
(cancelled course—eff. winter 16)

Graduate

217. Conservation and Sustainable Development in Third World Nations (4)
(cancelled course—eff. fall 14)

220. Food and Nutrition Strategies in Developing Countries (4)
(cancelled course—eff. fall 14)

International Commercial Law (A Graduate Group)

New and changed courses in International Commercial Law (A Graduate Group) (ICL)

Graduate

201. Orientation in United States Law (7)
Lecture/discussion—20 hours. Prerequisite: Law school education or the equivalent. Investigation of the Common Law System of the United States. Includes structure of the U.S. government, Constitutional law, contracts, torts, real property, consumer law, securities law, intellectual property, antitrust, taxation, labor law, environmental law, ethics, remedies, legal research and trial practice.
(change in existing course—eff. winter 15)

211. Negotiations and Alternative Dispute Resolution (1)
Lecture/discussion—10 hours. Prerequisite: course 201; law school education or the equivalent. Mechanisms for resolving disputes including the alternatives to litigation such as negotiation, mediation, and arbitration. Advantages and disadvantages of each approach.
(change in existing course—eff. winter 15)

215. Business Associations (4)
Lecture/discussion—20 hours. Prerequisite: course 201; law school education or the equivalent. Legal rules and concepts applicable to business associa-

tions including general partnerships, joint ventures, limited partnerships, limited liability entities, and sole proprietorships.

(change in existing course—eff. winter 15)

216. International Business Transactions (2)
Lecture/discussion—20 hours. Prerequisite: course 201; law school education or the equivalent. Legal problems arising from international business transactions. Focus on international sales contracts, choice of law, forum selection clauses, letters of credit, transfers of technology, regulation of bribery, development of joint ventures, repatriation of profits, foreign exchange problems, and national efforts to control imports.

(change in existing course—eff. winter 15)

220. United States Taxation of Multinational Investments (2)
Lecture/discussion—20 hours. Prerequisite: course 201; law school education or the equivalent. An analysis of the United States taxation of multinational investments including jurisdiction of tax, the U.S. tax system, foreign tax credits, treaties, and transfer pricing.

(change in existing course—eff. winter 15)

236. United States Securities Law and Regulation (2)
Lecture/discussion—20 hours. Prerequisite: course 201; law school education or the equivalent. Structural and jurisdictional issues associated with securities practice. Topics include the regulation of public offerings, transactions by corporate insiders, regulation of corporate disclosure and conduct, and the liabilities of corporations and individuals under anti-fraud provisions.

(change in existing course—eff. winter 15)

247. Banking Law (1)
Lecture/discussion—10 hours. Prerequisite: course 201; law school education or the equivalent. Institutional features of international banking transactions, the structure of a large financial deal, and the mechanics of overseeing large loans. Emphasis on negotiable instruments such as bills of lading, letters of credit, standby letters of credit, and interbank transactions.

(change in existing course—eff. winter 15)

249. Comparative Law (1)
Lecture/discussion—10 hours. Prerequisite: course 201; law school education or the equivalent. A comparative study of the development of schools of legal thought, chiefly Common law systems and Civil law traditions. Attention to the historical reasons for their divergence, contemporary approaches to universal problems such as succession, torts, and contracts, the cross-fertilization of laws and difficulties commonly associated with importing foreign law into new territory.

(change in existing course—eff. winter 15)

250. International Trade Law (3)
Lecture/discussion—20 hours. Prerequisite: course 201; law school education or the equivalent. An investigation of global trading systems including international trade in goods and services, e-commerce, international intellectual property, international tax planning and investment. Includes substantive and procedural provisions of the World Trade Organization (WTO) and the North American Free Trade Agreement (NAFTA). Offered in alternate years.

(change in existing course—eff. winter 15)

251. United States Litigation Issues (1)
Lecture/discussion—10 hours. Prerequisite: course 201; law school education or the equivalent. Prevention and resolution of disputes in international commerce. Emphasis on preparing for a trial in the United States. Includes the study of pre-trial motions, jury selection, opening statements, rules of evidence, closing arguments, and the selection of appropriate strategies.

(change in existing course—eff. winter 15)

262. Antitrust (1)
Lecture/discussion—10 hours. Prerequisite: course 201; law school education or the equivalent. Historical and institutional background of antitrust law in the United States. The statutory framework including price fixing, limits on distribution, monopolization and mergers, and reporting requirements. Offered in alternate years.

(change in existing course—eff. winter 15)

270. Financing International Transactions (3)
Lecture/discussion—20 hours. Prerequisite: course 201; law school education or the equivalent. How capital is raised in international markets. Investment strategies for U.S. markets. Taxation of financial investments, international currency regulation, and assessing rates of return on international investments.

(change in existing course—eff. winter 15)

274. Intellectual Property (2)
Lecture/discussion—20 hours. Prerequisite: course 201; law school education or the equivalent. Intensive study of intellectual property law. Including copyright, trademark and patent law and unfair competition.

(change in existing course—eff. winter 15)

299. Advanced Research in Legal Problems (1-4)
Prerequisite: course 201; law school education or the equivalent. Permission of supervising instructor. Student individualized research projects under faculty supervision. (S/U grading only.)

(change in existing course—eff. winter 15)

International Relations

New and changed courses in International Relations (IRE)

Upper Division

194HA. Special Study for Honors Students (4)
Seminar—2 hours; term paper. Prerequisite: open only to majors of senior standing who qualify for honors program. Directed reading, research, and writing on topics selected by students and instructor culminating in preparation of a senior honors thesis under direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) GE credit: SocSci | OL, SS, WE.

(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (4)
Seminar—2 hours; term paper. Prerequisite: open only to majors of senior standing who qualify for honors program. Directed reading, research, and writing on topics selected by students and instructor culminating in preparation of a senior honors thesis under direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) Offered irregularly. GE credit: SocSci | OL, SS, WE.

(change in existing course—eff. summer 15)

Italian

New and changed courses in Italian (ITA)

Lower Division

4. Intermediate Italian (4)
Lecture/discussion—3 hours; laboratory—3 hours. Prerequisite: course 3 or 3S. Review of grammar and syntax through written exercises and short prose works. Intended to develop the linguistic foundations of students who have completed the first year language classes. GE credit: WC.

(change in existing course—eff. spring 16)

5. Intermediate Italian (4)
Lecture/discussion—3 hours; laboratory—3 hours. Prerequisite: course 4 or 4S. Review and study of grammar and syntax, readings of short prose works, and written exercises. Intended to prepare students to read, understand, and discuss modern Italian. GE credit: WC.

(change in existing course—eff. spring 16)

9. Reading Italian (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 5. Reading and discussion of modern Italian prose, including selections from creative, scientific and journalistic writings. Introduction to contemporary Italian literature and culture. Strengthening the student's command of the Italian language. GE credit: ArtHum | AH, WC.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 14)

9S. Reading Italian (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 5 or 5S. Reading and discussion of modern Italian prose, including selections from creative, scientific and journalistic writings. Introduction to contemporary Italian literature and culture as well as strengthening the student's command of the Italian language. This course is taught abroad. Not open for credit to students who have completed course 9. GE credit: ArtHum | AH, WC.—*F, S. (F, S.)*

(change in existing course—eff. winter 15)

50. Studies in Italian Cinema (4)
Lecture—2 hours; discussion—1 hour; term paper. Lower division standing. Introduction to Italian cinema through its genres. Focus is on cinema as a reflection of and a comment on modern Italian history. Film will be studied as an artistic medium and as a form of mass communication. Offered irregularly. ArtHum, Wrt | AH, WC, WE.—Heyer-Caput

(change in existing course—eff. spring 16)

98. Directed Group Study (1-5)
Prerequisite: lower division standing and consent of instructor. Primarily intended for lower division students. Offered irregularly. (P/NP grading only.)

(change in existing course—eff. spring 16)

Upper Division

101. Advanced Conversation, Composition, and Grammar (4)
Lecture—3 hours. Prerequisite: course 9 or 9S or consent of instructor or the equivalent. GE credit: ArtHum | AH, OL, WC, WE.—Heyer-Caput

(change in existing course—eff. spring 16)

101S. Advanced Composition, Conversation and Grammar (4)
Lecture—3 hours; extensive writing. Prerequisite: course 9 or 9s or the equivalent. Instruction and practice in expository writing in Italian, with emphasis on advanced grammar, organization, and vocabulary building. Course will be taught in Italy. Not

open for credit to students who have completed course 101. GE credit: ArtHum | AH, OL, WC, WE.—*F. (F.)* Heyer-Caput

(change in existing course—eff. spring 16)

104. Italian Translation and Style (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S; consent of instructor. Practice in translation from Italian to English and English to Italian, using literary and non-literary texts of different styles. Analysis of linguistic problems and elements of style contained in the translation material. GE credit: AH, WC.

(change in existing course—eff. spring 16)

104S. Translation and Style (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S. Practice in translation from Italian to English and English to Italian, using literary and non-literary texts of different styles. Analysis of linguistic problems and elements of style contained in the translation material. Course will be taught abroad. Not open for credit to students who have completed course 104. GE credit: ArtHum | AH, WC.—*F. (F.)* Heyer-Caput

(change in existing course—eff. spring 16)

105. Introduction to Italian Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S; consent of instructor. Introduction to the study of the principal authors, works, and movements of the Medieval, Renaissance, and Early Modern periods in Italy. GE credit: ArtHum | AH, OL, WC.—Heyer-Caput

(change in existing course—eff. spring 16)

105ST. Introduction to Italian Literature (4)
(cancelled course—eff. winter 04)

112. Medieval and Renaissance Poetry: St. Francis to Petrarch (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or the equivalent; consent of instructor. Study of the origins of Italian religious and secular poetry of the 13th and 14th centuries. A diversified poetry is illustrated in works of St. Francis, Dante, Cavalcanti, Petrarch, the Sicilian School, the Sweet New Style Poets, and other authors. GE credit: ArtHum | AH, OL, WC, WE.

(change in existing course—eff. spring 16)

113. Dante Alighieri, Divina Commedia (Inferno, Purgatorio, Paradiso) (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or equivalent; consent of instructor. Study of Dante Alighieri's Divina Commedia, and its role in the development of Italian language and literature. Emphasis will be placed on reading the whole poem within the historical context of the Middle Ages. GE credit: ArtHum | AH, OL, WC, WE.

(change in existing course—eff. spring 16)

114. Boccaccio, Decameron, and the Renaissance Novella (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or the equivalent.; consent of instructor. Study of the development of the short story in Italy, as exemplified in Giovanni Boccaccio's Decameron, in his predecessors and Renaissance followers. GE credit: ArtHum | AH, OL, WC, WE.

(change in existing course—eff. spring 16)

115A. Studies in the Cinquecento (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or consent of instructor or the equivalent. Analysis of key texts from the high moment of the Italian Renaissance. The political and aesthetic legacy of humanism will be foregrounded in relation to authors such as Ficino, Ariosto, Machiavelli, Aretino, Castiglione, and Tasso. GE credit: ArtHum | AH, OL, WC.—Schiesari

(change in existing course—eff. spring 16)

115C. Italian Drama from Machiavelli to the Enlightenment (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or consent of instructor. Development of comic and tragic forms as critical representations of their societal and historical contexts, i.e. Machiavelli and the logic of power, Baroque dramatists in the service of counter-reformation Italy, Goldoni's comedies and bourgeois social consciousness. GE credit: ArtHum | AH, OL, WC.

(change in existing course—eff. fall 16)

115D. Early Modern Italian Lyric (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or consent of instructor. Examination of the poetic tradition influenced by Petrarch. Consideration of the relation between gender and genre in such poets as Petrarch, Bembo, della Casa, Tasso, Marino, Gaspara Stampa, Veronica Franco, Isabella di Morra. GE credit: ArtHum | AH, WC, WE.—Schiesari

(change in existing course—eff. fall 16)

118. Italian Literature of the Eighteenth Century (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or consent of instructor. Development of modern Italian literature. Emphasis on the work of Goldoni, Bettinelli, Baretti, Parini, Alfieri and Vico. GE credit: ArtHum | AH, OL.

(change in existing course—eff. fall 16)

119. Italian Literature of the Nineteenth Century (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or consent of instructor. Romanticism in Italy, including Manzoni, Verga, and Verismo. GE credit: ArtHum | AH, OL, WC, WE.—Heyer-Caput

(change in existing course—eff. spring 16)

128. Topics in Italian Culture (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 9 or 9S or consent of instructor. In-depth study of a particular topic in Italian Culture. Topics include: Italian Cities; Church and State; the "Southern Question"; Fascism and Resistance; 1968: Counter Culture, Feminism and Terrorism; Multicultural Italy. May be repeated one time for credit when topic differs. GE credit: ArtHum | AH, OL, WC, WE.—Bassi

(change in existing course—eff. spring 16)

131. Autobiography in Italy (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 9 or 9S or consent of instructor. The development of representations of selfhood with particular attention to generic conditions, the confessional tradition and the problem of women's self-representation. Authors studied may included Petrarch, Tasso, Casanova, Alfieri, Zvevok, Sibilla Aleramo and Primo Levi. GE credit: ArtHum | AH, OL, WC, WE.—Heyer-Caput, Schiesari

(change in existing course—eff. spring 16)

141. Gender and Interpretation in the Renaissance (4)
Lecture/discussion—3 hours; term paper. Prerequisite: completion of entry level writing requirement. Critical analysis of Renaissance texts with primary focus on issues such as human dignity, education and gender politics; "high" and "low" culture and its relation to literary practices. (Same course as Comparative Literature 138.) GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Schiesari

(change in existing course—eff. fall 16)

145. Special Topics in Italian Literature (4)
Lecture/discussion—4 hours. Prerequisite: course 9 or 9S or consent of instructor. Study of special topics and themes in Italian literature, such as comic literature, epic poetry, pre-twentieth century theater, fascism, futurism, women and literature, and the image of America, etc. May be repeated for credit when topic differs. GE credit: ArtHum, Wrt | AH, OL, VL, WC, WE.

(change in existing course—eff. spring 16)

145S. Special Topics in Italian Literature (4)
Lecture/discussion—4 hours. Prerequisite: course 9 or 9S or consent of instructor. Study of special topics and themes in Italian literature, such as comic literature, epic poetry, pre-twentieth-century theater, fascism, futurism, women and literature, the image of America, etc. Course is taught abroad. May be repeated for credit. Not open for credit to students who have completed course 145. GE credit: ArtHum, Wrt | AH, OL, VL, WC, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

145ST. Special Topics in Italian Literature (4)
(cancelled course—eff. winter 16)

150. Studies in Italian Cinema (4)
Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: consent of instructor. Introduction to Italian cinema through its genres. Focus on cinema as a reflection or a comment on modern Italian history. Film as an artistic medium and as a form of mass communication. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—Heyer-Caput

(change in existing course—eff. spring 16)

198S. Directed Group Study (1-4)
Prerequisite: consent of instructor. Group study on focused topics in Italian literature and culture. Varies according to instructor. This course is offered abroad. May be repeated for credit when topic differs. (P/NP grading only.)—*F. (F.)*

(change in existing course—eff. winter 15)

199S. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. Opportunity for a faculty member to work with an advanced undergraduate student in a focused manner on a topic or topics of mutual research/creative interest. This course is offered abroad. May be repeated for credit when topic differs. (P/NP grading only.)—*F. (F.)*

(change in existing course—eff. winter 15)

Japanese

New and changed courses in Japanese (JPN)

Lower Division

1A. Accelerated Intensive Elementary Japanese (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 Japanese 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. GE credit: ArtHum | AH, OL, WC—*Su.*

(change in existing course—eff. summer 15)

2. Elementary Japanese (5)
Lecture/discussion—5 hours. Prerequisite: successful completion (C- or better) of course 1 or the equivalent language proficiency. Continuation of training in basic Japanese spoken and written skills. GE credit: ArtHum | AH, OL, WC—*W. (W.)*

(change in existing course—eff. spring 16)

3. Elementary Japanese (5)
Lecture/discussion—5 hours. Prerequisite: successful completion (C- or better) of course 2 or equivalent language proficiency. Continuation of training in basic spoken and written skills in Japanese language. GE credit: ArtHum | AH, OL, WC—*S. (S.)*
(change in existing course—eff. spring 16)

4. Intermediate Japanese (5)
Lecture/discussion—5 hours. Prerequisite: successful completion (C- or better) of course 3 or the equivalent language proficiency. Intermediate-level training in spoken and written Japanese in cultural context, based on language skills developed in course 3. GE credit: ArtHum | AH, OL, WC—*F. (F.)*
(change in existing course—eff. spring 16)

5. Intermediate Japanese (5)
Lecture/discussion—5 hours. Prerequisite: successful completion (C- or better) of course 4 or the equivalent language proficiency. Intermediate-level training in spoken and written Japanese in cultural context, based on language skills developed in course 4. GE credit: ArtHum | AH, OL, WC—*W. (W.)*
(change in existing course—eff. spring 16)

6. Intermediate Japanese (5)
Lecture/discussion—5 hours. Prerequisite: successful completion (C- or better) of course 5 or the equivalent language proficiency. Intermediate-level training in spoken and written Japanese in cultural context, based on language skills developed in course 5. GE credit: ArtHum | AH, OL, WC—*S. (S.)*
(change in existing course—eff. spring 16)

7S. Intensive Intermediate Japanese (20)
Lecture/discussion—20 hours. Prerequisite: course 2. Not open for students who have taken course 3, 4, 5, or 6; an exception can be made for students who have taken course 3 or its equivalent, provided that those five units are deducted from the 20 total unit load. Special intensive course that combines the work of courses 3, 4, 5, and 6. Introduction to Japanese grammar and development of all language skills in a cultural context with emphasis on communication. Taught in Japan. GE credit: ArtHum | AH, OL, WC—*S. (S.)*
(change in existing course—eff. winter 15)

25. Japanese Language and Culture (in English) (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or Linguistics 1 or Anthropology 4 recommended. Classification and communication of experience in Japanese culture; principles of language use in Japanese society. Speech levels and honorific language, language and gender, minority languages, literacy. Role of Japanese in artificial intelligence and computer science. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, WC, WE—Koyama
(change in existing course—eff. summer 15)

31. Basic Kanji (4)
Lecture—3 hours; practice—1 hour. Prerequisite: successful completion (C- or better) of course 1 or equivalent proficiency of basic writing system (Hiragana and Katakana) or consent of instructor. Restricted to students who have never been exposed to any form of Kanji or Chinese characters before; students who have completed schooling up to the 6th grade in the Japanese education system or equivalent or whose native languages have Chinese character orthography are not allowed to register this course. Introduction and mastery of 300 basic Kanji or Chinese characters to establish a solid foundation in the novel and complex Kanji encountered while learning Japanese. GE credit: ArtHum | AH, WC.—Koyama
(change in existing course—eff. spring 16)

50. Introduction to the Literature of China and Japan (4)
Lecture/discussion—4 hours. Methods of literary analysis and their application to major works from the various genres of Chinese and Japanese literature (in translation), including film. East Asian cultural traditions will also be introduced. (Same course as Chinese 50.) GE credit: ArtHum, Div, Wrt | AH, WC.—Gundry
(change in existing course—eff. summer 15)

98. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

Upper Division

104. Modern Japanese Literature: War and Revolution (3)
Lecture/discussion—3 hours. Perspectives and sensibilities with which major modern Japanese writers have interpreted the traumatic and often poignant experiences of war and socio-political upheavals from the late nineteenth century to the 1970s. Lectures, discussions, and readings in English. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC.—Chang
(change in existing course—eff. summer 15)

105. Modern Japanese Literature: Hero and Anti-hero (4)
Lecture/discussion—4 hours. The ways in which representative hero and anti-hero protagonists in modern Japanese literature perceive, confront, challenge, and resolve a wide array of social, political, and moral problems of their times. Course taught in English. GE credit: ArtHum, Div, Wrt | AH, WC.—Chang
(change in existing course—eff. summer 15)

106. Japanese Culture Through Film (4)
Lecture/discussion—3 hours; film viewing—3 hours. Prerequisite: consent of instructor. Aspects of Japanese culture such as love, sexuality, war, the military, the family, the position of women, growing up and death as portrayed in Japanese cinema. Lectures, discussion, and readings in English. Films with English subtitles. GE credit: ArtHum, Div, Wrt | AH, VL, WC.—Chang, Gundry
(change in existing course—eff. spring 16)

107. Modern Japanese Autobiographies (in English) (4)
Lecture—3 hours; term paper/discussion—1 hour. Exploring the modern and contemporary Japanese social and cultural landscape through critical analysis of modern Japanese autobiographies by prominent and other authors in the 19th and 20th centuries. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC.—*F. (F.)* Chang
(change in existing course—eff. spring 16)

108. Poetry of China and Japan (in English) (4)
Lecture—3 hours; discussion—1 hour. A comparative approach to Chinese and Japanese poetry, examining poetic practice in the two cultures; includes a general outline of the two traditions, plus study of poetic forms, techniques, and distinct treatments of universal themes: love, nature, war, etc. (Same course as Chinese 108.) GE credit: ArtHum, Div, Wrt | AH, WC.
(change in existing course—eff. summer 15)

109. Japanese Popular Culture (5)
Lecture—3 hours; discussion—1 hour; film viewing—3 hours. Japanese popular culture, from its medieval/early modern precedents to contemporary incarnations. Emphasis on the major forms of twentieth-century popular culture, including genre films, popular theater, TV manga (cartoons), animation and science fiction. GE credit: ArtHum, Div | AH, VL, WC.
(change in existing course—eff. summer 15)

111. Modern Japanese: Reading and Discussion (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: successful completion (C- or better) of course 6 or the equivalent language proficiency. Readings in modern Japanese short stories, newspaper articles, and essays; conversation practice based on these readings. GE credit: ArtHum | AH, OL.—*F. (F.)*
(change in existing course—eff. spring 16)

112. Modern Japanese: Reading and Discussion (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: successful completion (C- or better) of course 111 or equivalent language proficiency. Continuation of course 111. GE credit: ArtHum | AH, OL, WC.—*W. (W.)*
(change in existing course—eff. spring 16)

113. Modern Japanese: Reading and Discussion (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: successful completion (C- or better) of course 112 or equivalent language proficiency. Continuation of course 112. GE credit: ArtHum | AH, OL, WC.—*S. (S.)*
(change in existing course—eff. spring 16)

114A. Spoken Japanese (2)
Discussion—2 hours. Prerequisite: successful completion (C- or better) of course 6 or equivalent language proficiency. Training in spoken Japanese for students with a basic working knowledge of the language. (P/NP grading only.) GE credit: OL.
(change in existing course—eff. fall 16)

114B. Spoken Japanese (2)
Discussion—2 hours. Prerequisite: successful completion (C- or better) of course 114A or equivalent language proficiency or consent of instructor. Continuation of course 114A. Training in spoken Japanese for students with a basic working knowledge of the language. (P/NP grading only.) GE credit: OL.
(change in existing course—eff. fall 16)

114C. Spoken Japanese (2)
Discussion—2 hours. Prerequisite: successful completion (C- or better) of course 114B or equivalent language proficiency or consent of instructor. Continuation of course 114B. Training in spoken Japanese for students with a basic working knowledge of the language. (P/NP grading only.) GE credit: OL.
(change in existing course—eff. fall 16)

115. Japanese Composition (2)
Lecture—2 hours. Prerequisite: successful completion (C- or better) of course 6 or consent of instructor. Development of skills in the techniques of writing Japanese. Practice in short essay writing with an aim toward mastery of the vocabulary and syntax of written style Japanese.—*F. (F.)*
(change in existing course—eff. spring 16)

117S. Intensive Modern Japanese: Reading and Discussion (17)
Lecture/discussion—17 hours. Prerequisite: course 5. Introduction to basic Japanese grammar and development of more advanced reading, writing, and conversation skills in a cultural context. Combination of courses 6, 111, 112, and 113 taught intensively in Japan. Not open to students who have taken courses 6, 111, 112, or 113; an exception can be made for students who have taken course 6

or its equivalent, provided that those five units are deducted from the 17 total unit load. GE credit: ArtHum | AH, OL, WC.

(change in existing course—eff. summer 15)

115. Japanese Composition (2)
Lecture—2 hours. Prerequisite: successful completion (C- or better) of course 6 or consent of instructor. Development of skills in the techniques of writing Japanese. Practice in short essay writing with an aim toward mastery of the vocabulary and syntax of written style Japanese.—*F. (F.)*

(change in existing course—eff. spring 16)

130. Readings in Modern Japanese Literature to 1926 (4)
Lecture/discussion—4 hours. Prerequisite: course 113. Restricted to completion of course 113 or equivalent as determined by taking a placement exam or consent of instructor. Short stories and essays by Japanese writers of the Meiji and Taishô eras, from 1868 to 1926. Authors include Natsume Sôseki, Izumi Kyôka, Tanizaki Jun'ichirô and Akutagawa Ryûnosuke. Readings and discussion in Japanese with some emphasis on translation into English. GE credit: ArtHum | AH, WC.—Sorensen

(change in existing course—eff. summer 15)

115. Japanese Composition (2)
Lecture—2 hours. Prerequisite: successful completion (C- or better) of course 6 or consent of instructor. Development of skills in the techniques of writing Japanese. Practice in short essay writing with an aim toward mastery of the vocabulary and syntax of written style Japanese.—*F. (F.)*

(change in existing course—eff. spring 16)

138. Readings in the Humanities: Japan Today (4)
Lecture/discussion—4 hours. Prerequisite: course 113. Restricted to completion of course 113 or equivalent as determined by taking a placement exam or consent of instructor. Topical essays focused on contemporary Japan. Themes center on defining Japan today in terms of its future and its past such as through its urban society, trends in architecture, "soft power" industries, and "traditional" elements as mainstays of Japan's cultural currency. GE credit: ArtHum | AH, WC.—Sorensen

(change in existing course—eff. summer 15)

141. Introduction to Classical Japanese (4)
Lecture/discussion—4 hours. Prerequisite: course 113 or equivalent language proficiency. The basic features of classical Japanese grammar through careful reading of selected literary texts such as Hojoki or Tsurezuregusa.—Sorensen

(change in existing course—eff. spring 16)

151. Japanese Linguistics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 3 or equivalent language proficiency. 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 | AH, WC, WE.—Koyama

(change in existing course—eff. fall 16)

152. Traditional Japanese Drama (4)
Lecture—3 hours; discussion—1 hour. Survey in English of Japanese drama, focusing on traditional forms: noh, kyôgen, 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 | AH, VL, WC, WE.—Sorensen

(change in existing course—eff. summer 15)

153. Love, Sexuality and the Family in Modern Japanese Literature (4)
Lecture—3 hours; discussion—1 hour. Modern Japanese literature from the late 19th century to the present with a focus on love and sexuality in various forms, particularly as understood through the evolving institution of the Japanese family. Lectures, readings and discussions in English. GE credit: AH, WC, WE.—*W. (W.)*

(new course—eff. fall 16)

154. Tourism and Heritage in Japan (4)
Lecture—3 hours; discussion—1 hour. Focus on related concepts of tourism and cultural heritage within Japan, with attention to questions of tradition, authenticity and nostalgia. Examination of cultural heritage sites on various scales, including built environment, national cultural forms, and local performances such as festivals. GE credit: AH, WC, WE.—*S. (S.)*

(new course—eff. fall 16)

155. Introduction to Japanese Folklore (4)
Lecture—3 hours; discussion—1 hour. Focus on narrative genres of myth, legend, and folktale, with additional attention paid to festivals, folk art, belief systems, and the development of folklore studies (minzokugaku) as an academic discipline. Examination the relationship of folklore to ethnic and national identity. GE credit: AH, WC, WE.—*W. (W.)*

(new course—eff. fall 16)

156. Japanese Literature on Film (4)
Lecture/discussion—3 hours; film viewing—3 hours. 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. (Same course as Cinema and Technocultural Studies 148B.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—*(S.)* Sorensen

(change in existing course—eff. winter 16)

157. Japanese Women Writers (4)
Lecture/discussion—4 hours. Survey of women writers from earliest times to the present. Genres include poetry, narrative fiction, diaries, short stories, novels, and film. Representative authors include Murasaki Shikibu, Sei Shônagon, Higuchi Ichiyo, Enchi Fumiko and Ogawa Yôko. Readings and discussion in English. GE credit: ArtHum | AH, WC, WE.—I, II. Sorensen

(change in existing course—eff. summer 15)

158. The Supernatural in Japan (4)
Lecture/Discussion—3 hours; Film Viewing—3 hours. Depictions of the supernatural in Japanese history through the contemporary era. Overview of Japanese literary and visual arts and the socio-historical contexts of the supernatural. Lectures and readings in English. Films in Japanese with English subtitles. Offered irregularly. GE credit: ArtHum | AH, VL, WC.—Sorensen

(new course—eff. spring 16)

192. Japanese Internship (1-12)
Internship—3-36 hours to be arranged. Work experience in Japanese language, with analytical term paper on a topic approved by instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

194H. Special Study for Honors Students (1-5)
Independent Study—3-15 hours. Prerequisite: senior standing and qualification for the Japanese honors program; consent of instructor. Guided research, under the direction of a faculty member, leading to a senior honors thesis on a topic in Japanese literature, civilization, or language studies. May be repeated up to eight units for credit. (P/NP grading only.) GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)*

(new course—eff. fall 14)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) GE credit: AH, WC.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

Graduate

291. Seminar in Modern Japanese Literature: Major Writers (4)
Seminar—4 hours. Prerequisite: one of courses 130, 131, 132, 133, 134, 135, 136, 137, 138 or equivalent language proficiency. In-depth reading and critical analyses of major works by and critical literature on one or two prominent modern or contemporary writers such as Natsume Soseki, Mori Ogai, Shimazaki Toson, Akutagawa Ryunosuke, Tanizaki Junichiro, Abe Kobo and Oe Kenzaburo. Offered in alternate years.—*S.* Chang

(change in existing course—eff. spring 16)

299. Research (1-12)
Prerequisite: consent of instructor. (S/U grading only.)

(change in existing course—eff. spring 16)

Landscape Architecture

New and changed courses in Landscape Architecture (LDA)

Lower Division

10. World Regional Geography (3)
Lecture—3 hours. Major geographic regions of the world; physical and human geography of each region; interactions between the people and the environment; culture and landscape; major resources; physical environments; population distribution and major cities. GE credit: AH or SS, WC.—*S. (S.)*

(new course—eff. spring 16)

21. Environmental Design Visualization (5)
Lecture—3 hours; laboratory/discussion—3 hours. Prerequisite: course 1; can be taken concurrently with course 1. Pass One is restricted to Pre-Landscape Architecture and Sustainable Environmental Design majors. Idea expression through graphic media and drawing techniques for visual representation of the built environment, including conventional drafting and expressive techniques. Introduction to computerized graphics techniques. GE credit: ArtHum | AH, OL, VL.—*F. (F.)* Boults

(change in existing course—eff. fall 16)

23. Computer Graphics for Landscape Architecture (4)
Studio—8 hours; two all-day field trips. Prerequisite: course 21. Restricted to Pre-Landscape Architecture and Landscape Architecture majors only. Landscape architectural communications explored through the computer. Includes computerized drafting, drawing, rendering, desktop publishing, and photorealistic simulation.

(change in existing course—eff. fall 16)

30. History of Environmental Design (4)
Lecture—3 hours; discussion—1 hour. History of Environmental Design across disciplines, including landscape architecture, planning, community and urban design. GE credit: ArtHum, Wrt | AH, VL, WE.—*W. (W.)*

(change in existing course—eff. winter 16)

50. Site Ecology (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Biological Sciences 2B. Pass One restricted to Pre-Landscape Architecture and Sustainable Environmental Design 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 | SE, VL, WE.—*S. (S.)* Greco
(change in existing course—eff. fall 16)

60. Landform and Grading Studio (6)
Studio—8 hours; extensive problem solving. Prerequisite: course 70. Pass One restricted to Pre-Landscape Architecture majors. Introduction of landform and topography as landscape medium and utilization of grading and drainage to design meaningful and functional spaces. Introduction to site analysis, site planning, and the conventions of grading & drainage, including contour manipulation and physical model building. GE credit: ArtHum or SciEng | AH or SE, OL, VL.—*S. (S.)* Napawan
(change in existing course—eff. fall 16)

61. AutoCAD for Landscape Architects (4)
Lecture—2 hours; laboratory—4 hours. Pass One restricted to Pre-Landscape Architecture, Sustainable Environmental Design, and 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. Offered irregularly.
(change in existing course—eff. fall 16)

70. Introduction to Spacemaking (5)
Lecture—3 hours; laboratory/discussion—3 hours. Prerequisite: course 21. Pass One restricted to Pre-Landscape Architecture and Sustainable Environmental Design majors. Introduction to basic principles of design towards the creation of space. Introduction to design methodologies and skills necessary to define, manipulate, and represent the built environment. Workshops in 2D computer graphic techniques and 3D physical modeling making will reinforce design principles. GE credit: ArtHum | AH, OL, VL.—*W. (W.)* Napawan
(change in existing course—eff. fall 16)

Upper Division

102. Methods in Design and Landscape Research (4)
Seminar—4 hours; term paper. Prerequisite: course 171. Restricted to Landscape Architecture majors. Research, design, and planning methods employed in landscape architecture. Exercises allow students to design independent landscape research. Lectures provide a historical overview of research methodology. GE credit: ArtHum | AH, OL, VL, WE.—*W. (W.)*
(change in existing course—eff. fall 16)

120. Advanced Computer Applications (4)
Studio—8 hours; two all-day field trips. Restricted to Landscape Architecture majors. Studio work using computer-aided design, geographic information systems, and other advanced computer programs.—*W. (W.)* Milligan
(change in existing course—eff. fall 16)

140. Green Building, Design, and Materials (4)
Lecture—2 hours; laboratory—4 hours. Prerequisite: course 50, 70. Pass One restricted to Sustainable Environmental Design majors. Sustainable design and construction techniques at site and building scales. Emphasizes real-world case studies, analysis of opportunities for actual sites, and application of LEED and Sustainable Sites green rating systems. GE credit: ArtHum or SciEng | AH or SE, VL.—*F. (F.)* Milligan
(change in existing course—eff. fall 16)

141. Community Participation and Design (4)
Lecture—1 hours; laboratory—3 hours; fieldwork—3 hours; project—3 hours. Prerequisite: course 21, 30, 50, 70. Restricted to Sustainable Environmental Design and Landscape Architecture majors. Introduction to community participation and design. Incorporates social and cultural factors, public and community processes, theories and practices related to human-environment behavior; community involvement in design, social analysis, community engagement, accessibility, diversity and politics of place. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, VL.—*W. (W.)* Simpson
(change in existing course—eff. winter 15)

142. Applying Sustainable Strategies (4)
Lecture—3 hours; laboratory—3 hours; extensive problem solving. Prerequisite: course 140, 141. Restricted to Sustainable Environmental Design Majors. Capstone class examines case studies and techniques of sustainable development. Student teams will develop detailed proposals for real-world sites. GE credit: ArtHum or SciEng or SocSci | AH or SE or SS, OL, VL, WE.—*S. (S.)*
(change in existing course—eff. spring 16)

161. Technology 3: Professional Practice and Construction Documents (4)
Studio—8 hours. Prerequisite: course 171. Open to Landscape Architecture majors only. Legal and professional aspects of landscape architecture, including the development of construction documents (drawings and specifications), proposal writing, fee calculations, project management, cost estimation, and insurance.—*F. (F.)*
(change in existing course—eff. fall 16)

170. Site Planning and Design Studio (6)
Studio—8 hours. Prerequisite: course 160. Open to Landscape Architecture majors. Application of placemaking and problem-solving skills to local landscape sites. Analysis of social and environmental conditions in the field. Lectures link design projects to contemporary theories and practices. Includes workshops in computer-aided drafting. GE credit: ArtHum | AH, OL, VL.—*W. (W.)* de la Pena
(change in existing course—eff. fall 16)

171. Urban Design and Planning Studio (6)
Studio—8 hours. Prerequisite: course 170. Restricted to Landscape Architecture majors. Studio designing large-scale landscapes at regional, sub-regional, and neighborhood scales. Focuses on understanding complex social, economic, and environmental factors, developing sustainability priorities and strategies, and applying them through design and policy. GE credit: ArtHum | ACGH, AH, OL, VL.—*S. (S.)*
(change in existing course—eff. fall 16)

180N. Special Topics in Landscape Architecture: Planting Design (2)
Lecture—2 hours. Prerequisite: upper division standing; Environmental Horticulture 6. Develop an understanding of the sensory, visual and functional importance of plants in the landscape. Visualization and design of planted landscapes. Development of planting plans. Not open for credit to students who have taken course 156. Offered in alternate years.
(change in existing course—eff. winter 15)

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.—Loux
(change in existing course—eff. winter 15)

181K. Social Factors in Landscape Architecture Design and Planning Studio (3)
Studio—6 hours; one field trip required. Prerequisite: Psychology 155, course 170, 180K concurrently. Priority to Landscape Architecture majors. 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. Offered in alternate years. GE credit: DD, OL, VL.—Owens
(change in existing course—eff. winter 15)

193A. Senior Project in Landscape Architecture (3)
Studio—6 hours. Prerequisite: senior standing in Landscape Architecture. Limited enrollment. Projects will focus on a critical area of landscape architectural design, planning, analysis, communication, or research. Required of all Landscape Architecture majors. (P/NP grading only.)—*W. (W.)*
(change in existing course—eff. winter 15)

193B. Senior Project in Landscape Architecture (4)
Studio—8 hours. Prerequisite: course 193A and senior standing in Landscape Architecture. Limited enrollment. Projects will focus on a critical area of landscape architectural design, planning, analysis, communication, or research. Required of all Landscape Architecture majors. (P/NP grading only.)—*S. (S.)*
(change in existing course—eff. winter 15)

Graduate

202. Methods in Design and Landscape Research (4)
Seminar—4 hours. Explores many of the research and advanced design and planning methods employed in landscape architecture. Exercises provide the student with a vehicle for designing independent landscape research and creative activities. Lectures provide an historical overview of research methodology. Offered in alternate years.—Owens
(change in existing course—eff. spring 16)

205. Urban Planning and Design (4)
Lecture—2 hours; discussion—2 hours. Limited to graduate students. 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. (Same course as Geography 233.)—*F. (F.)* Wheeler
(change in existing course—eff. winter 16)

215. Ecologies of Infrastructure (4)
Seminar—4 hours. Open to graduate standing or consent of instructor. Focus on design practices and theory associated with ecological conceptions of infrastructure, including networked infrastructure, region, bioregion, regionalization, ecological engineering, reconciliation ecology, novel ecosystems, and theory/articulation of landscape change. Offered in alternate years. (Same course as Geography 215.)—Milligan
(new course—eff. winter 16)

220. Public Space and Culture (3)
(cancelled course—eff. spring 15)

230. Landscape and Memory (4)
(cancelled course—eff. spring 15)

Latin

New and changed courses in Latin (LAT)

Lower Division

2. Elementary Latin (5)
Lecture—5 hours. Prerequisite: course 1 or equivalent. Continuation of course 1. GE credit: ArtHum | AH.—*W. (W.)* Rundin
(change in existing course—eff. spring 16)

3. Intermediate Latin (5)
Lecture—5 hours. Prerequisite: course 2 or equivalent. Continuation of course 2. Selected readings from Latin authors. GE credit: ArtHum | AH.—*S. (S.)* Rundin
(change in existing course—eff. spring 16)

Upper Division

100. Readings in Latin Prose (4)
Lecture/discussion—4 hours. Prerequisite: course 3 or equivalent. Review of Latin morphology, grammar, and vocabulary. Readings in prose authors, including Julius Caesar. GE credit: AH.—*F. (F.)* Albu, Stem
(change in existing course—eff. fall 16)

101. Livy (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Seal, Stem
(change in existing course—eff. spring 16)

102. Roman Comedy (5)
Lecture—4 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Albu
(change in existing course—eff. spring 16)

103. Vergil: Aeneid (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—Albu, Brelinski, Seal
(change in existing course—eff. spring 16)

104. Sallust (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Offered in alternate years. GE credit: ArtHum, Wrt | AH, WE.—*S. (S.)* Stem
(change in existing course—eff. spring 16)

105. Catullus (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Seal
(change in existing course—eff. spring 16)

106. Horace: Odes and Epodes (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Albu, Seal
(change in existing course—eff. spring 16)

108. Horace: Satires and Epistles (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

109. Roman Elegy (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.
(change in existing course—eff. spring 16)

110. Ovid (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or equivalent. Translation and discussion of selected readings from the works of Ovid. May be repeated one time for credit when topic differs and with consent of instructor. GE credit: ArtHum, Wrt | AH, WC, WE.—Albu
(change in existing course—eff. spring 15)

112. Cicero (4)
Recitation—3 hours; term paper. Prerequisite: course 100 or equivalent. Translation and discussion of selected readings from the works of Cicero. May be repeated one time for credit if readings vary and with consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—Stem
(change in existing course—eff. spring 15)

115. Lucretius (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Webster
(change in existing course—eff. spring 16)

116. Vergil: Eclogues and Georgics. (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

118. Roman Historians (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or equivalent. Readings in Latin from one or more of the major Roman historians and biographers. Authors may include Sallust, Nepos, Livy, Tacitus, Suetonius, and Ammianus Marcellinus. GE credit: ArtHum | AH, WC, WE.—Seal
(change in existing course—eff. spring 15)

119. Readings in Republican Latin Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or equivalent. Translation and discussion of selected readings from Republican Latin literature. May be repeated for credit when topics vary. GE credit: ArtHum | AH, WC, WE.—Brelinski, Stem
(change in existing course—eff. spring 15)

120. Readings in Imperial Latin Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or equivalent. Readings in Imperial Latin literature. May be repeated two times for credit when topic differs. GE credit: ArtHum | AH, WC, WE.—Popescu, Seal, Stem
(change in existing course—eff. spring 15)

121. Latin Prose Composition (4)
Lecture/discussion—4 hours. Prerequisite: course 100 or equivalent. Intensive grammar and vocabulary review through exercises in Latin prose composition. GE credit: ArtHum | AH.
(change in existing course—eff. spring 15)

125. Medieval Latin (4)
Lecture—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Selected readings from the Vulgate and various medieval authors provide an introduction to the developments in the Latin Language and literature from the fourth to the fifteenth centuries. GE credit: ArtHum, Wrt | AH, WE.—*F, W, S. (F, W, S.)* Albu
(change in existing course—eff. spring 16)

130. Readings in Late Latin (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Translation and discussion of selected readings from late imperial-early medieval Christian and pagan literature. GE credit: ArtHum | AH, WC, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

199. Special Study for Advanced Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

Law

New and changed courses in Law (LAW)

Graduate

200A. Introduction to the Law of the United States (2)
Discussion—2 hours. History and fundamental principles of the United State s legal system. Important current legal issues, developments and trends. Required for LL.M. students who have not attended a U.S. law school. Fall semester only.
(change in existing course—eff. fall 15)

200BT. Introduction to US Legal Methods A (3)
Lecture/discussion—3 hours. Course is designed to provide background skills necessary to succeed in both law school and legal practice. Students gain an introductory working knowledge of the US legal method which includes learning various forms of legal writing and speaking.
(change in existing course—eff. spring 16)

200CT. Introduction to US Legal Methods B (3)
Lecture/discussion—3 hours. Course is designed to provide background skills necessary to succeed in both law school and legal practice. Students gain an introductory working knowledge of the US legal method which includes learning various forms of legal writing and speaking.
(new course—eff. spring 16)

209CT. Patentable Subject Matter: Genes, Methods, and Software (2)
Seminar—2 hours. Prerequisite: course 274, 209A, 209AT. An in-depth look at recent cases and debates behind genetic patenting, software; business models; diagnostic methods, and others. Reviews the crucial and rapidly evolving field of patent law which affects some of the most important hi-tech industries.
(new course—eff. spring 16)

209T. Innovation and Technology Transfer Seminar (2)
Seminar—2 hours. Prerequisite: course 209A or 274, recommended but not required. Restricted to 15 students. From biomedicine to cleantech, public institutions are playing leading roles in developing cutting-edge technologies. Explores the law and policy of publicly-supported innovation and technology transfer.
(new course—eff. fall 10)

210. Criminal Justice Administration Seminar (2)
Seminar—2 hours. Limited enrollment. Compares U.S. criminal procedure with that of other countries, particularly the differing roles of the prosecutor, defense counsel, and the judge.
(change in existing course—eff. winter 15)

210C. Sexual Assault and the Law (2)
Seminar—2 hours. Criminal law of sexual assault, traditional and modern offenses, and proposals for reform. Discussion of procedural developments, vic-

tim's counsel, evidentiary reform, and ADR. And the implications for civil law, tort liability, Title VI, Title IX, and civil liability of perpetrators.

(new course—eff. fall 15)

211A. Advanced Negotiations Strategy and Client Counseling (3)
Discussion—3 hours. Prerequisite: consent of instructor. Application course; must apply and secure professor approval to enroll; will involve participating in discussions and a series of simulations; your classmates will be counting on you to actively participate and be well prepared for every simulation; do not apply to take this course unless you are willing and able to participate fully and can accept constructive feedback; if you anticipate missing more than two class sessions, do not apply to take this course. Understand the dynamics of interviewing and counseling process. Designed to be relevant to a broad spectrum of negotiation problems that are faced by legal professionals.

(change in existing course—eff. winter 15)

218. Constitutional Law II (4)
Discussion—4 hours. Not open to students who have completed course 218A or 218B. Principally covers the First Amendment and the Equal Protection Clause.

(change in existing course—eff. winter 15)

218D. Constitutional Theory Seminar (2)
Seminar—2 hours. Provides students with a broad understanding of the shape of modern constitutional theory, and the ability to understand the implications of that theory for concrete historical and modern constitutional disputes.

(new course—eff. fall 15)

218ET. California Constitutional Law (2)
Discussion—2 hours. Reviews, interpretive meta-rules for constitutional construction, structure and institutions of state government, civil liberties under the Declaration of Rights, the impact of race in California society, and criminal law.

(new course—eff. fall 15)

219. Evidence (4)
Discussion—4 hours. Covers rules regarding the admissibility of testimonial and documentary proof during the trial of civil and criminal cases, including rules governing relevancy, hearsay, the examination and impeachment of witnesses, expert opinion, and constitutional and statutory privileges.

(change in existing course—eff. spring 16)

220B. Tax and Distributive Justice (3)
Discussion—3 hours. Advanced tax course designed to introduce students to issues of tax policy, with particular emphasis on tax distribution (i.e., who or what should pay taxes in society) and tax incidence (i.e., who or what ends up paying taxes in society).

(change in existing course—eff. spring 15)

222T. Asian Pacific Americans and Law (2)
Discussion—2 hours. Profound impact on how American Law has shaped Asian Pacific Americans demographics, experiences, and possibilities of Asian Americans will be examined.

(change in existing course—eff. spring 15)

223. Estate Planning Seminar (2)
Seminar—2 hours. Prerequisite: course 221.Limited enrollment. Selected topics in the estates and trusts area. Content varies with instructor. Satisfies the advanced legal writing requirement.

(change in existing course—eff. winter 15)

226. Disability Rights (3)
Discussion—3 hours. Examines disability law and theory with emphasis on U.S. statutory law (particularly, Americans with Disabilities Act, ADA Amendments Act, and Individuals with Disabilities Education Act) as it applies to employment, education, public accommodations, and government services and programs.

(change in existing course—eff. fall 15)

228. Business Planning and Drafting (4)
Discussion—4 hours; extensive writing. Prerequisite: course 215; prerequisite will not be waived, do not register for the course unless you have completed course 215. Limited enrollment. Introduces students to a number of legal and business considerations relevant to forming and operating an emerging growth business (such as technology startup).

(change in existing course—eff. fall 15)

229. Scientific Evidence (3)
Discussion—3 hours. Prerequisite: course 219. Limited enrollment. In addition to examining the evidence law governing the admission of scientific testimony, this course considers trial advocacy in presenting and attacking such testimony.

(change in existing course—eff. winter 15)

231A. Sexual Orientation, Gender Identity, and the Law (3)
Discussion—3 hours. Examines the legal and social regulation of sexual orientation and gender identity.

(change in existing course—eff. fall 15)

232AT. Real Estate Transactions (2)
Discussion—2 hours. Review of legal issues in the purchase, sale, financing of residential real estate in US, with non-exclusive focus on California. Roles of parties involved, mechanisms of financing and security, survey of remedies, and role of mortgage lending beginning in 2008.

(new course—eff. spring 15)

237B. Special Topics in Legal Theory: Ancient Athenian Law (2)
Seminar—2 hours. Athenian legal system was different from our own and was far less formal. How did it work? Why did it work? Why have political and legal theorists misunderstood Athens for so long and what can we learn from that failure?

(new course—eff. spring 16)

239. Mediation: Theory and Practice (3)
Discussion—3 hours. Prerequisite: course 211, 297. Restricted to 24 students.The basic, practical knowledge necessary to begin a mediation practice. Detailed understanding of the mediation process to counsel clients knowledgeably about the mediation option and represent clients ably in mediation. Communication skills, development of the ability to analyze disputes to understand why negotiations succeed or fail, and understanding of the advantages and limitations of mediation as a method of resolving disputes. The stages of a mediation: contracting (establishing contact with the parties and explaining the process), developing the issues, working the conflict, resolving the conflict, and closure.

(change in existing course—eff. winter 15)

240. Elections and Political Campaigns (2)
Discussion—2 hours. Limited enrollment. Covers selected constitutional and statutory aspects of federal and state elections, including campaign finance, initiatives, and other topical issues.

(change in existing course—eff. winter 15)

243BT. Introduction to Bankruptcy Law (2)
Discussion—2 hours. Overview of US Bankruptcy Code and its interaction with State and federal non-bankruptcy law. Covers practice of bankruptcy law, and the impacts of bankruptcy and insolvency on resolution of non-bankruptcy litigation and structuring of real estate, commercial and corporate transactions.

(new course—eff. spring 15)

245B. Death Penalty Seminar (2)
Seminar—2 hours. Limited enrollment. Offers overview of the constitutional law governing the death penalty in the United States.

(change in existing course—eff. winter 15)

247B. Corporate Tax (2)
Discussion/laboratory—2 hours. Examination of the federal income tax relationship between corporations and their owners. Covers the transfer of funds into a corporation on formation and the re-transfer of money and property from the corporation to its shareholders.

(change in existing course—eff. spring 16)

248A. Jurisdiction in Cyberspace Seminar (2)
Seminar—2 hours. Limited enrollment. Review concepts in international law, conflicts of law, cyberlaw, and federal jurisdiction to address the growing multi-jurisdictional conflicts created by the Internet. Examine European efforts at crafting intra-Europe jurisdictional rules, as well as other international jurisdiction treaty projects such as those at the Hague. GE credit: Wrt.

(change in existing course—eff. winter 15)

248BT. Human Rights in the Former Soviet Union: Legal Tools for Repression and Redress: Part II (2)
Seminar—2 hours. This course first provides a historical context for the current political and human rights situation in the Former Soviet Union. It then analyzes the legal mechanisms and other strategies that some of the Former Soviet Union's countries governments employ to repress their own citizens. Finally, the class examines the ways in which citizens use the law to seek relief from remedies for the repression of their rights.

(change in existing course—eff. spring 11)

248CT. United Nations Human Rights Practicum (3)
Discussion—3 hours. Students will engage in intensive research and writing in the field of cultural rights, the workings of the United Nations human rights system, and gain experience working with UN documents, individual cases in the field and with thematic reports.

(new course—eff. spring 16)

248ET. Transitional Justice and Memory Politics in the Asia-Pacific (2)
Seminar—2 hours. Transitional justice (legal responses to wrongdoings of repressive predecessor regimes) can help resolve "memory politics" that plague the relations and societies of many Asia-Pacific states. Together we will examine relevant roles of governments, novel institutions, the judiciary, and civil society.

(new course—eff. spring 16)

248G. Legal Spanish for Lawyers (2)
Seminar—2 hours. Prerequisite: must satisfy one of the following: undergraduate degree in Spanish; a minor in Spanish with experience living in a Spanish-speaking country; grew up in a Spanish-speaking household and achieved proficiency; able to pass an informal assessment by the instructor. Designed for law students who are native Spanish-speakers or who have achieved proficiency in Spanish through study or experiences in a Spanish-speaking country.

(change in existing course—eff. spring 15)

248T. Advanced International Law (2)
Discussion—2 hour. Review books of international law; Hugo Grotius and Judge Rosalyn Higgins. Themes include peaceful resolutions of dispute, law of war and peace, and international legal process. GE credit: WE

(change in existing course—eff. spring 15)

248TA. Human Rights in Post Soviet Central Asia: Legal Tools For Repression and Redress (2)
Discussion—2 hours. Limited enrollment. Provides a historical context for the current political and human rights situation in Central Asia.
(new course—eff. fall 10)

250. Jurisprudence Seminar (3)
Seminar—3 hours. Deals principally with the question of how judges should decide "hard cases," where the content of the law is in doubt and competent arguments have or could be offered for mutually inconsistent decisions in favor of either party. Limited enrollment.
(change in existing course—eff. spring 15)

250AT. Legal Theory Workshop (2)
Seminar—2 hours. Aoki Center: Introduction to research by legal academics and scholars. Students will write a publishable quality paper. Topics include race, citizenship, immigration, ethnicity or social justice.
(change in existing course—eff. spring 15)

254A. Law and Rural Livelihoods Seminar (3)
Seminar—3 hours. Provides broad overview of law as it relates and applies to rural people and places.
(change in existing course—eff. fall 15)

254T. Practicum in Rural Community Advocacy (3)
Seminar—3 hours. Limited enrollment. Provides an opportunity to learn about Participatory Action Research (PAR) methods and community–based lawyering in the context of rural community development and advocacy. Using these skills and knowledge to serve rural California communities.
(change in existing course—eff. winter 15)

258BT. Mindfulness and Professional Identity (3)
Seminar—3 hours. Introduction to the practice of meditation and connect it with readings about the legal profession in three key areas.
(change in existing course—eff. spring 15)

258DT. Setting Up and Maintaining Solo Law Practice (1)
Lecture/discussion—1 hour. Introduction/overview of how to start a successful solo practice.
(new course—eff. spring 16)

258ET. Utility of Law School and Careers in the Law (1)
Discussion—1 hour. Despite improvements in the economy, some observers continue to question whether law school is a viable option for college graduates. The class will consider the controversy and expose students to the variety of careers in the legal profession. (S/U grading only.)
(new course—eff. spring 16)

259B. Women's Human Rights (2)
Seminar—2 hours. Overview of international legal and institutional system for the protection of women's human rights from an academic perspective and the view of the practitioner. Includes the (CEDAW), violence against women, sexual and reproductive rights, economic rights, and more.
(new course—eff. spring 16)

260A. Employment Law (3)
Discussion—3 hours. Provides an overview of employment law, labor law and employment discrimination law and aims to serve as a foundation for understanding the law and policy (statutory and common law) that surround the employer-employee relationship.
(new course—eff. spring 16)

260AT. Employment Law (2)
(cancelled course—eff. fall 16)

262AT. US Antitrust Law and Indian Competition Law: A Comparative Perspective (2)
Lecture/discussion—2 hours. Fundamental principles of Indian Competition Law and US Antitrust Law in a comparative perspective. The course will help American students, interested in future corporate law careers, to develop effective strategies for better managing cross border deals in India.
(new course—eff. spring 16)

263A. Trial Practice I (3)
Discussion—2 hours; laboratory—1 hour. Prerequisite: course 219, may be taken concurrently. Limited enrollment. 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.
(change in existing course—eff. winter 15)

264. Water Law (3)
Discussion—3 hours. Property rights in surface waters, including riparian rights, prior appropriation, and public rights use of water bodies; environmental constraints on exercise of water rights; groundwater rights and management; federal allocation and control of water resources; legal aspects of interstate allocation.
(change in existing course—eff. spring 16)

264A. Ocean and Coastal Law (3)
Discussion—3 hours. Introduction to the goals and challenges of coastal and ocean policy; the complicated web of public and private interests in coastal lands and ocean waters; regulation of coastal development; domestic and international fisheries management; and preservation of ocean resources.
(change in existing course—eff. spring 15)

265. Natural Resources Law Seminar (2)
Seminar—2 hours. Prerequisite: course 285 or 256 recommended, but not required. Limited enrollment. In-depth coverage of two foundational principles of natural resources law: public trust doctrine and private property rights protected under the Takings Clause of the U.S. and many state constitutions.
(change in existing course—eff. winter 15)

267B. Civil Rights Seminar (2)
Seminar—2 hours. Limited enrollment. The social, political, legal and historical factors which led to the creation of the United States Commission on Civil Rights (USCCR) in 1957. The United States Commission on Civil Rights is a bipartisan, independent agency established by the Civil Rights Act. It is directed to investigate complaints alleging deprivations of the right to vote, and voter fraud; to study and collect information relating to discrimination and the denial of equal protection of the laws under the Constitution on the basis of race, color, religion, sex, age, disability, or national origin; and submit reports, findings and recommendations to the President and to Congress. The role that the USCCR has played and continues to play in American politics, legislative enactments and the national dialogue on equality, fairness and justice in the context of civil and human rights. Satisfies Advanced Legal Writing Requirement.
(change in existing course—eff. winter 15)

268T. Suing the Government: Civil Rights, Torts, Takings, and More (2)
Discussion—2 hours. Explores the basic requirements of suing government, including sovereign immunity, particular schemes for litigating against government (Federal Tort Claims Act, APA, False Claims Act, etc.), direct constitutional claims and the procedural pitfalls and remedies available against government.
(new course—eff. spring 16)

269E. Public Finance: Theory and Practice (2)
Seminar—2 hours. Students will be introduced to the basic concepts of public finance, the underlying law governing public finance: in particular state law, federal tax law and federal securities law.
(new course—eff. fall 15)

270A. Life-Cycle Transactions and Drafting (3)
Discussion—3 hours. Class focuses on analysis of contract drafting design for various types of transactions and actual transactional documents typically encountered.
(new course—eff. spring 16)

270T. Life-Cycle Business Transactions (3)
(cancelled course—eff. fall 15)

271. Nonprofit Organizations and Drafting (3)
Discussion—4 hours. Prerequisite: course 215 or consent of instructor. Restricted to 13 students. Legal rules and concepts applicable to nonprofit organizations.
(change in existing course—eff. winter 15)

273A. Education Policy and the Law (2)
Discussion—2 hours. Topics include civil rights, inequality and the "right" to an education, bilingual education, school finance litigation, educational access, No Child Left Behind Act, Common Core Standards and charter schools. For students interested in educational policy and social regulatory policy.
(new course—eff. fall 15)

274D. Intellectual Property in Historical Context Seminar (2)
Seminar—2 hours. How the legal system has adapted to earlier periods of rapid change by creating, delimiting, and expanding intellectual property rights (IPRs). Required paper satisfies advanced writing requirement.
(change in existing course—eff. spring 15)

278. Pretrial Skills (2)
Discussion—2 hours. Limited enrollment. This course uses role-playing exercises, videotaped simulations, and related projects to introduce students to lawyering skills basic to the practice of law, including client interviewing, witness interviewing and discovery, including depositions.
(change in existing course—eff. winter 15)

279. Public Sector Labor Law (2)
Seminar—2 hours. Limited enrollment. Prerequisite: course 251 or consent of instructor. Application of private sector labor law doctrines to the public sector. Emphasis on the four California public sector statutes and the impact of constitutional law on public employees. Class presentation and seminar paper required. Satisfies advanced writing requirement.
(change in existing course—eff. winter 15)

280. Advanced Legal Writing: Analytical & Persuasive Writing (2)
Seminar—2 hours. Prerequisite: consent of instructor. Develop essay writing skills and performance test drafting typically employed on the bar examination. (S/U grading only.)
(change in existing course—eff. spring 15)

281. State and Local Government Law (3)
Discussion—3 hours. Broad approach to state and local government law, both practically and theoretically. Topics include: federalism, relations between states and localities, governmental liability, zoning, educational equity and public finance.
(change in existing course—eff. fall 15)

285. Environmental Law (4)
Discussion—4 hours. Introduction to environmental law, focusing primarily on federal law.
(new course—eff. fall 14)

285A. California Environmental Issues (2)
Discussion—2 hours. The "nation-state" of California has for many years been a national and global leader in environmental law and policy. Survey of key California environmental law and policy issues.
(change in existing course—eff. fall 14)

285B. Environmental Practice (2)
Discussion—2 hours. Prerequisite: course 285 recommended. Examines underlying theory and practice in securing compliance with our major environmental laws.
(change in existing course—eff. spring 16)

285CT. The Business of Lawyering (2)
Discussion—2 hours. Desired outcome is a thorough understanding of the business side of law practice and to promote an understanding of the relationship and balance between legal skills, business requirements of a practice, client needs and a work-life balance.
(new course—eff. fall 15)

285H. Comparative Environmental Law (2)
Discussion—2 hours. Focus on Pacific Rim, examining factors, similarities/differences in countries environmental regulation and success of environmental law. Including information and market-based regulatory approaches; compliance and enforcement gaps; citizen and community mobilization; the role of legal institutions; variations in regulatory style.
(new course—eff. spring 15)

286A. Topical Issues in Health Law (2)
Seminar—2 hours. Limited enrollment. 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.
(change in existing course—eff. winter 15)

286C. Bioethics (3)
Discussion—3 hours. Limited enrollment. Course examines the ethical and legal issues that arise from biomedical research and use of medical technologies. GE credit: Wrt.
(change in existing course—eff. winter 15)

286E. Reproductive Rights, Law, and Policy (2)
Seminar—2 hours. Limited enrollment. Addresses a variety of laws and practices that affect reproductive health and procreative decision making.
(change in existing course—eff. winter 15)

287. Public Land Law (2)
Discussion—2 hours. Legal aspects of federal land management, including the history of public land law, the scope of federal and state authority over the federal lands, and the allocation of public land resources among competing uses, including extractive consumption, recreation, and preservation.
(change in existing course—eff. fall 15)

287A. Poverty Law (2)
Seminar—2 hours. Limited enrollment. Explore the theory and practice of law pertaining to the enactment and enforcement of laws regulating or aiding the poor and other disadvantaged persons.
(change in existing course—eff. fall 15)

287T. Law and Society Seminar (2)
Seminar—2 hours. Limited enrollment. Study of law and society challenges traditional legal scholarship by exploring multiple ways in which law both shapes and is shaped by societies and social interactions. Seminar will introduce students to important literature and debates in the field.
(change in existing course—eff. winter 15)

288. Advanced Constitutional Law Seminar (2)
Seminar—2 hours. Prerequisite: Prior or concurrent enrollment in course 218 or 218A. Limited enrollment. Explores in-depth selected topics or problems in constitutional law and theory. Current focus is on the interpretation and application of the religion clauses of the First Amendment.
(change in existing course—eff. winter 15)

288B. Supreme Court Simulation Seminar (2)
Seminar—2 hours. Limited enrollment. Consideration in depth of approximately nine cases involving constitutional law that will be decided during the present term of the U.S. Supreme Court.
(change in existing course—eff. winter 15)

289A. Biotechnology Law and Policy (2)
Seminar—2 hours. Limited enrollment. Coverage includes the regulation of biotechnology research, including restrictions on cloning and fetal stem cell research; regulation of the products of biotechnology to protect human health or the environment, including restrictions on use or distribution of genetically modified organisms; the availability and scope of intellectual property protection for biotechnology products, including genes and engineered organisms; and the international law governing access to the natural resources that provide the starting materials for biotechnology and trade in bioengineered organisms or their products.
(change in existing course—eff. winter 15)

290AT. Privacy, Surveillance, and "Sousveillance" (3)
Discussion—3 hours. Issues of privacy and surveillance are important to businesses, governments and citizens. Surveillance raises issues of autonomy and the abuse of power. "Sousveillance," (citizen holds the camera), is a mechanism for rooting out corruption and exposing individuals to societal scrutiny.
(new course—eff. fall 15)

290BT. Surveillance and States (3)
Seminar—3 hours. Examines the tensions between democracy and the rise of government power entailed by the growth of state surveillance, United States surveillance law and practice, and surveillance law and practice across the world. Also considers international legal constraints on government surveillance.
(new course—eff. spring 16)

295A. Trademark and Unfair Competition Law (2)
Discussion—2 hours. Prerequisite: course 274 recommended, not required. 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. spring 16)

296. Copyright (3)
Discussion—3 hours. Thorough examination of the law of copyright, including its application to literature, music, films, television, art, computer programs, and the Internet.
(change in existing course—eff. fall 15)

297. Alternative Dispute Resolution (3)
Discussion—3 hours. Limited enrollment. Introduces students to a wide variety of alternative dispute resolution procedures, with an emphasis on negotiation, mediation and arbitration.
(change in existing course—eff. winter 15)

297A. Federal Arbitration Act Seminar (2)
Seminar—2 hours. Trace the development of commercial arbitration law, with a special emphasis on hot-button contemporary issues like consumer and employment arbitration, the separability doctrine, preemption of state law, and the arbitrability of statutory claims.
(new course—eff. spring 16)

297AT. Commercial Arbitration Seminar (2)
(cancelled course—eff. fall 16)

297BT. International Commercial Arbitration (3)
Discussion—3 hours. International commercial arbitration, Convention on International Sale of Goods, general understanding of international arbitration provided by World Bank's International Centre for Settlement of Investor-State Disputes under Convention on Settlement of Investment Disputes between States and Nationals of Other States.
(new course—eff. spring 15)

298. Sociology of the Legal Profession Seminar (2)
Seminar—2 hours. Limited enrollment. Comprehensive look at the organization, operation, and ideology of the legal profession.
(change in existing course—eff. winter 15)

Professional

408. Community Education Seminar (3)
Seminar/clinic—3 hours. Limited enrollment. Trains students to educate the community about basic legal rights and responsibilities. Students attend an initial four-hour orientation, followed by weekly seminars that will prepare students to teach in a local high school at least two times per week. Paper or journal required, to be determined by instructor. (S/U grading only.)
(change in existing course—eff. winter 15)

408A. Educational Policy and the Law Seminar (2)
(change in existing course—eff. summer 15)

410A. Appellate Advocacy I (2)
Discussion/laboratory. Limited enrollment. Basic appellate practice and procedure. Beginning instruction in oral advocacy skills and an opportunity to practice these skills in front of a moot court. (S/U grading only.)
(change in existing course—eff. winter 15

410B. Appellate Advocacy II (Moot Court) (2)
Practice—2 hours. Limited enrollment. Continuation of course 410A. Focuses on the development of effective appellate brief writing skills and the refinement of oral advocacy skills. (S/U grading only.)
(change in existing course—eff. winter 15)

412. Carr Intraschool Trial Advocacy Competition (1)
Lecture. Limited enrollment. Named after the late Justice Frances Carr, this competition is open to second- and third-year students. A preliminary round is followed by quarter-finals, semi-finals, and a final round. Students participate in mock trials presided over by judges and critiqued by experienced litigators. (S/U grading only.)
(change in existing course—eff. winter 15)

414. Moot Court Board (1)
Prerequisite: courses 410A-410B. Limited enrollment. Members of Moot Court Board may receive one credit for each semester of service on the board, up to maximum of two. Credit awarded only after certification by Moot Court Board and approval of the faculty advisers to Moot Court Board. (S/U grading only.)
(change in existing course—eff. winter 15)

417A. Law Review Editor (1-2)
Prerequisite: consent of instructor. Editors must have completed an editorship article and must perform editorial duties (a substantial time commitment). Credit is awarded only after completion of both semesters. (S/U grading only; deferred grading only, pending completion of sequence.)
(new course—eff. fall 15)

417B. Law Review Editor (1-2)
Prerequisite: consent of instructor. Editors must have completed an editorship article and must perform editorial duties (a substantial time commitment). Credit is awarded only after completion of both semesters. (S/U grading only; deferred grading only, pending completion of sequence.)
(new course—eff. fall 15)

420. Civil Rights Clinic (2-6)
Clinical activity—2 hours. Prerequisite: prior or concurrent enrollment in course 219; priority given to students enrolled in or have taken course 267; consent of instructor. Limited enrollment. 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 clinic cases under the supervision of the clinic director. May be repeated for credit.
(change in existing course—eff. spring 15)

435. Family Protection Clinic (4)
Clinical activity—2 hours. Prerequisite: Full-Year Clinic: prior or concurrent enrollment in course 219 to qualify for state court certification; prior or concurrent enrollment in course 272 and 263A recommended, not required; One-Semester Clinic: prior or concurrent enrollment in course 272 and 263A recommended, not required. Full-Year Clinic: each student required to enroll for two semesters, receiving four units each semester for total of eight units; class limited to seven students; One-Semester Clinic: each student required to meet weekly for a 2-hour seminar; class limited to four students. Represent low-income persons in family law and related matters arising out of situations involving family violence.
(change in existing course—eff. spring 15)

435A. Family Protection Clinic (4)
Clinical activity—2 hours. Prerequisite: Full-Year Clinic: prior or concurrent enrollment in course 219 to qualify for state court certification; prior or concurrent enrollment in course 272 and 263A recommended not required; One-Semester Clinic: prior or concurrent enrollment in course 272 and 263A recommended not required; consent of instructor. Full-Year Clinic: each student required to enroll for two semesters receiving four units each semester for total of eight units; class limited to seven students. Represent low-income persons in family law and related matters arising out of situations involving family violence. (Deferred grading only, pending completion of sequence.)
(new course—eff. fall 14)

435B. Family Protection Clinic (4)
Clinical activity—2 hours. Prerequisite: Full-Year Clinic: prior or concurrent enrollment in course 219 to qualify for state court certification; prior or concurrent enrollment in course 272 and 263A recommended not required; consent of instructor. Full-Year Clinic: each student required to enroll for two semesters receiving four units each semester for total of eight units; class limited to seven students. Represent low-income persons in family law and related matters arising out of situations involving family violence. (Deferred grading only, pending completion of sequence.)
(new course—eff. spring 15)

440. Immigration Law Clinic (4)
Clinical Activity—8 hours. Starting in Fall 2011, the Immigration Clinic is a full-year clinic; each student required to enroll for two semesters, receiving four units each semester for total of eight units; prior or concurrent enrollment in courses 292 and 219, recommended, not required. Each student is required to enroll for two semesters, receiving four units each semester for total of eight units. Provides legal representation to indigent non-citizens in removal proceedings before U.S. Immigration Courts, the Board of Immigration Appeals, and federal courts, including the Ninth Circuit Court of Appeals. (S/U grading only; deferred grading only, pending completion of sequence.)
(change in existing course—eff. winter 15)

440A. Immigration Law Clinic (4)
Clinical Activity—4 hours. Prerequisite: prior or concurrent enrollment in course 292. Each student is required to enroll for two semesters, receiving four units each semester for total of eight units. Provides legal representation to indigent non-citizens in removal proceedings before U.S. Immigration Courts, the Board of Immigration Appeals, and federal courts, including the Ninth Circuit Court of Appeals. (Deferred grading only, pending completion of sequence.)
(change in existing course—eff. spring 15)

440B. Immigration Law Clinic (4)
Clinical Activity—4 hours. Prerequisite: prior or concurrent enrollment in course 292; consent of instructor. Each student is required to enroll for two semesters, receiving four units each semester for total of eight units. Provides legal representation to indigent non-citizens in removal proceedings before U.S. Immigration Courts, the Board of Immigration Appeals, and federal courts, including the Ninth Circuit Court of Appeals. (Deferred grading only, pending completion of sequence.)
(change in existing course—eff. spring 15)

470. Administration of Criminal Justice Externship (2-12)
Clinical activity—2-12 hours. Prerequisite: completion of, or concurrent enrollment, in courses 219 and 227; course 263A recommended. Limited enrollment. Gain practical experience working full or part time in a District Attorney's or Public Defender's office in one of several surrounding counties or in a federal Public Defender or U.S. Attorney's office. Students participate in the many activities associated with the office for which they extern: observation, interviewing, research, counseling, motion practice, and trials under State Bar rules. May be repeated up to 12 units for credit.(S/U grading only.)
(change in existing course—eff. winter 15)

480. Clinical Program in Prison Law (2-6)
Clinical Activity—2 hours. Prerequisite: consent of instructor. Provides practical experience in providing legal services to real clients who have various problems related to their incarceration in state prison. The services require analysis and application of Constitutional Law, state statutory law, agency regulations, and the rules of professional responsibility.
(change in existing course—eff. spring 15)

498S. Group Study (1-4)
(cancelled course—eff. summer 15)

Linguistics

New and changed courses in Linguistics (LIN)

Lower Division

15. Academic Oral Communication (3)
Lecture—1 hour; discussion—2 hours. Structure of oral communication, critical thinking, and persuasion in classroom discourse in American English and in cross-cultural perspective. GE credit: ArtHum or SocSci | AH or SS, OL.—*F, W, Su. (F, W, Su.)* Farrell, Lane, Ramanathan, Takaoglu
(new course—eff. fall 14)

20. Oral English for Undergraduate ESL Students (3)
Lecture/discussion—3 hours. Open to non-native speakers of English with priority enrollment to international teaching assistants with qualifying placement exam scores. Intensive practice in oral English for undergraduate ESL students. Students will learn to identify and modify features of their pronunciation which limit their ability to communicate clearly. Students will also learn and practice strategies for effective participation in academic tasks. May be repeated for credit. (P/NP grading only.)
(change in existing course—eff. winter 15)

24. English Structures and Strategies in Academic Writing (4)
Lecture/discussion—4 hours. Prerequisite: course 23. Open to students from language backgrounds other than English. 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.—Samsel
(change in existing course—eff. winter 15)

25. English for International/ESL Graduate Students (4)
Lecture/discussion—4 hours. Prerequisite: admission by placement examination or consent of coordinator; open to international and ESL graduate students and limited status international undergraduates (Education Abroad Program participants). Multi-skills ESL course designed to help international/ESL students improve their English language skills for successful academic study. Emphasis on writing, speaking, listening, reading, and academic culture. (P/NP grading only.)—*F. (F.)* Lane
(change in existing course—eff. spring 15)

Upper Division

103B. Linguistic Analysis II: Morphology, Syntax, Semantics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1. Introduction to fundamental methods and concepts used in linguistic analysis, focusing on morphological, syntactic, and semantic phenomena. Emphasizes development of analytical skills and appreciation of structural regularities and differences among languages. Not open for credit to students who have completed course 140. 103B GE credit: ArtHum | AH.—*W.* Aranovich, Farrell
(change in existing course—eff. winter 15)

182. Multilingualism (4)
Lecture/discussion—4 hours. Limited enrollment. Issues in multilingualism from a global perspective: e.g., multilingual communities; multilingualism and identity (gender, ethnicity, nationality); language ideologies and educational and sociopolitical policies surrounding multilingualism; acquisition of multilingualism; discursive practices of multilinguals. GE credit: ArtHum or SocSci, Div, Wrt | SS, WC, WE.—*S.* Ramanathan, Timm
(change in existing course—eff. winter 15)

Graduate

205A. Topics in Linguistic Theory and Methods (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Advanced study of current problems in linguistic theory and methodology. May be repeated for credit when topic differs.—*F. W. (F, W.)*
(change in existing course—eff. summer 15)

205B. Topics in Linguistic Theory and Methods (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Advanced study of current problems in linguistic theory and methodology. May be repeated for credit when topic differs.—*F. W. (F, W.)*
(change in existing course—eff. summer 15)

205C. Topics in Linguistic Theory and Methods (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Advanced study of current problems in linguistic theory and methodology. May be repeated for credit when topic differs.—*F. W. (F, W.)*
(change in existing course—eff. summer 15)

205D. Topics in Linguistic Theory and Methods (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Advanced study of current problems in linguistic theory and methodology. May be repeated for credit when topic differs.—*F. W. (F, W.)*
(change in existing course—eff. summer 15)

265. Language, Performance, and Power (4)
Seminar—3 hours; term paper. Restricted to 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.—*F.* Shibamoto-Smith
(change in existing course—eff. fall 14)

Management

New and changed courses in Management (MGT/MGB/MGP)

Upper Division

11A. Elementary Accounting (4)
Lecture—3 hours; discussion—1 hour. Basic concepts of accounting; interpreting and using financial statements; understanding accounting principles. GE credit: SocSci | SS.—*F. W. (F, W.)*
(change in existing course—eff. spring 15)

11B. Elementary Accounting (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 11A. Theory of product costing; Analyzing the role and impact of accounting information on decision making; planning and performance evaluation. GE credit: SocSci | SS.—*S. (S.)*
(change in existing course—eff. spring 15)

12Y. Navigating Life's Financial Decisions (3)
Lecture—2 hours; web virtual lecture—1 hour. Restricted to students enrolled in the MBA program. Survey of major life financial decisions (e.g., career choice, consumption v. saving, investments, mortgages, insurance) and how decision-making biases (e.g., overconfidence, present bias, limited attention) can lead to suboptimal choice. The course draws on research from economics, psychology, and sociology. Offered irregularly. GE credit: SS, QL.—*W. (W.)*
(new course—eff. winter 16)

98. Directed Group Study (1-5)
Seminar—3-15 hours. Prerequisite: consent of instructor. Open to all undergraduates, but is primarily intended for lower division students. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(new course—eff. fall 16)

Upper Division

100. Introduction to Financial Accounting (3)
Lecture—3 hours. Prerequisite: course 11A. Course is open to all upper division undergraduate and graduate students, except those in the Graduate School of Management. Introduction to the concepts, methods, and uses of accounting and financial reporting.—*F. (F.)*
(change in existing course—eff. summer 16)

120. Managing and Using Information Technology (4)
Lecture—3 hours; discussion—1 hour. Develop an analytical framework to manage and monitor business systems concerned with operational, human, and organizational interactions. Introduction to computer hardware, systems software, and information systems. Management of information technology and the impact of information systems on modern management. GE credit: SocSci | SS.—Aram
(change in existing course—eff. summer 16)

140. Marketing for the Technology-Based Enterprise (4)
Lecture—3 hours; discussion—1 hour. Quantitative analysis of needs in a product (technology-based) economy, with emphasis on how scientists, engineers, and business people interact to develop and market products and services.—*W. (W.)* Findlay
(change in existing course—eff. summer 16)

150. Technology Management (4)
Lecture—3 hours; discussion—1 hour. Management of firms in high technology industries such as software development and biotechnology research. Motivating and managing workers, organizing for innovation, and making decisions. GE credit: SocSci | SS.—*W, S, Su. (W, S, Su.)* Olson
(change in existing course—eff. summer 16)

160. Financing New Business Ventures (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 11A; Mathematics 16B, 17B, or 21B; Statistics 13. Concepts/methods used to structure and finance new business ventures. Topics include evaluating the net social (financial) benefit of new investment projects; raising venture capital; the role of the venture capitalist; and the choice of organizational structure in new ventures. GE credit: SocSci | SS.—*F. (F.)* Briscoe
(change in existing course—eff. summer 16)

170. Managing Costs and Quality (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 11A. Designing cost systems in high technology organizations and managing operations to maximize quality and minimize costs. Topics include activity based costing and management, managing quality and time to create value, ethical issues in cost assignment, and differential costing for decision. GE credit: SocSci | SS.—*S. (S.)*
(change in existing course—eff. summer 16)

180. Supply Chain Planning and Management (4)
Lecture—3 hours; discussion—1 hour. Course develops key concepts and relationships between supply chain design and business models and strategies. Much of the focus is on quantitative techniques for analysis and management of the production and delivery of goods and services by an organization. GE credit: SocSci | SS.—*F. (F.)* Hopman
(change in existing course—eff. summer 16)

Graduate

200A. Financial Accounting (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management. Introduction to the concepts and objectives underlying the preparation of financial statements. Topics include understanding the accounting cycle, measurement and valuation problems associated with financial statement components, consideration of the usefulness of financial statements in the analysis of a corporation's operations.—*F. (F.)* Yetman
(change in existing course—eff. spring 15)

200B. Managerial Accounting (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management. Information managers should know to be effective, including: product costing, motivating people, and differential analysis for decision making. Includes team projects and written and oral presentations.—*W, Su. (W, Su.)* Ramanan
(change in existing course—eff. spring 15)

201A. The Individual and Group Dynamics (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management. Examines basic psychological and social psychological processes shaping human behavior and applies knowledge of these processes to the following organizational problems: motivation, job design, commitment, socialization, culture, individual and group decision making, and team building.—*F. (F.)* Elsbach
(change in existing course—eff. spring 15)

201B. Organizational Structure and Strategy (3)
Lecture/discussion—3 hours. Prerequisite: completion of first year courses in Graduate School of Management or the equivalent. Open to MBA students only. Strategic management of organizations, including analysis of industries, firm resources and capabilities and corporate strategy. Strategy formulation, implementation and strategic decision-making. Firm and industry life cycles and change. Analysis of organizational design and structure including differentiation and integration.—*F. (F.)* Dokko
(change in existing course—eff. spring 15)

202A. Markets and the Firm (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management. Examines the interaction of consumers, firms and government, and the effect this interaction has on the use of resources and firm profitability. Fundamental economic concepts such as marginal analysis, opportunity cost, pricing, and externalities are introduced and applied.—*W. (W.)*
(change in existing course—eff. spring 15)

202B. Business, Government, and the International Economy (3)
Lecture—3 hours. Prerequisite: course 202A. Examines the influence of government and international factors on business. Topics include distribution of income, business cycles, inflation and interest rates, the federal debt, monetary policy and international trade and finance.—*W. (W.)*
(change in existing course—eff. spring 15)

203A. Data Analysis for Managers (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management MBA program or consent of instructor. Introduction to statistics and data analysis for managerial decision making. Descriptive statistics, principles of data collection, sampling, quality control, statistical inference. Application of data analytic methods to problems in marketing, finance, accounting, production, operations, and public policy.—*W. (W.)* Tsai
(change in existing course—eff. spring 15)

203B. Forecasting and Managerial Research Methods (3)
Lecture—3 hours. Prerequisite: course 203A. Practical statistical methods for managerial decision making covers regression analysis, time series analysis and forecasting, design and analysis of experiments in managerial research and contingency table analy-

sis. Application of these methods to marketing, finance, accounting, production, operations, and public policy.—*W. (W.)* Tsai

(change in existing course—eff. spring 15)

204. Marketing Management (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management. Analysis of market opportunities, elements of market research, development of marketing strategies, market planning and implementations, and control systems. Consumer and industrial markets, market segmentation, pricing strategies, distribution channels, promotion, and sales.—*S. (S.)*

(change in existing course—eff. spring 15)

205. Financial Theory and Policy (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management. Corporate financial policy and investment management. Covers capital budgeting, optimal financial structure, cost-of-capital determination, risk measurement. Develops basic valuation principles for investments with long-lived and risky cash-flows, and extends these to derivative securities, asset portfolios, investment management and hedging.—*S. (S.)* Barber

(change in existing course—eff. spring 15)

206. Decision Making and Management Science (3)
Lecture—3 hours. Prerequisite: graduate student in the Graduate School of Management MBA program or consent of instructor. Develops decision-making and problem-solving skills in conjunction with a quantitative model-building approach. Emphasizes how structured modeling techniques, probability forecasts, simulations, and computer optimization models are used in the overall process of making decisions in an uncertain environment.—*W. (W.)*

(change in existing course—eff. spring 15)

207. Management Information Systems (3)
Lecture—3 hours. Prerequisite: graduate student or consent of instructor. Introduction to computer programming and data handling skills. Use of computer in organizations, emphasis on managerial aspects of computing. Standard and nonstandard uses of data files, centralization versus decentralization of computing, office automation, computer security.—*F, W, S. (F, W, S.)* Bhargava, Woodruff

(change in existing course—eff. spring 15)

215. Business Law (3)
Lecture—3 hours. Prerequisite: completion of Administration core requirements or petition with consent of instructor. Introduction to law and legal process in the United States. Sources of law. Structure and operation of courts, federal-state relationships, fundamentals of administrative law, fundamentals of business law.—*Su. (Su.)*

(change in existing course—eff. spring 15)

216. Managing Professionals, Budgets, Controls and Ethics (3)
Lecture—3 hours. Prerequisite: graduate standing. Performance measures, budgetary controls and ethical pressures which occur at middle management levels in service-type operations. Addresses such organizations as engineering, medical groups, law offices, management consultants.—*F. (F.)* Suran

(change in existing course—eff. spring 15)

217. The Business of Politics (3)
Lecture—3 hours. Class size limited to 30 students. Covers the roll of business and business leaders as policy and political actors at the federal, state, and local level, including government relations programs, regulation of business by government, political campaigns, and policy as a business advantage.—*W, Su. (W, Su.)* Smith

(change in existing course—eff. spring 15)

220. Management of Social Networks (3)
Lecture/discussion—3 hours. Prerequisite: course 201A. Open to MBA students only. Principles and applications of social network theory: coordinating divergent interests to create value for individuals and organizations. Emphasis on conceptual models, web-based diagnostic tools, and practical applications.—*F. (F.)*

(change in existing course—eff. spring 15)

223. Power and Influence in Management (3)
Seminar—3 hours. Prerequisite: consent of instructor. Investigation of the bases of power in organizations and the tactics used to translate power into influence. Topics include the control of resources (including information), social psychological processes (including commitment), the construction of meaning, and ethics.—*F. (F.)* Palmer

(change in existing course—eff. spring 15)

224. Managing Human Resources (3)
Lecture/discussion—3 hours. Open to MBA students only. Restricted to MBA students only. Explore choices firms make in managing workers–decisions as to wages, benefits, working conditions, and other management policies and practices. Analyze employment systems' fit with firms' environments and strategies, and the consequences of choices managers make regarding policies and practices. Not open to students who have taken MGT 224 or MGP 224.—*W, Su. (W, Su.)* Hsu

(change in existing course—eff. winter 16)

234. Pricing (3)
Lecture/discussion—3 hours. Prerequisite: completion of first year core courses at the Graduate School of Management or equivalent, including courses 202A & 203B. Restricted to students in the MBA Program. Combines lectures, cases and homework to teach students tools and skills necessary to analyze pricing situations, make pricing decisions, and implement them, in a systematic manner.—*W. (W.)*

(change in existing course—eff. spring 15)

239. Digital Marketing (3)
Lecture/discussion—3 hours. Prerequisite: course 204. Course equips students for a career in digital marketing and social media. Topics include online advertising, search engine optimization, interactive mktg, online privacy issues, e-commerce, social influence, social network theory, measurement of social influence, integrating social and traditional media.—*S. (S.)* Yoganarasimhan

(change in existing course—eff. spring 15)

240. Management Policy and Strategy (3)
Lecture—3 hours. Prerequisite: first-year core courses of M.B.A. program. Examines the scope of missions, objectives strategies, policies, structures, measurements and incentives which bear on the management of an organization. Real client organizations, in the private and public sectors, are assigned to student teams as the subjects of study.—*F. (F.)* Suran

(change in existing course—eff. spring 15)

241. New Product Development (3)
Lecture/discussion—3 hours. Prerequisite: course 249 or consent of instructor. Open to graduate students in the Graduate School of Management. State-of-the-art concepts and methods to enhance the effectiveness of new product development activities. Focuses on the understanding of managerial issues and acquiring the ability to solve problems.—*S. (S.)* Naik, Prasad

(change in existing course—eff. spring 15)

242. Marketing Communications (3)
Lecture—3 hours. Issues in designing a marketing communications strategy. Topics include mass and direct communications, institutional aspects of advertising, consumer behavior, evaluating ad effectiveness, determining ad budget, creative strategy, and use and abuse of promotions.—*S. (S.)* Naik, Prasad

(change in existing course—eff. spring 15)

243. Customer Relationship Management (3)
Lecture/discussion—3 hours. Prerequisite: completion of first-year core courses at the Graduate School of Management or the equivalent. Restricted to MBA students only. Customer Relationship Management (CRM) is a management approach under which marketing activities are organized and measured around customers (rather than around brands.) This approach is appealing because customers, not brands, are those who make buying decisions.—*F. (F.)* Aravindakshan

(change in existing course—eff. spring 15)

244. New and Small Business Ventures (3)
Lecture—3 hours. Student teams develop complete business plans for their own start-up ventures. Process includes: elevator pitch, business strategy, comprehensive bottoms-up financial projections, capital requirements, product differentiation, competitive, alliance, and go-to-market strategy development, investor presentation, and comprehensive written business plan.—*F, W. (F, W.)* Lowe

(change in existing course—eff. fall 16)

245. Business Writing (3)
Lecture/discussion—3 hours. Prerequisite: completion of first-year core courses at the Graduate School of Management or the equivalent. Restricted to MBA students only. Techniques for sharpening writing skills are introduced, along with grammatical structure, word choice, and punctuation. Learn to develop styles that are pitch-perfect for given situations and to think strategically about each communication challenge in a management setting.—*S. (S.)*

(change in existing course—eff. spring 15)

246. Negotiation and Team Building (3)
Lecture/discussion —3 hours. Prerequisite: courses 202, 205. Basic theory of negotiation; applies theory to process of building teams to achieve business purposes. Covers integrative and distributive strategies of claiming value, how to recognize bargaining tricks, uncovering hidden agendas, brainstorming to extend Pareto frontier.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15)

247. Customer Service as a Marketing Tool (3)
Lecture—3 hours. Understanding the distinct features of services, how to create value through service, methods of building strong relationships with customers, methods of measuring and building customer satisfaction, and measuring the financial impact of service improvement.—*F. (F.)*

(change in existing course—eff. spring 15)

248. Marketing Strategies (3)
Lecture—3 hours. Examines process by which organizations develop strategic marketing plans. Includes definition of activities and products, marketing audits, appraising market opportunities, design of new activities and products, and organizing marketing planning function. Applications to problems in private and public sector marketing.—*W. (W.)* Olivier, Rubel

(change in existing course—eff. spring 15)

249. Marketing Research (3)
Lecture—3 hours. Course addresses the managerial issues and problems of systematically gathering and analyzing information for making private and public marketing decisions. Covers the cost and value of information, research design, information collection, measuring instruments, data analysis, and marketing research applications.—*S. (S.)* Bunch

(change in existing course—eff. spring 15)

250. Technology, Competition and Strategy (3)
Lecture—3 hours. Prerequisite: completion of first-year core courses at the Graduate School of Management or the equivalent. Restricted to students in the MBA program. Why is software typically so defective? Why do many firms in the IT industry give away their best products free? This course helps you analyze questions like these by modeling competition and strategy in the network, technology and information industries.—*W. (W.)* Bhargava
(change in existing course—eff. spring 15)

251. Management of Innovation (3)
Lecture—3 hours. Managing innovative enterprise in changing and uncertain environments. Covers technology forecasting and assessment, program selection and control, financial management, regulation, and ethics.—*F. (F.)* Biggert
(change in existing course—eff. spring 15)

252. Managing for Operational Excellence (3)
Lecture—3 hours. Open to students in the Graduate School of Management. Explores the management of operations as applied to manufacturing as well as services provided both inside and outside the organization. Develop an understanding of how uncertainty affects planning and delivery by looking at fundamental models of operations.—*Su. (Su.)* Woodruff
(change in existing course—eff. spring 15)

253. Corporate Social Responsibility (3)
Lecture—3 hours. Goal in this course will be to develop a thought process and approach to corporate social responsibility that students will be able to build on during their post-school leadership roles, whether as corporate executives, entrepreneurs, or NGO leaders.—*S. (S.)* Ansbach
(new course—eff. spring 16)

255. Entrepreneurship and Venture Investment Clinic (3)
Lecture—3 hours. Class size limited to 30 students. Provides the necessary analytical and design tools to create business ideas and refine business models based on emerging technologies. Students learn to work closely in small teams to synthesize technical, strategic, and marketing needs into designs for new ventures.—*S. (S.)* Vaidya
(new course—eff. spring 16)

258. Mergers and Acquisitions (3)
Lecture—3 hours. Course focuses on the market for corporate acquisitions and restructuring activity. Topics include: sources of value creation; takeovers; anti-takeover provisions; bidding strategies; use of leverage in buyouts; regulatory risk and hurdles; and, valuation approaches for highly leveraged transactions.—*S. (S.)* Marquez
(change in existing course—eff. spring 15)

259. Banking and the Financial System (3)
Lecture—3 hours. Prerequisite: course 205 or Management 205 or Management Working - Professional 205; consent of instructor. Analyzes the role of financial markets and institutions in allocating capital. Focuses on: bank lending; debt securities; financial market innovations; regulation; functions of commercial banks and other financial intermediaries. Utilizes case studies.—*S. (S.)* Marquez
(new course—eff. spring 16)

260. Corporate Finance (3)
Lecture—3 hours. Focuses on planning, acquiring, and managing a company's financial resources. Includes discussion of financial aspects of mergers and other forms of reorganization; analysis of investment, financial, and dividend policy; and theories of optimal capital structure.—*S. (S.)* Scherbina
(change in existing course—eff. spring 15)

261. Investment Analysis (3)
Lecture—3 hours. Examines asset pricing theories and relevant evidence, including the investment performance of stocks and bonds. Topics include the efficiency of markets, domestic and international portfolio diversification, factors influencing the value of stocks and other investments, and portfolio management and performance.—*F. (F.)* Chen
(change in existing course—eff. spring 15)

262. Money and Security Markets (3)
Lecture—3 hours. Examines how money and securities markets are organized; how public agencies, businesses, others obtain and invest funds in those markets. Relationship between interest rates, monetary policy, government's role in improving capital markets, approaches to assessing changes in regulation of specific markets.—*F. (F.)*
(change in existing course—eff. spring 15)

263. Derivative Securities (3)
Lecture/discussion—3 hours. Open to students enrolled in the MBA program. Behavior of options, futures, and other derivative securities markets and how public agencies, business and others use those markets. Trading strategies involving options, swaps, and financial futures contracts. Pricing of derivative securities, primarily by arbitrage methods.—*S. (S.)* Edelen
(change in existing course—eff. spring 15)

264. Business Taxation (3)
Lecture—3 hours. Analysis of the impact of business taxation on investment, production, and finance decisions. Discussion of the relationship between business organization and tax liability. Course is not intended for tax specialists.—*W. (W.)* Yetman
(change in existing course—eff. spring 15)

265. Venture Capital and the Finance of Innovation (3)
Lecture/discussion—3 hours. Prerequisite: completion of first-year core courses at the Graduate School of Management or the equivalent. Restricted to students in the MBA program. Examines venture capital finance and the related practice of R&D finance. Goal is to apply finance tools and framework to the world of venture capital and financing of projects in high-growth industries.—*W. (W.)* Yasuda
(change in existing course—eff. spring 15)

266. International Finance (3)
Lecture—3 hours. Prerequisite: course 207 or the equivalent. Studies fixed and floating exchange-rate systems. Topics include determinants of a nation's balance of international payments; macroeconomic interdependence of nations under various exchange-rate regimes and its implications for domestic stabilization policies; and the international coordination of monetary and stabilization policies.—*W. (W.)*
(change in existing course—eff. spring 15)

267. Teams and Technology (3)
Lecture/discussion—3 hours. Prerequisite: consent of instructor. Restricted to working professional MBA students. Theory and practice of managing teams with primary goals of: providing conceptual guidelines for analyzing and diagnosing group dynamics and determining strategic options as a manager; imparting interpersonal skills for implementing effective strategies; understanding how technological change affects team processes.—*S. (S.)* Bechky
(change in existing course—eff. spring 15)

268. Articulation and Critical Thinking (3)
Laboratory/discussion—3 hours. With commitment to this course, students will become competent public speakers, write well at a level expected in business, think efficiently and critically about business challenges and have a useful personal code of ethics to shape their actions and decisions. No student may repeat course for credit.—*F. (F.)*
(change in existing course—eff. spring 15)

269. Business Intelligence Technologies-Data Mining (3)
Lecture/discussion—3 hours. Prerequisite: consent of instructor. Restricted to students in the MBA program. Descriptive and Predictive Data mining methods covering association rules, clustering, classification, text mining, etc. Big data Technologies. Business applications. Hands-on data mining skills. Business intelligence for managerial decision making.—*S. (S.)* Yang
(change in existing course—eff. fall 16)

270. Corporate Financial Reporting (3)
Lecture—3 hours. Analyzes and evaluates contemporary issues in financial reporting and develops implications of those issues for business decision makers, investment managers, and accounting policymakers.—*Su. (Su.)* Griffin
(change in existing course—eff. spring 15)

271. Strategic Cost Management (3)
Laboratory/discussion—3 hours. Restricted to students in the MBA program. Theoretical frameworks and associated techniques for using organizational design and cost management to achieve a sustainable, profitable cost structure. Topics include: target costing, process design for low cost, total cost of ownership, cost of customers, implementing structural change, and incentives.—*S. (S.)* Anderson
(change in existing course—eff. spring 15)

272. Evaluation of Financial Information (3)
Lecture—3 hours. Studies how investors, creditors, others use accounting and other information in making rational investment, lending decisions. Emphasis is placed on the analysis of financial information in a variety of contexts. Where applicable, recent research in finance and economics is discussed.—*S. (S.)* Griffin
(change in existing course—eff. spring 15)

273. Accounting and Reporting for Government Nonprofit Entities (3)
Lecture—3 hours. Concepts, methods, and uses of accounting and financial reporting by governmental and nonprofit entities. Introduction to budgeting and performance evaluation, and accounting for entities such as hospitals, universities, and welfare agencies.—*S. (S.)*
(change in existing course—eff. spring 15)

274. Corporate Governance (3)
Lecture—3 hours. Prerequisite: restricted to full-time MBA students or consent of instructor. Discusses how corporations can better operate in the interests of shareholders and public. Directly relevant to managers, consultants in compensation and incentives, staff working on mergers and acquisitions, corporate regulators, shareholder rights activists, and board members.—*F, S. (F, S.)*
(change in existing course—eff. spring 15)

276. Real Estate, Finance and Development (3)
Lecture—3 hours. Focus on single family, attached, detached, multi-family, and light commercial development. Students will study factors which make up successful real estate developments. Course will consider financial aspects involved in land acquisition, land development, construction, and project lending.—*W. (W.)*
(change in existing course—eff. spring 15)

281. Systems Analysis and Design (3)
Lecture—3 hours. Design and specification of computer-based information systems. Applications systems development life cycle, use requirements and feasibility assessment, logical and physical design, program development and testing, conversion and implementation.—*W. (W.)*
(change in existing course—eff. spring 15)

282. Supply Chain Management (3)
Lecture/discussion—3 hours. Prerequisite: completion of first year core courses at the Graduate School of Management or the equivalent; knowledge of Microsoft Excel. Restricted to students in the MBA program. Matching supply with demand is a primary challenge for a firm: excess supply is too costly, inadequate supply irritates customers. Matching supply to demand is easiest when a firm has a flexible supply process, but flexibility is generally expensive.—*W. (W.)* Chen
(change in existing course—eff. spring 15)

284. Applied Linear Models for Management (3)
Lecture—3 hours. Covers regression, analysis of variance, and multivariate analysis. Topics will focus on applications to management and policy problems.—*W. (W.)*
(change in existing course—eff. spring 15)

285. Time Series Analysis and Forecasting (3)
Lecture—3 hours. Prerequisite: course 203B. Considers application of time series methods to evaluation and forecasting problems. Covers univariate and multivariate ARIMA models and transfer function models. Applications will be in such areas as economics, finance, budgeting, program evaluation, and industrial process control.—*S. (S.)* Tsai
(change in existing course—eff. spring 16)

286. Telecommunications and Computer Networks (3)
Lecture—3 hours. Prerequisite: course 280. Communication system components; common carrier services; design and control of communications networks; network management and distributed environment; local area networks; data security in computer networks.—*S. (S.)*
(change in existing course—eff. spring 15)

287. Business Database and Database Marketing (3)
Lecture—3 hours. Practical introduction to fundamental principles of database management systems and database marketing. Database design. SQL queries. Concepts of database marketing, data warehouse, data visualization and big data analytics.—*W. (W.)* Yang
(change in existing course—eff. fall 16)

288. Special Topics in Management of Information Systems (3)
Lecture—3 hours. Managerial aspects of information systems. Topics stressing applications in organizations chosen from: economics of computers and information systems, decision support systems, management of computer-based information systems, office automation.—Topkis
(change in existing course—eff. spring 15)

290. Topics in General Management (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent. Advanced topics in general management. Varied topics to cover more extensively issues discussed in courses 201A and 201B, or current business interest topics in fields of business writing, business communications, development, or workplace processes. May be repeated for credit.—*F. (F.)*
(change in existing course—eff. spring 15)

291. Topics in Organizational Behavior (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent. Advanced topics in social psychology and sociology of organizations. Varied topics to cover more extensively issues discussed in courses 201A and 201B, or current business interest topics in fields of organization design, strategy, development, or workplace processes. May be repeated for credit.—*W. (W.)* O'Mahony
(change in existing course—eff. spring 15)

292. Topics in Finance (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent. Contemporary and emerging issues in finance. Application of modern techniques of finance to business problems. Use of appropriate electronic database and research techniques. May be repeated for credit.—*F. (F.)*
(change in existing course—eff. spring 15)

293. Topics in Marketing (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent Advanced topics in marketing, which may include marketing research, new product development, brand management, pricing, distribution management, service marketing, hitech marketing, advertising, sales promotions, marketing through the Web. May be repeated for credit.—*F. (F.)*
(change in existing course—eff. spring 15)

294. Topics in Accounting (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent. Contemporary and emerging issues in financial management accounting. Application of modern techniques of evaluation and analysis of financial information. Use of appropriate electronic database and research techniques. May be repeated for credit.—*F. (F.)*
(change in existing course—eff. spring 15)

295. Topics in Information Technology (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent. Applications of information technology to management and management of information technology. Adaptation to the dynamic nature of the field. May be repeated for credit.—*F. (F.)*
(change in existing course—eff. spring 15)

296. Topics in Technology Management (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent. Cyclical nature of innovation and technological change, features of innovative firms and industries, national innovation systems, and impact of information technologies on innovation processes. May be repeated for credit.—*S. (S.)* Bhargava
(change in existing course—eff. spring 15)

297. Topics in International Management (3)
Seminar—3 hours. Prerequisite: completion of all first-year graduate courses at the Graduate School of Management or the equivalent. Broader environment in which U.S. firms and their foreign competitors operate. Integration of material from other topics courses (marketing, strategy, finance, accounting, information technology, technology management) into the international setting. May be repeated for credit.—*Su. (Su.)*
(change in existing course—eff. spring 15)

298. Directed Group Study (1-5)
Prerequisite: consent of instructor. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

299. Individual Study (1-12)
Prerequisite: consent of instructor. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

Professional

401. Crisis Management (1)
Laboratory/discussion—1 hour. Establishes and explores the defining characteristics of crises. Will learn to anchor crisis management firmly within overall strategic management and also acquire a set of useful tools and techniques for planning for and handling actual crises. (S/U grading only.)—*F. (F.)* Biggs
(change in existing course—eff. spring 15)

402. Crisis Communications and Reputation Management (1)
Laboratory/discussion—1 hour. Intended to provide you with an understanding of the framework and tools necessary to successfully address communications and reputation management tasks in a variety of crisis situations. (S/U grading only.)—*F. (F.)* Friedman
(change in existing course—eff. spring 15)

403. Business Statistics Practicum (1)
Project—1 hour. Prerequisite: MGT, MGP, or MGB 203A; MGT, MGP, or MGB 203B concurrently or completed. Restricted to students in the MBA program. Applies techniques and concepts in business statistics to real case studies.—*F. (F.)* Tsai
(change in existing course—eff. spring 15)

404. Organizational Change Management (1)
Laboratory/discussion—1 hour. Challenges in getting significant changes made in organizations. Learn Organization Change Management (OCM) techniques and discuss case situations where OCM techniques play a role. (S/U grading only.)—*W. (W.)* Mathur
(change in existing course—eff. spring 15)

405. Business Literature (1)
Laboratory/discussion—1 hour. Will examine Business history – historical trends that might influence contemporary business. Some argue that the recent collapse of our financial system might have been averted if business leaders had a better sense of history. (S/U grading only.)—*W. (W.)*
(change in existing course—eff. spring 15)

406. Ethical Issues in Management (1)
Lecture/discussion—1 hour. Explores the philosophical foundation of ethical theory and its recent applications to business situations. Professional codes of ethics, such as those promulgated by educational, managerial, engineering, scientific, medical and legal professional societies, are presented. (S/U grading only.)—*W. (W.)*
(change in existing course—eff. spring 15)

407. Storytelling for Leadership (1)
Lecture/discussion—1 hour. Internalize the fundamental principles behind stories that educate, influence, motivate, inspire, persuade and connect. (S/U grading only.)—*S. (S.)*
(change in existing course—eff. spring 15)

408. The Business of the Media (1)
Lecture/discussion—1 hour. Focuses on the media industries and how emerging digital technologies are disrupting the way media consumption, distribution and business models work. Will highlight the economics of several media, both news and entertainment. (S/U grading only.)—*S, Su. (S, Su.)*
(change in existing course—eff. spring 15)

409. Managing Multi-Asset Class Investment Portfolios (1)
Lecture/discussion—1 hour. Prerequisite: courses 202A, 203A, 205. Examines top down management of multi-asset class portfolios. Topics include bonds, hedge funds, private equity, real estate, commodities, endowments, return generation, performance analysis, credit cycles, financial crises,

manager selection, investment policy, and investment careers. Student teams present endowment portfolio recommendations.—*S. (S.)* Dolan

(change in existing course—eff. spring 15)

410. Corporate Governance (1)

Lecture/discussion—1 hour. Covers recent and not-so-recent business and accounting scandals, discuss how corporations can better operate in the interests of shareholders and the public, and learn from people who rely on corporate governance in making investment decisions. (S/U grading only.)—*F, W, S, Su. (F, W, S, Su.)* Maher

(change in existing course—eff. spring 15)

411. Turnaround Management (1)

Lecture/discussion—1 hour. Evaluate the financial performance of a company, identify opportunities for improvement, propose real solutions to enhance performance, and most important inspire action in staff. (S/U grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15)

412. International Marketing (1)

Lecture/discussion—1 hour. Understanding basic concepts of international marketing. Understanding and managing heterogeneous, dynamic, and interdependent environments across countries. How to develop and implement an international marketing strategy: where and how to compete, how to adapt your marketing mix. (S/U grading only.)—*W. (W.)* Peters

(change in existing course—eff. spring 15)

413. Sustainable Business Ventures: Business and Energy (1)

Lecture/discussion—1 hour. Introduction to sustainability goals, indicators, values, measurement techniques, and practice how it applies to large and small enterprise.—*W. (W.)* Jaffe

(change in existing course—eff. spring 15)

414. Multi-Channel Marketing (1)

Lecture/discussion—1 hour. Multi-channel marketing strategies empower managers to create value for different customer segments. Covers the necessary concepts to evaluate and select go-to market strategies in order to capitalize on the ubiquity of modern customers. (S/U grading only.)—*W. (W.)* Rubel

(change in existing course—eff. spring 15)

415. Climate Risks and Opportunities (1)

Lecture/discussion—1 hour. Provide a working knowledge of the risks and opportunities arising from climate change and climate policy for businesses. (S/U grading only)—*Su. (Su.)* Mazzacurati

(change in existing course—eff. spring 15)

416. Topics in Private Equity (1)

Lecture—1 hour. Prerequisite: course 205. Restricted to students in the MBA program. Focuses on the finance principles related to the risk and return of the private equity (PE) industry, valuation of PE target companies, the structuring of leveraged buyouts (LBOs), and the management of portfolio companies. (S/U grading only.)—*W. (W.)* Yasuda

(change in existing course—eff. spring 15)

417. Incentives and Controls (1)

Lecture/discussion—1 hour. Understand how organizations use financial and nonfinancial performance management and incentive systems to motivate people and manage resources. (S/U grading only)—*F, W, S, Su. (F, W, S, Su.)* Maher

(change in existing course—eff. spring 15)

418. Scientific Discovery and Business Innovation at Scale in the Food and Agriculture Sector (1)

Lecture—3 hours. Restricted to students in the MBA program. Scientific discovery and business innovation within the food and agriculture sector profoundly influences the sustainability of society and enterprise competitiveness. Students will learn how business innovation models co-exist antagonistically or synergistically with scientific discovery and its influence on enterprise competitiveness. (S/U grading only.)—*F, W, S, Su. (F, W, S, Su.)* Schmitz

(change in existing course—eff. spring 15)

419. Business Strategy Consulting Skills (1)

Lecture—5 hours. Restricted to students enrolled in the MBA program. Students will learn practical business consulting skills which will help apply strategy theories in the workplace. Students will learn and practice tools to frame and analyze problems, conduct research, communicate findings and navigate client relationships. (S/U grading only.)—*F. (F.)* Bethlahmy

(new course—eff. fall 15)

420. Advanced Optimization in a Python-based Modeling Language (1)

Web virtual lecture—1 hour. Prerequisite: course 252 or MGT 252 or MGP 252, and course 206 or MGT 206 or MGP 206. Restricted to students enrolled in the MBA program. Covers advanced optimization modeling techniques and practical application of modern, scalable modeling language. Techniques will be developed using examples from production planning in a supply chain, but students may explore other areas of application of optimization for their final project. (S/U grading only.)—*W. (W.)* Woodruff

(new course—eff. winter 16)

422. Behavioral Finance and Valuation (1)

lecture—1 hour. Prerequisite: MGT 260 or MGP 260 or course 260, and MGT 261 or MGP 261 or MGP 261 or course 261. Restricted to students enrolled in the MBA program. Investor psychology and market frictions can cause asset prices to deviate from fundamental values, creating profit opportunities for sophisticated investors. The course will cover techniques of financial analysis with the goal of learning how to value assets and identify mispricing. (S/U grading only.)—*S. (S.)* Scherbina

(new course—eff. spring 16)

423. Leader as Coach: An Introduction to Coaching Skills for Leaders (1)

Lecture—1 hour. Restricted to students enrolled in the MBA program. Course introduces the fundamental coaching skills and coaching models that leaders can apply in everyday interactions with their team and colleagues in order to build trust, overcome challenges and help others discover their own full potential. (S/U grading only.) Offered irregularly.—*F, W, S. (F, W, S.)* Charnsupharindr

(new course—eff. spring 16)

424. Practicum for Managing People in Modern Organizations (1)

Project—1 hour. Prerequisite: course 224. Restricted to students in the MBA program. Provides solid grounding in the management of work and the employment relationship. Examines firms' interrelated policies and practices for managing people.—*W. (W.)* Hsu

(change in existing course—eff. spring 15)

425. Digital Marketing Techniques (1)

Lecture—1 hour. Restricted to students enrolled in the MBA program. Course provides students with an introduction to digital marketing. The course introduces MBA students to the fundamental aspects and tools of online marketing communication, i.e., how organizations use digital channels to effectively communicate their value propositions to the target customers. (S/U grading only.) Offered irregularly.—*S. (S.)* Blanchard

(new course—eff. summer 16)

426. The Business of Healthcare (1)

Lecture—1 hour. Restricted to students enrolled in the MBA program (Business Administration—Working Professional, Business Administration—Bay Area, Business Administration—Full-Time). Course is intended to provide students with an overall understanding of the unique business aspects of the healthcare industry. (S/U grading only.) Offered irregularly.—*F, W, S, Su. (F, W, S, Su.)* Bird, Murin

(new course—eff. spring 16)

427. The Business of Healthcare (1)

Lecture—1 hour. Restricted to students enrolled in the MBA program (Business Administration—Working Professional, Business Administration—Bay Area, Business Administration—Full-Time). Course looks at the pitfalls of implementing international strategies, and suggest several accessible, yet powerful frameworks to help international managers implement strategies successfully and completely. (S/U grading only.) Offered irregularly.—*F, W, S, Su. (F, W, S, Su.)* Katzenstein

(new course—eff. spring 16)

428. Renewable Energy Ventures: Planning, Funding and Regulatory Risk Assessment for Entrepreneurs and Investors (1)

Lecture—1 hour. Restricted to students enrolled in the MBA program. Advanced innovation lab will introduce students to issues addressed by entrepreneurs and investors in renewable ventures. Lectures, simulations, case studies and practical experience of the presenters will be delivered. Offered irregularly.—*Su. (Su.)* Schefsky

(new course—eff. summer 16)

434. Practicum for Pricing (1)

Project—1 hour. Prerequisite: course 234. Restricted to students in the MBA program. Enhance understanding of the principles and concepts learned in Pricing by (1) teaching the necessary statistical and mathematical skills, and (2) requiring a report for a real Pricing case.—*W. (W.)* Jiang

(change in existing course—eff. spring 15)

440. Integrated Management Project (3)

Project—3 hours. Prerequisite: first-year core courses of MBA program. Applies classroom learning to solve complex business challenges for real world clients. Student teams learn practical consulting skills while their clients benefit from the student's experience, insights, and work product.—*S, Su. (S, Su.)*

(change in existing course—eff. spring 15)

440A. Integrated Management Project (3)

Lecture/discussion—3 hours. Prerequisite: first-year core courses of MBA program. Restricted to full-time MBA students. Applies classroom learning to solve complex business challenges for real world clients. Student teams learn practical consulting skills while their clients benefit from the student's experience, insights, and work product. (Deferred grading only, pending completion of sequence.)—*F. (F.)*

(change in existing course—eff. spring 15)

440B. Integrated Management Project (3)

Project—3 hours. Prerequisite: first-year core courses of MBA program. Restricted to full-time MBA students. Applies classroom learning to solve complex business challenges for real world clients. Student teams learn practical consulting skills while their clients benefit from the student's experience, insights, and work product. (Deferred grading only, pending completion of sequence.)—*W. (W.)*

(change in existing course—eff. spring 15)

442. Practicum for Marketing Communication (1)

Project—1 hour. Prerequisite: course 242. Restricted to students in the MBA program. Provides experience applying concepts learned in Marketing Communications to a realistic advertising or communication problem faced by firms.—*S. (S.)* Yoganarasimhan

(change in existing course—eff. spring 15)

443. Practicum for Customer Relationship Management (1)
Project—1 hour. Prerequisite: course 243. Restricted to students in the MBA program. Hands-on training in applying Customer Relationship Management concepts and metrics to secondary data. Enhances ability to interpret results and decide the right type of marketing actions by requiring an executive report at the end of the quarter.—*F. (F.)* Aravindakshan
(change in existing course—eff. spring 15)

448. Practicum for Marketing Strategies (1)
Project—1 hour. Prerequisite: course 248. Restricted to students in the MBA program. Provides opportunities to apply the concepts covered in the Marketing Strategies class through a group project involving the analysis of strategic marketing decisions based on business-related issues, simulation and modeling.—*F. (F.)* Rubel
(change in existing course—eff. spring 15)

449. Marketing Research Practicum (1)
Project—1 hour. Prerequisite: course 249. Restricted to students in the MBA program, or in some cases with permission of instructor. Provides opportunities to apply the concepts and methods covered in the Marketing Research class. Hands-on and project-based, work could be either individual or in groups depending on enrollments and/or interests of students.—*S. (S.)* Bunch
(change in existing course—eff. spring 15)

450. Practicum for Technology Strategy and Competition (1)
Project—1 hour. Prerequisite: course 250. Restricted to students in the MBA program. In-depth practicum project course. Apply theories, concepts, and models, learned in course 250 to a real-world business problem, through data collection, data analysis, simulation, modeling and post-model interpretation.—*W. (W.)* Bhargava
(change in existing course—eff. spring 15)

460. Practicum for Corporate Finance and Real Estate (1)
Project—1 hour. Prerequisite: course 260. Restricted to students in the MBA program. Work in groups to select and value a financial entity. It could be a firm, a sports player, a building, a project, or a patent. Grade based on an in-class presentation and a write-up.—*S. (S.)* Scherbina
(change in existing course—eff. spring 15)

461. Practicum for Investment Analysis (1)
Project—1 hour. Prerequisite: course 261. Restricted to students in the MBA program. Provides practical experience applying concepts learned in Investment Analysis to a realistic portfolio management setting via a hypothetical exercise. Produce a realistic executive summary and presentation of an investment proposal for a hypothetical client.—*F. (F.)* Chen
(change in existing course—eff. spring 15)

464. Practicum for Taxes and Business Strategy (1)
Project—1 hour. Prerequisite: course 264. Restricted to students in the MBA program. Practical application project drawing from the tax planning theory contained in course 264. Project consists of a business formation and operation, change in organization (incorporation), and movement into multinational and multi-jurisdictional tax.—*F. (F.)* Yetman
(change in existing course—eff. spring 15)

465. Practicum for Venture Capital (1)
Project—1 hour. Prerequisite: course 265. Restricted to students in the MBA program. Provides an opportunity to apply concepts learned in Venture Capital in a realistic setting. Complete project analyzing a potential investment in a hypothetical venture and prepare an deal term sheet/investment agreement.—*S. (S.)* Yasuda
(change in existing course—eff. spring 15)

467. Practicum for Teams and Technology (1)
Project—1 hour. Prerequisite: course 267. Restricted to students in the MBA program. Groups investigate the performance, creativity, conflict, information sharing, and leadership behaviors of a real world team. Provide consulting advice to the team, which not only gives analytic skills, but also builds presentation skills.—*S. (S.)* Bechky
(change in existing course—eff. spring 15)

469. Practicum for Business Intelligence Technologies (1)
Project—1 hour. Prerequisite: course 269. Restricted to students in the MBA program. Projects applying concepts learned in Business Intelligence Technologies to real business problems.—*W. (W.)* Yang
(change in existing course—eff. spring 15)

482. Practicum for Supply Chain Management (1)
Project—1 hour. Prerequisite: MGT, MGP, or MGB 282 is a pre-requisite or co-requisite. Restricted to students in the MBA program. Provides experience applying concepts learned in Supply Chain Management to a realistic management setting via a project.—*S. (S.)* Chen
(change in existing course—eff. spring 15)

490. Directed Group Study Management Practicum (3)
Lecture/discussion—3 hours. Prerequisite: consent of instructor; sponsorship of a GSM Academic Senate faculty member; approval of graduate advisor. Provides opportunity for students to gain experience in applying business methodologies previously acquired in other GSM courses. May be repeated for credit. Offered irregularly.—*Su. (Su.)*
(change in existing course—eff. spring 15)

498. Directed Group Study Management Practicum (1-12)
Project. Prerequisite: consent of instructor; sponsorship of a GSM 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 GSM courses. May be repeated up to 6 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

499. Directed Individual Study Management Practicum (1-12)
Project. 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.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

Mathematical and Physical Sciences

New and changed courses in Mathematical and Physical Sciences (MPS)

Lower Division

1. General Science: Science in the News (4)
Lecture—3 hours; laboratory/discussion—1 hour. Prerequisite: lower division standing. Basic principles in science including numeracy, scale, energy, and time; the scientific method; good and bad science. Emphasis on science topics recently in the news. Offered irregularly. GE credit: SciEng.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

11A. Mathematical and Physical Sciences Seminar (2)
Lecture—2 hours. Prerequisite: mentorship for undergraduate research participants in the physical and mathematical sciences. Research and writing in the mathematical and physical sciences. Presentations by various science faculty members. Offered irregularly.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

11B. Mathematical and Physical Sciences Seminar (2)
Lecture—2 hours. Prerequisite: mentorship for undergraduate research participants in the physical and mathematical sciences. Research and writing in the mathematical and physical sciences. Presentations by various science faculty members. Offered irregularly.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 15)

Mathematics

New and changed courses in Mathematics (MAT)

B. Elementary Algebra (no credit)
Lecture—3 hours. Not open to Concurrent student enrollment. Basic concepts of algebra, including polynomials, factoring, equations, graphs, and inequalities. Offered only if sufficient number of students enroll. (P/NP grading only.)—*F. (F.)*
(change in existing course—eff. winter 15)

C. Trigonometry (no credit)
Lecture—2 hours. Not open to Concurrent student enrollment. Basic concepts of trigonometry, including trigonometric functions, identities, inverse functions, and applications. Offered only if sufficient number of students enroll. (P/NP grading only.)—*F. (F.)*
(change in existing course—eff. winter 15)

D. Intermediate Algebra (no credit)
Lecture—3 hours. Not open to Concurrent student enrollment. Basic concepts of algebra, prepares student for college work in mathematics, such as course 16A or 21A. Functions, equations, graphs, logarithms, and systems of equations. Offered only if sufficient number of students enroll. (P/NP grading only.)—*F. W. (F, W.)*
(change in existing course—eff. winter 15)

Lower Division

17A. Calculus for Biology and Medicine (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: two years of high school algebra, plane geometry, plane trigonometry, and analytical geometry, and satisfying the Mathematics Placement Requirement. Introduction to differential calculus via applications in biology and medicine. Limits, derivatives of polynomials, trigonometric, and exponential functions, graphing, applications of the derivative to biology and medicine. Not open for credit to students who have completed course 16B, 16C, 21A, 21B, or 21C; only 2 units of credit to students who have completed course 16A. GE credit: SciEng | QL, SE, SL.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 15)

71A. Explorations in Elementary Mathematics (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: two years of high school mathematics. Weekly explorations of mathematical ideas related to the elementary school curriculum will be carried out by cooperative learning groups. Lectures will provide

background and synthesize the results of group exploration. (Deferred grading only, pending completion of sequence.) Offered irregularly.

(change in existing course—eff. summer 15)

71B. Explorations in Elementary Mathematics (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: two years of high school mathematics. Weekly explorations of mathematical ideas related to the elementary school curriculum will be carried out by cooperative learning groups. Lectures will provide background and synthesize the results of group exploration. (Deferred grading only, pending completion of sequence.) Offered irregularly.

(change in existing course—eff. summer 15)

Upper Division

115A. Number Theory (4)

Lecture/discussion—4 hours. Prerequisite: course 21B. Divisibility and related topics, diophantine equations, selected topics from the theory of prime numbers. Designed to serve as preparation for the more rigorous upper division courses. GE credit: QL, SE.—*F. (F.)*

(change in existing course—eff. fall 06)

125B. Real Analysis (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: courses 22A or 67; 125A. Theory of the derivative, Taylor series, integration, partial derivatives, Implicit Function Theorem. Not open for credit to students who have completed former course 127C. GE credit: SciEng | SE.—*W, S. (W, S.)*

(change in existing course—eff. fall 14)

Graduate

200A. Problem-Solving in Analysis (1)

Lecture—1 hour; extensive problem solving. Prerequisite: courses 201ABC. Problem-solving in graduate analysis: continuous functions, metric spaces, Banach and Hilbert spaces, bounded linear operators, the spectral theorem, distributions, Fourier series and transforms, Lp spaces, Sobolev spaces. May be repeated two times for credit. (Deferred grading only, pending completion of sequence.)—*S. (S.)*

(change in existing course—eff. summer 15)

200B. Problem-Solving in Analysis (1)

Lecture—1 hour; extensive problem solving. Prerequisite: courses 201ABC. Problem-solving in graduate analysis: continuous functions, metric spaces, Banach and Hilbert spaces, bounded linear operators, the spectral theorem, distributions, Fourier series and transforms, Lp spaces, Sobolev spaces. May be repeated two times for credit. (Deferred grading only, pending completion of sequence.)—*F. (F.)*

(change in existing course—eff. summer 15)

201A. Analysis (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing in Mathematics or Applied Mathematics, or consent of instructor. Metric and normed spaces. Continuous functions. Topological, Hilbert, and Banach spaces. Fourier series. Spectrum of bounded and compact linear operators. Linear differential operators and Green's functions. Distributions. Fourier transform. Measure theory. Lp and Sobolev spaces. Differential calculus and variational methods.—*F. (F.)*

(change in existing course—eff. summer 15)

201B. Analysis (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing in Mathematics or Applied Mathematics, or consent of instructor. Metric and normed spaces. Continuous functions. Topological, Hilbert, and Banach spaces. Fourier series. Spectrum of bounded and compact linear operators. Linear differential operators and Green's functions. Distributions. Fourier transform. Measure theory. Lp and Sobolev spaces. Differential calculus and variational methods.—*W. (W.)*

(change in existing course—eff. summer 15)

201C. Analysis (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing in Mathematics or Applied Mathematics, or consent of instructor. Metric and normed spaces. Continuous functions. Topological, Hilbert, and Banach spaces. Fourier series. Spectrum of bounded and compact linear operators. Linear differential operators and Green's functions. Distributions. Fourier transform. Measure theory. Lp and Sobolev spaces. Differential calculus and variational methods.—*S. (S.)*

(change in existing course—eff. summer 15)

207A. Methods of Applied Mathematics (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing or consent of instructor. Ordinary differential equations and dynamical systems. Variational principles. Eigenfunctions, integral equations and Green's functions. Complex analysis and contour integration. Laplace's equation. Diffusion equations. Wave phenomena. Dimensional analysis and scaling. Asymptotic expansions and perturbation theory. Stochastic processes and Brownian motion.—*F. (F.)*

(change in existing course—eff. summer 15)

207B. Methods of Applied Mathematics (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing or consent of instructor. Ordinary differential equations and dynamical systems. Variational principles. Eigenfunctions, integral equations and Green's functions. Complex analysis and contour integration. Laplace's equation. Diffusion equations. Wave phenomena. Dimensional analysis and scaling. Asymptotic expansions and perturbation theory. Stochastic processes and Brownian motion.—*W. (W.)*

(change in existing course—eff. summer 15)

207C. Methods of Applied Mathematics (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing or consent of instructor. Ordinary differential equations and dynamical systems. Variational principles. Eigenfunctions, integral equations and Green's functions. Complex analysis and contour integration. Laplace's equation. Diffusion equations. Wave phenomena. Dimensional analysis and scaling. Asymptotic expansions and perturbation theory. Stochastic processes and Brownian motion.—*S. (S.)*

(change in existing course—eff. summer 15)

215A. Topology (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing or consent of instructor. Fundamental group and covering space theory. Homology and cohomology. Manifolds and duality. CW complexes. Fixed point theorems. Offered in alternate years.—*F.*

(change in existing course—eff. summer 15)

215B. Topology (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing or consent of instructor. Fundamental group and covering space theory. Homology and cohomology. Manifolds and duality. CW complexes. Fixed point theorems. Offered in alternate years.—*W.*

(change in existing course—eff. summer 15)

215C. Topology (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing or consent of instructor. Fundamental group and covering space theory. Homology and cohomology. Manifolds and duality. CW complexes. Fixed point theorems. Offered in alternate years.—*S.*

(change in existing course—eff. summer 15)

218A. Partial Differential Equations (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 201ABC or consent of instructor. A year-long sequence on PDEs which covers linear transport, Laplace, heat, and wave equations, maximum principles, method of characteristics, Sobelev and Hölder space theory, weak derivatives, semilinear, quasilinear, and fully nonlinear elliptic/parabolic equations, nonlinear hyperbolic equations, and compensated compactness. Offered in alternate years.—*(F.)*

(change in existing course—eff. summer 15)

218B. Partial Differential Equations (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 218A or consent of instructor. A year-long sequence on PDEs which covers linear transport, Laplace, heat, and wave equations, maximum principles, method of characteristics, Sobelev and Hölder space theory, weak derivatives, semilinear, quasilinear, and fully nonlinear elliptic/parabolic equations, nonlinear hyperbolic equations, and compensated compactness. Offered in alternate years.—*(W.)*

(change in existing course—eff. summer 15)

218C. Partial Differential Equations (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 218B or consent of instructor. A year-long sequence on PDEs which covers linear transport, Laplace, heat, and wave equations, maximum principles, method of characteristics, Sobelev and Hölder space theory, weak derivatives, semilinear, quasilinear, and fully nonlinear elliptic/parabolic equations, nonlinear hyperbolic equations, and compensated compactness. Offered in alternate years.—*S.*

(change in existing course—eff. summer 15)

228A. Numerical Solution of Differential Equations (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 128C. Numerical solutions of initial-value, eigenvalue and boundary-value problems for ordinary differential equations. Numerical solution of parabolic and hyperbolic partial differential equations. Offered in alternate years.—*F.*

(change in existing course—eff. summer 15)

228B. Numerical Solution of Differential Equations (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 128C. Numerical solutions of initial-value, eigenvalue and boundary-value problems for ordinary differential equations. Numerical solution of parabolic and hyperbolic partial differential equations. Offered in alternate years.—*W.*

(change in existing course—eff. summer 15)

228C. Numerical Solution of Differential Equations (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 128C. Numerical solutions of initial-value, eigenvalue and boundary-value problems for ordinary differential equations. Numerical solution of parabolic and hyperbolic partial differential equations. Offered in alternate years.—*S.*

(change in existing course—eff. summer 15)

235A. Probability Theory (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: courses 125B and 135A or Statistics 131A 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.)—*F. (F.)*

(change in existing course—eff. summer 15)

235B. Probability Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 235A/Statistics 235A 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 235B.)—*W. (W.)*
(change in existing course—eff. summer 15)

235C. Probability Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: 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 235C.)—*S. (S.)*
(change in existing course—eff. summer 15)

250A. Algebra (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing in mathematics or consent of instructor. Group and rings. Sylow theorems, abelian groups, Jordan-Holder theorem. Rings, unique factorization. Algebras, and modules. Fields and vector spaces over fields. Field extensions. Commutative rings. Representation theory and its applications.—*F. (F.)*
(change in existing course—eff. summer 15)

250B. Algebra (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing in mathematics or consent of instructor. Group and rings. Sylow theorems, abelian groups, Jordan-Holder theorem. Rings, unique factorization. Algebras, and modules. Fields and vector spaces over fields. Field extensions. Commutative rings. Representation theory and its applications.—*W. (W.)*
(change in existing course—eff. summer 15)

250C. Algebra (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: graduate standing in mathematics or consent of instructor. Group and rings. Sylow theorems, abelian groups, Jordan-Holder theorem. Rings, unique factorization. Algebras, and modules. Fields and vector spaces over fields. Field extensions. Commutative rings. Representation theory and its applications.—*S. (S.)*
(change in existing course—eff. summer 15)

258B. Discrete and Mixed-Integer Optimization (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 25 and 167, or consent of the instructor. Combinatorial, integer, and mixed-integer linear optimization problems. Ideal and strong formulations, cutting planes, branch and cut, decomposition methods. Offered in alternate years.—*W.*
(change in existing course—eff. fall 14)

Professional

301A. Mathematics Teaching Practicum (3)
Fieldwork—5 hours; discussion—1 hour. Prerequisite: course 302A and 303A required concurrently or consent of instructor. Specialist training in mathematics teaching. Teaching, training, and cross observing classes taught using large group Socratic techniques, small group guided inquiry experiences, and/or other approaches to teaching at various grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

301B. Mathematics Teaching Practicum (3)
Fieldwork—5 hours; discussion—1 hour. Prerequisite: course 302B and 303B required concurrently or consent of instructor. Specialist training in mathematics teaching. Teaching, training, and cross observing classes taught using large group Socratic techniques, small group guided inquiry experiences, and/or other approaches to teaching at various grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

301C. Mathematics Teaching Practicum (3)
Fieldwork—5 hours; discussion—1 hour. Prerequisite: course 302C and 303C required concurrently or consent of instructor. Specialist training in mathematics teaching. Teaching, training, and cross observing classes taught using large group Socratic techniques, small group guided inquiry experiences, and/or other approaches to teaching at various grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

302A. Curriculum Development in Mathematics (1)
Lecture/discussion—1 hour. Prerequisite: course 303A required concurrently or consent of instructor. Mathematics curriculum development for all grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

302B. Curriculum Development in Mathematics (1)
Lecture/discussion—1 hour. Prerequisite: course 303B required concurrently or consent of instructor. Mathematics curriculum development for all grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

302C. Curriculum Development in Mathematics (1)
Lecture/discussion—1 hour. Prerequisite: course 303C required concurrently or consent of instructor. Mathematics curriculum development for all grade levels. Required for advanced degrees in mathematics education. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

303A. Mathematics Pedagogy (1)
Lecture/discussion—1 hour. Prerequisite: course 302A or 210AL required concurrently or consent of instructor. An investigation of the interplay of mathematical pedagogy and mathematical content, including a historical survey of past and present methods in view of some of the influences that shaped their development. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

303B. Mathematics Pedagogy (1)
Lecture/discussion—1 hour. Prerequisite: course 302B or 210BL required concurrently or consent of instructor. An investigation of the interplay of mathematical pedagogy and mathematical content, including a historical survey of past and present methods in view of some of the influences that shaped their development. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

303C. Mathematics Pedagogy (1)
Lecture/discussion—1 hour. Prerequisite: course 302C or 210CL required concurrently or consent of instructor. An investigation of the interplay of mathematical pedagogy and mathematical content, including a historical survey of past and present methods in view of some of the influences that shaped their development. May be repeated one time for credit. Offered irregularly.
(change in existing course—eff. spring 15)

Medical Sciences

New and changed courses in Medical Sciences (MDS)

Professional

402. Clinical & Cultural Spanish (2)
Lecture—1 hour; practice—1 hour; independent study—4 hours. Prerequisite: consent of instructor. Medical students, nursing students and physician assistants students who are fluent Spanish speakers will learn a comprehensive set of medical vocabulary and cultural aspects related to the treatment of Spanish speaking patients. (P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Odor
(change in existing course—eff. winter 15)

403. Science & Practice of Mindfulness and Compassion (1)
Lecture/discussion—10 hours; independent study—20 hours. Prerequisite: consent of instructor. Restricted to Medical school students. Course will examine current scientific evidence for the effects of different mindfulness and compassion meditation practices in both healthy and clinical samples. (P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Goldin, Siiteri
(new course—eff. summer 15)

405. Metabolism, Endocrinology, Reproduction and Nutrition (9.5)
(cancelled course—eff. fall 16)

406. Endocrinology, Nutrition, Reproduction and Genetics (9.5)
Lecture—3.8 hours; discussion/laboratory—2.8 hours. Prerequisite: Biological Chemistry 410A; Human Physiology 400. Restricted to Medical students only. Basic and pathophysiologic processes involved in human reproductive and endocrine control systems, nutritional regulation, and foundational genetics across the lifespan. Integrate information across these systems and use clinical reasoning process to identify and understand relevant perturbations and diseases. May be repeated three times for credit. (P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Hagiwara, Hou, Prescott, Sheely
(change in existing course—eff. winter 16)

411KA. ACE-PC Program Doctoring 1 (8)
Clinical Activity—5 hours; lecture/discussion—6 hours. Prerequisite: consent of instructor. 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. (P/F grading only; deferred grading only, pending completion of sequence.)—*F, Su. (F. Su.)* Eidson-Ton, Han, Henderson
(new course—eff. summer 14)

411KB. ACE-PC Program Doctoring 1 (5)
Clinical Activity—4 hours; discussion—1 hour. Prerequisite: consent of instructor. 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. (P/F grading only; deferred grading only, pending completion of sequence.)—*W, S. (W, S.)* Henderson, Lee, Sciolla

(new course—eff. winter 15)

421KA. ACE-PC Program Doctoring 2 (6)
Discussion—1 hour; lecture/discussion—1 hour; internship—0.5 hours. Prerequisite: admission into ACE-PC and successful completion of MDS 411KA & MDS 411KB. MDS 421KA-C are a year-long series of courses. Objectives and assessments have been accelerated to accommodate the students enrolled in the ACE-PC Program. Students will participate in all aspects of Doctoring 2, other than what was done in 411KA/KB. (P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Henderson, Sciolla, Williams

(new course—eff. summer 15)

421KB. ACE-PC Program Doctoring 2 (6)
Discussion—1 hour; lecture/discussion—1 hour; internship—0.5 hours. Prerequisite: approval by the School of Medicine on Student Progress; medical students only. MDS 421KA-C are a year-long series of courses. Objectives and assessments have been accelerated to accommodate the students enrolled in the ACE-PC Program. Students will participate in all aspects of Doctoring 2, other than what was done in 411KA/KB. (P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Henderson, Sciolla, Williams

(new course—eff. summer 15)

421KC. ACE-PC Program Doctoring 2 (6)
Discussion—1 hour; lecture/discussion—1 hour; internship—0.5 hours. Prerequisite: approval by the School of Medicine on Student Progress; medical students only. MDS 421KA-C are a year-long series of courses. Objectives and assessments have been accelerated to accommodate the students enrolled in the ACE-PC Program. Students will participate in all aspects of Doctoring 2, other than what was done in 411KA/KB. (P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Henderson, Sciolla, Williams

(new course—eff. summer 15)

428. Foundations of Bioethics (1)
Discussion—3 sessions; lecture/discussion—3 sessions; independent study—16.5 sessions; web virtual lecture—1 session. Prerequisite: consent of instructor. Course will expose students to core content in bioethics and the law and introduce a framework for ethical decision-making, while emphasizing relationships between bioethics and clinical care. (P/F grading only.)—*Su. (Su.)* Fairman, Rich

(new course—eff. summer 14)

429. Transition to Clerkships (1)
Laboratory/discussion—12 hours; workshop—13 hours; discussion—7 hours; independent study—2 hours. Incoming third-year medical students will participate in a variety of educational experiences designed to prepare them to begin their clerkship curriculum. Course content will be disseminated in large and small group settings. (P/F grading only.)—*S. (S.)* Bing, Venugopal

(new course—eff. spring 15)

430A. Doctoring 3 (1)
Discussion—3 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to 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. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Wilkes

(change in existing course—eff. spring 15)

430B. Doctoring 3 (1)
Discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students 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. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Wilkes

(change in existing course—eff. spring 15)

430C. Doctoring 3 (1)
Discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students 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. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Wilkes

(change in existing course—eff. spring 15)

430D. Doctoring 3 (1)
Discussion—2 hours. Prerequisite: approval by SOM Committee on Student Progress. Restricted to Medical students 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. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Wilkes

(change in existing course—eff. summer 15)

435KA. ACE-PC Longitudinal Integrated Clerkship A (18)
Clinical activity—45 hours; independent study—6 hours; discussion—4 hours. Prerequisite: consent of instructor. Longitudinal Clerkship will combine the Internal Medicine, OBGYN, Pediatrics, Psychiatry and Surgery Clerkships for the ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Holt, Zachary

(new course—eff. spring 16)

435KB. ACE-PC Longitudinal Integrated Clerkship B (21)
Clinical activity—45 hours; independent study—6 hours; discussion—4 hours. Prerequisite: consent of instructor. Longitudinal Clerkship will combine the Internal Medicine, OBGYN, Pediatrics, Psychiatry and Surgery Clerkships for the ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Holt, Zachary

(new course—eff. spring 16)

435KC. ACE-PC Longitudinal Integrated Clerkship C (18)
Clinical activity—45 hours; independent study—6 hours; discussion—4 hours. Prerequisite: consent of instructor. Longitudinal Clerkship will combine the Internal Medicine, OBGYN, Pediatrics, Psychiatry and Surgery Clerkships for the ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Holt, Zachary

(new course—eff. spring 16)

440. Doctoring 4 Teaching Fellowship (3)
Discussion—5 hours; seminar—0.25 hours. Prerequisite: course 430A, 430B, 430C, 430D; consent of instructor. Restricted to Medical student only. Instruction on teaching methodology and pedagogy. Mentored teaching of junior medical students in seminar, lecture, and bedside. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Wilkes

(change in existing course—eff. spring 15)

440A. Doctoring 4 Teaching Fellowship (1)
(cancelled course—eff. fall 15)

440B. Doctoring 4 Teaching Fellowship (1)
(cancelled course—eff. winter 16)

440C. Doctoring 4 Teaching Fellowship (1)
(cancelled course—eff. spring 15)

460CR. Introduction to Clinical Research (2)
Lecture—2 hours; independent study—3 hours. Restricted to completion of 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. Introduction to the CRGG program and overview of major clinical research topics. Overview of basic clinical skills needed to accomplish CRGG mentored research project. (P/F grading only.)—*Su. (Su.)* Frederick

(change in existing course—eff. winter 15)

461CR. Strategies for Grant Writing (2)
Lecture/discussion—2 hours. Restricted to completion of 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.)—*Su. (Su.)* Rutledge

(change in existing course—eff. winter 15)

462CR. Introduction to Clinical Epidemiology and Study Design (3)
Lecture—25 hours; discussion—10 hours. Restricted to completion of 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. 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.)—*Su. (Su.)* McCurdy, Romano

(change in existing course—eff. winter 15)

463CR. Methods in Clinical Research (5)
Lecture—3 hours; discussion—2 hours. Restricted to completion of 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. 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 multi-disciplinary perspective. (S/U grading only.)—*Su. (Su.)* Berglund, Lloyd, Kravitz

(change in existing course—eff. winter 15)

464CR. Responsible Conduct of Research (3)
Lecture—3 hours. Restricted to completion of 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. 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.)—*Su. (Su.)* Wun

(change in existing course—eff. winter 15)

465CR. Introduction to Medical Statistics (4)
Lecture—3 hours; laboratory—2 hours. Restricted to completion of 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. 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 nonparametric methods, simple linear regression/correlation, life tables. Microcomputer applications of statistical procedures in population medicine. (S/U grading only.)—*Su. (Su.)* Becket, Wegelin

(change in existing course—eff. winter 15)

468. Multidisciplinary International Preceptorship (1-12)
(cancelled course—eff. summer 16)

482. Lecture Series in Reproductive Health (1)
Lecture—1 hour. Psychosocial and public health aspects of providing quality reproductive health care and application in student-run free clinics and in 3rd year clerkships. Only medical students may enroll for credit; undergraduates may audit the course. May be repeated two times for credit. (P/F grading only.)—*W. (W.)* Paik

(change in existing course—eff. winter 15)

483. Insights in Political, Legal and Business Aspects of Medicine (1)
Lecture—1 hour. Prerequisite: Medical student in good standing. Restricted to Medical student only. The practical aspects of a medical career. May be repeated two times for credit. (P/F grading only)—*S. (S.)*

(change in existing course—eff. winter 15)

486. Topics in Health Care Improvement (0.5)
Lecture/discussion—15 sessions. Lecture series will cover major topics in health care improvement, presented by guest speakers who are leaders in the field. May be repeated for credit. (P/F grading only.)—*S. (S.)* Shaikh

(new course—eff. spring 15)

468C. International Clinical Preceptorship (1-12)
Clinical activity—30 hours. Prerequisite: medical students with consent of instructor. Multidisciplinary preceptorship in a foreign country. Clinical credit will be awarded using this course, once approval has been received from the appropriate governing committee. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. spring 15)

468D. International Elective (1-12)
Independent study—20 hours; clinical activity—10 hours. Prerequisite: medical students with consent of instructor. Multidisciplinary preceptorship in a foreign country. Course used to award non-clinical credit for international experiences which have been approved by the appropriate governing committee. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. fall 15)

493. Independent Special Study Module (3-12)
Prerequisite: consent of instructor. FYOC approval required. Student developed alternative to the SSM/SPO Requirement. Approval by FYOC is required. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

493D. Teaching the Basic Sciences SSM (6)
Lecture—6 hours; lecture/laboratory—8 hours; laboratory—30 hours; tutorial—10 hours. Prerequisite: course 440 concurrently; consent of instructor. Restricted to UC Davis School of Medicine students only. Special Studies Module, a yearlong in progress court to teach lecture and discussion education technique and theory. (H/P/F grading only)—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. spring 15)

493Q. Improving Quality in Health Care (6)
Lecture—8 hours; discussion/laboratory—10 hours; project—10 hours. Prerequisite: consent of instructor. Working in interdisciplinary teams, will explore the theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interprofessional educational experience. (H/P/F grading only.)—*F. W. (F, W.)* Bakerjian, Shaikh

(new course—eff. fall 15)

494. Non-Clinical Medical Student Externship (3-9)
Independent study—20 hours; clinical activity—10 hours. Prerequisite: consent of instructor. Restricted to students with approval of credit by the Fourth Year Oversight Committee. Generic course for awarding externship credit for medical student rotations that are not primarily focused on patient care. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Wallach

(new course—eff. fall 14)

497. Scholarly Project (6)
Seminar—0.25 hours; independent study—0.5 hours. Prerequisite: project proposal must be accepted by the Scholarly Project Executive Committee. (SPEC); consent of instructor. Restricted to 4th year medical school students only. Develop a research project on a focused topic area, implements the research, writes a publishable paper, and presents an oral summary of the project. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F, W, S, Su. (F, W, S, Su.)* Schaefer

(change in existing course—eff. spring 15)

497A. Scholarly Project (2)
(cancelled course—eff. fall 15)

497B. Scholarly Project (2)
(cancelled course—eff. winter 16)

497C. Scholarly Project (2)
(cancelled course—eff. spring 15)

Medicine: Anesthesiology and Pain Medicine

New and changed courses in Anesthesiology and Pain Medicine (ANE)

Upper Division

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. 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. (H/P/F grading only.)—*W. (W.)* Fleming

(change in existing course—eff. fall 14)

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. 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. (H/P/F grading only.)—*S. (S.)* Fishman

(change in existing course—eff. fall 14)

Medicine: Biological Chemistry

New and changed courses in Biological Chemistry (BCM)

Graduate

291. Seminar in Genetic Approaches to Pathogenesis of Human Disease (1)
Seminar—1 hour. Prerequisite: student in Genetics Graduate Group or consent of instructor. Current genetic approaches to understanding the pathogenesis of disease and mammalian development presented and critically discussed by faculty, fellows and students. Topics include Mendelian and non-Mendelian diseases, imprinting, homologous recombination, statistical methods, genetic epidemiology and cell cycle dependent expression. (Same course as course 491.) (S/U grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15)

Professional

410A. Molecular Medicine (4)
Lecture—3 hours; discussion—3 hours; web virtual lecture—1 hour. Prerequisite: consent of instructor. Restricted to Medical Students only. Biochemistry of proteins and nucleic acids. Includes an introduction to cancer biology and a full discussion of carbohydrate metabolism. Molecular aspects of human disease are highlighted throughout the course. (P/F grading only; deferred grading only, pending completion of sequence.)—*F, Su. (F. Su.)* Sweeney

(change in existing course—eff. summer 15)

491. Seminar in Genetic Approaches to Pathogenesis of Human Disease (1)
Seminar—1 hour. Prerequisite: student in Genetics Graduate Group or consent of instructor. Current genetic approaches to understanding the pathogenesis of disease and mammalian development presented and critically discussed by faculty, fellows and students. Topics include Mendelian and non-Mendelian diseases, imprinting, homologous recombination, statistical methods, genetic epidemiology and cell cycle dependent expression. (Same course as course 291.) (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15)

497T. Tutoring in Biological Chemistry (1-5)
Tutoring—3-15 hours. Prerequisite: advanced standing or consent of instructor Assist instructor by tutoring medical students in preparation for one of the departmental courses that is a component of the required curriculum of the School of Medicine. (H/P/F grading only.)

(change in existing course—eff. spring 15)

Medicine: Cardiology

New and changed courses in Cardiology (CAR)

Professional

401. Clinical Cardiology Clerkship: Kaiser (3-18)
Clinical activity—1-5 hours. Prerequisite: third- and fourth-year medical students with advance approval by Division of Cardiology. Limited enrollment. Emphasis placed on history taking and physical examination of pediatric and adult patients with congenital and acquired cardiovascular disease. Hospital rounds in CCU and elsewhere. Roles of ECG, PCG, and cardiac fluoroscopy, etc., in office cardiology will be evaluated. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 14)

460. Cardiology Clinical Clerkship (3-18)
Clinical activity—2-12 hours. Prerequisite: Internal Medicine 430, third- and fourth-year medical students in good academic standing with consent of instructor. Limited enrollment. Participation with members of subspecialty consultation service in initial clinical evaluation, work-up, management, and follow-up of patients with cardiologic disorders. Two outpatient clinics per week. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 14)

461. Management of Coronary Artery Disease: Coronary Care Unit (3-18)
Clinical activity. Prerequisite: completion of second year of medical school and advance approval by Division of Cardiology. Limited enrollment. Research in laboratory and exercise testing to be determined by instructor. Current methods of clinical research involving certain aspects of diagnosis and treatment. Includes acute coronary care, hemodynamic monitoring, stress testing, cardiac catheterization, pathologic correlations and the modern approach to therapy, both medical and surgical, based on pathophysiologic mechanisms. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 14)

493. Gender Specific Medicine 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 on the topic: Basic Science Principles Relating to Gender Specific Medicine. (Same course as Obstetrics & Gynecology 493.) (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Sweet, Villablanca
(change in existing course—eff. fall 14)

498. Special Group Study: EKG Unit (1-12)
Prerequisite: medical student with advance approval by monthly attending faculty. Limited enrollment. Special group study in cardiology for medical students in EKG unit. May include lectures, directed reading, and/or discussion groups. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 14)

Medicine: Clinical Research

New and changed courses in Clinical Research (CLH)

Graduate

209. Introduction to Grant Writing, II (1)
Lecture/discussion—1 hour. Prerequisite: course 208; consent of instructor. Restricted to students who have completed course 208. Second in a two-quarter series. Two-course sequence provides training in practical aspects of competitive grant writing. (S/U grading only.) —*W. (W.)* Chedin, Guo, Ozonoff
(new course—eff. spring 16)

Medicine: Dermatology

New and changed courses in Dermatology (DER)

Professional

475. Telehealth in Dermatology (6)
Clinical activity—4 hours; project—36 hours. Restricted to Medical students. Introduction to the application of telehealth in dermatology to provide diagnoses, consultation, treatment, and education. Participate in teledermatology clinics with remote sites throughout California, conduct telehealth project(s), and review the latest literature in telehealth application in improving healthcare access. May be repeated up to six units for credit for additional time needed to complete telehealth project or to work on new telehealth projects. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Armstrong
(change in existing course—eff. winter 12)

495. Wound Healing: From Bench to Bedside (6)
Clinical activity—12 hours; laboratory—8 hours; autotutorial—15 hours; term paper. Prerequisite: consent of instructor. Restricted to medical students only. An integrated, multi-specialty approach to clinical soft tissue wound healing.—*F, W, S, Su. (F, W, S, Su.)* Isseroff
(change in existing course—eff. winter 15)

Medicine: Emergency Medicine

New and changed courses in Internal Medicine—Emergency Medicine (EMR)

Lower Division

92. Emergency Medicine Clinical Research Internship (1-4)
Prerequisite: undergraduate student in good academic standing at UC Davis; consent of instructor. 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.—*F, W, S, Su. (F, W, S, Su.)* Panacek
(change in existing course—eff. spring 15)

Upper Division

199A. Special Study for Advanced Undergraduates (4-12)
Prerequisite: experienced RA's who have successfully performed in the EMRAP program for a minimum of 3 quarters; consent of instructor; must have database skills. For students interested in working on specific EM projects in a more extensive way. Must commit at least four hours per week for two quarters. Will be awarded credit upon completion of course 199B. (Deferred grading only, pending completion of sequence.)—*F, W, S, Su. (F, W, S, Su.)* Panacek
(change in existing course—eff. fall 14)

Professional

435. Wilderness Medicine (3-6)
Lecture/discussion—20 hours; clinical activity—12 hours; independent study—8 hours. Prerequisite: consent of instructor. Elective is designed as an introductory course for students who want to explore how physicians can interact with the environment in austere conditions through lectures, hands-on/field experience, and case-based learning. (H/P/F grading only.)—Bing
(new course—eff. summer 14)

450. Ambulatory Externship in Emergency Medicine (3-18)
Restricted to MS4 students in good standing; externships/away rotations only. Credit will be given for approved non-AI Emergency Medicine courses at other institutions to which there is not an equal learning experience at UC Davis. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Jones
(change in existing course—eff. fall 14)

465. Externship in Emergency Medicine (3-9)
Clinical activity—36 hours; lecture/discussion—4 hours. Prerequisite: satisfactory completion of Medicine, Surgery and Pediatrics. Students complete clinical shifts in the Emergency Department, functioning as Acting Intern. Treat a wide variety of patients and problems under the supervision of the EM Attending. Students are expected to take focused histories and present in clear, concise fashion. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Jones
(change in existing course—eff. summer 15)

480. Understanding Health Policy: A Focus on Analysis and Translation (1-6)
Lecture—4 hours; discussion—16 hours; independent study—10 hours. Prerequisite: consent of instructor. The paradigm of healthcare delivery in the US is changing rapidly. To prepare the next generation of physician leaders, this course will provide students with the skills, tools, and knowledge needed to impact decisions made at the policy level. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Moulin
(change in existing course—eff. fall 15)

493A. Teaching the Basic Sciences SSM (2)
Lecture—6 hours; lecture/laboratory—8 hours; laboratory—30 hours; tutorial—10 hours. Prerequisite: consent on instructor. Restricted to UC Davis School of Medicine students only. Special Studies Module, a yearlong in progress court to teach lecture and discussion education technique and theory. (Deferred grading only, pending completion of sequence. H/P/F grading only.)—*Su. (Su.)* Barnes, Laurin
(change in existing course—eff. fall 14)

Medicine: Family and Community Medicine

New and changed courses in Medicine—Family and Community Medicine (FAP)

Professional

430. Family Medicine Clerkship (6-12)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Family medicine clerkship for third year medical students. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Eidson-Ton, Srinivasan

(change in existing course—eff. spring 15)

430FA. SJVP Longitudinal Primary Care Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Eidson-Ton, Srinivasan

(change in existing course—eff. spring 15)

430FB. SJVP Longitudinal Primary Care Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Eidson-Ton, Srinivasan

(change in existing course—eff. spring 15)

430FC. SJVP Longitudinal Primary Care Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Eidson-Ton, Srinivasan

(change in existing course—eff. spring 15)

430FD. SJVP Longitudinal Primary Care Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Eidson-Ton, Srinivasan

(new course—eff. spring 15)

430FE. SJVP Longitudinal Primary Care Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Eidson-Ton, Srinivasan

(new course—eff. spring 15)

430FF. SJVP Longitudinal Primary Care Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Eidson-Ton, Srinivasan

(new course—eff. spring 15)

430K. ACE-PC Family Medicine Clerkship (6)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Family medicine clerkship for ACE-PC Program. (H/P/F grading only.)—*S. (S.)* Eidson-Ton, Srinivasan

(new course—eff. spring 15)

430KA. ACE-PC Family Medicine Clerkship A (1.5)
Clinical Activity—45 hours; Lecture—2 hours; Workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Eidson-Ton, Srinivasan

(new course—eff. summer 15)

430KB. ACE-PC Family Medicine Clerkship B (1.5)
Clinical Activity—45 hours; Lecture—2 hours; Workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal Family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Eidson-Ton, Srinivasan

(new course—eff. summer 15)

430KC. ACE-PC Family Medicine Clerkship C (1.5)
Clinical Activity—45 hours; Lecture—2 hours; Workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal Family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Eidson-Ton, Srinivasan

(new course—eff. summer 15)

430KD. ACE-PC Family Medicine Clerkship D (1.5)
Clinical Activity—45 hours; Lecture—2 hours; Workshop—2 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Longitudinal Family medicine clerkship for ACE-PC Program. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Eidson-Ton, Srinivasan

(new course—eff. summer 15)

430R. Rural PRIME Family Medicine Clerkship (12)
Clinical activity—45 hours; lecture—2 hours; workshop—2 hours. Eight week primary care clerkship for rural prime third year medical students. Eight weeks of family medicine training at a rural site. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Eidson-Ton, Srinivasan

(new course—eff. spring 15)

431. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only.)—*S. (S.)* Eidson-Ton, Schwartz, Srinivasan

(new course—eff. spring 15)

431A. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Eidson-Ton, Schwartz, Srinivasan

(new course—eff. spring 15)

431B. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Eidson-Ton, Schwartz, Srinivasan

(new course—eff. spring 15)

431C. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Eidson-Ton, Schwartz, Srinivasan

(new course—eff. spring 15)

431D. Primary Care Continuity Clinic (1)
Clinical activity—4 sessions; project—1 session. Prerequisite: completion of the Pre-Clinical Curriculum; consent of instructor. Longitudinal component of the third-year primary care curriculum. Student attends their clinic roughly 18 half-days over the course of the year, working one-on-one with a primary care preceptor. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Eidson-Ton, Schwartz, Srinivasan

(new course—eff. spring 15)

444. Advanced Preceptorship in Family Medicine (3-18)
Clinical activity—40 hours. Prerequisite: completion of third-year primary care plus clerkship or consent of instructor. Open to medical students only. Preceptorships with primary care physicians in a variety of settings. Acquisition skills to evaluate and develop a treatment plan for patients with common medical problems seen by primary care physicians in an out patient setting. May be repeated up to 18 units of credit. (H/P/F grading only.)—*F, W, S, Su.* Eidson-Ton

(change in existing course—eff. fall 14)

Medicine: Human Physiology

New and changed courses in Human Physiology (HPH)

Professional

403. Medical Neuroanatomy (5)
Lecture—3 hours; laboratory—1 hours; 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.)—*Su. (Su.)* Blankenship, Gross
(change in existing course—eff. spring 15)

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.)—*F, W, S, Su. (F, W, S, Su.)* Cala, Holcroft
(change in existing course—eff. winter 15)

Medicine: Internal Medicine

New and changed courses in Internal Medicine (IMD)

Professional

420B. Gastrointestinal System (2.5)
Lecture—2 hours; discussion—2 hours. Prerequisite: approval of Committee on Student Progress. Restricted to Medical students 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.)—*W. (W.)* Terrado
(change in existing course—eff. winter 15)

430FA. SJVP Longitudinal Medicine Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Aronowitz, Johl
(change in existing course—eff. spring 15)

430FB. SJVP Longitudinal Medicine Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Aronowitz, Johl
(change in existing course—eff. spring 15)

430FC. SJVP Longitudinal Medicine Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Aronowitz, Johl
(change in existing course—eff. spring 15)

430FD. SJVP Longitudinal Medicine Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Aronowitz, Johl
(new course—eff. spring 15)

430FE. SJVP Longitudinal Medicine Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Aronowitz, Johl
(new course—eff. spring 15)

430FF. SJVP Longitudinal Medicine Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Aronowitz, Johl
(new course—eff. spring 15)

460. Correctional Health Care Clerkship (1-4)
Clinical activity—full time. Prerequisite: fourth-year medical student in good academic standing; consent of instructor. Covers Correctional Health delivery and the effects of detention and incarceration on health status. Special emphasis on problems unique to health care delivery in a prison setting. Student will spend time in clinical settings at three prison facilities. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Silva
(change in existing course—eff. winter 15)

461. Mather VA Internal Medicine AI (6)
Clinical Activity—50 hours; lecture/discussion—5 hours; independent study—5 hours. Prerequisite: consent of instructor. Limited enrollment. Acting Internship in Internal Medicine for qualified 4th year Medical Students from the UC Davis School of Medicine at the Sacramento VA Hospital. Experiences will somewhat mirror those of AIs at UCDMC. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Jagadeesan, Tran
(new course—eff. summer 14)

463. Acting Internship in Medicine Intensive Care Unit (MICU (3-6)
Clinical activity—40 hours. Prerequisite: completion of third year in medical school; consent of Director of MICU. Limited enrollment. At UCDMC, student functions as acting intern on MICU service under direction of medical resident and staff. Responsibility for patients admitted to MICU. On call in hospital every fourth night. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Sandrock
(change in existing course—eff. winter 16)

Medicine: Internal Medicine—General Medicine

New and changed courses in Internal Medicine—General Medicine (GMD)

Professional

460. General Medicine Consults (1-18)
Clinical activity (inpatient-outpatient service)—40 hours. Prerequisite: fourth-year medical students with consent of instructor; a general medicine clerkship. Limited enrollment. Supervised opportunity to see entire spectrum of medical problems encountered by a general internist. Student spends time in General Medicine Clinic and on the General Medicine Consult Service. Consultation Service is particularly concerned with medical evaluation of surgical patients. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Keenan
(change in existing course—eff. winter 15)

493A. Teaching the Basic Sciences SSM (6)
(cancelled course—eff. fall 15)

493B. Teaching the Basic Sciences SSM (2)
(cancelled course—eff. winter 16)

493C. Teaching the Basic Sciences SSM (2)
(cancelled course—eff. spring 16)

Medicine: Internal Medicine—Hematology-Oncology

New and changed courses in Internal Medicine—Hematology-Oncology (HON)

Professional

420. Oncology (4)
Lecture/discussion—2 hours. Prerequisite: approval by the SOM Committee on Student Promotions. Restricted to Medical student only; students must pass all Year 1 SOM courses. Covers the principles of oncology and the pathophysiology of specific, common cancers correlated with organ systems pathophysiology and systemic pathology courses. (P/F grading only.)—*F. (F.)* Welborn
(change in existing course—eff. fall 15)

460. Hematology–Oncology Acting Internship (6-18)
Clinical activity. Prerequisite: fourth-year medical student in good academic standing. Limited enrollment. Acting intern on inpatient hematology/oncology ward service. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 15)

461. Hematology–Oncology Consult Clerkship (6-12)
Clinical activity. Prerequisite: fourth-year medical student in good academic standing. Limited enrollment. Student is an integral member of the inpatient hematology and oncology consult service, the bone marrow service, and will attend all conferences sponsored by the Division. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 15)

Medicine: Internal Medicine—Nephrology

New and changed courses in Internal Medicine—Nephrology (NEP)

Professional

444. Curriculum Design for Doctoring (1)
Project—2 hours; seminar—1 hour. Prerequisite: consent of instructor; second year standing in School of Medicine. 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.)—*Su. (Su.)*
(change in existing course—eff. winter 15)

460. Nephrology and Fluid Balance (3-6)
Clinical activity—4 hours; Lecture/discussion—10 hours. Prerequisite: completion of 3rd year medical school; completion of Medicine Core Clerkship; consent of the instructor. Limited enrollment. Active participation in all inpatient/outpatient clinical activities, attendance at specific lectures and conferences at UCD Medical Center covering the field of nephrology and fluid-electrolyte disorders. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Yeun
(change in existing course—eff. winter 15)

Medicine: Internal Medicine—Pulmonary Medicine

New and changed courses in Internal Medicine—Pulmonary Medicine (PUL)

Professional

470. Practicum in Care of the Terminally Ill (3-6)
Clinical activity—40 hours; seminar—5 hours. Prerequisite: consent of instructor. Restricted to fourth-year Medical students in good standing. Work with hospice interdisciplinary team. Direct experience in the care of patients with illnesses where no cure is possible. Emphasis on symptom relief, end of life issues, physician assisted suicide. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* McMillian
(change in existing course—eff. winter 15)

480. Pulmonary-Critical Care Medicine Insights (1-3)
Clinical activity—3-9 hours. Prerequisite: student in good academic standing; consent of instructor. Attend respiratory outpatient clinics and in-patient pulmonary consultation rounds and medical intensive care rounds. Introduction to diagnosis and treatment of common pulmonary problems. Offered irregularly. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Stollenwerk
(change in existing course—eff. fall 14)

Medicine: Medical Microbiology

New and changed courses in Medical Microbiology (MMI)

Upper Division

188. Human Immunology (3)
Lecture—3 hours. Prerequisite: undergraduate level introductory biology course. Human immune system and mechanisms of immunity. Basic components and function of immune system. Molecular basis of immune response; basic cellular and molecular mechanisms. Interactions between cells of immune system producing immune responses; regulating molecules.—*S. (S.)* Torres
(change in existing course—eff. spring 16)

Graduate

200D. Mechanisms for Microbial Interactions with Hosts (3)
Lecture/discussion—3 hours. Prerequisite: Microbiology 200A or consent of instructor. Study of mechanisms involved in microbial interactions within a host environment. The following principles are basic to understanding these interactions: host recognition, invasion, competition and growth, and host defense.—*W. (W.)*
(change in existing course—eff. summer 14)

210A. Critical Analysis of Contemporary Research on Animal Models of Human (1)
Lecture/discussion—1 hour. Prerequisite): students funded by the Animal Models of Infectious Diseases Training Grant; consent of instructor. Limited enrollment. Topics will include diverse vertebrate and invertebrate models of human infectious diseases.May be repeated for credit. (S/U grading only.)—*W. (W.)* Bevins, Solnick
(change in existing course—eff. winter 15)

210B. Comparative Analysis of Animal Models of Human Infectious Diseases (1)
Lecture/discussion—1 hour. Prerequisite): students funded by the Animal Models of Infectious Diseases Training Grant; others by consent of instructor. Limited enrollment. Compares the major vertebrate and invertebrate animal models that are used most commonly to study human infectious disease, including mouse, nonhuman primate, Caenorhabditis elegans, and drosophila. May be repeated for credit. Offered in alternate years. (S/U grading only.)—*W.* Bevins, Solnick
(change in existing course—eff. winter 15)

215. Medical Parasitology (3)
Lecture—1.5 hours; discussion—1.5 hours. Prerequisite: graduate student with consent of instructor. Epidemiology, pathogenesis, diagnostic methods and current literature discussion of protozoa, helminths and arthropods of medical importance. Offered in alternate years.—*S.* Luckhart
(change in existing course—eff. summer 14)

280. The Endogenous Microbiota in Lifespan Health and Disease (3)
Lecture—3 hours. Prerequisite: graduate standing. Recent research into host-associated microbial communities has yielded important insights into the microbial communities inhabiting mucosal surfaces, and how the composition of these communities contributes to normal development, metabolism, education of the immune system, and disease susceptibility. Not open for credit to students who have completed Internal Medicine: Infectious Diseases 280.—*S. (S.)* Baumler, Dandekar, Tsolis
(change in existing course—eff. summer 14)

Professional

480A. Medical Immunology (2.5)
Lecture—2 hours; laboratory/discussion—0.5 hours. Restricted to Medical students only. Helping to 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. (P/F grading only; deferred grading only, Hartigan-O'Conner, Shacklett, Torres, Teuber, Torres
(change in existing course—eff. spring 16)

480B. Medical Microbiology (5.5)
Lecture—2.75 hours; laboratory/discussion—1 hour. Restricted to Medical students only. Discussion of the diseases caused by infectious agents includes their pathogenesis, clinical manifestations, diagnosis, treatment epidemiology and prevention. Covers the general properties of and diagnostic techniques for bacteria, fungi and viruses. (P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Luckhart, Mudryj, Tsolis
(change in existing course—eff. spring 16)

Medicine: Neurology

New and changed courses in Neurology (NEU)

Professional

420. Clinical Neurosciences (2)
Lecture/discussion—1 hour; lecture—1.5 hours. Restricted to 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.)—*Su. (Su.)* Brass, Wheelock, Shahlaie
(change in existing course—eff. winter 15)

Medicine: Obstetrics and Gynecology

New and changed courses in Medicine: Obstetrics and Gynecology (OBG)

Upper Division

192. Shifa Clinic/Student Volunteer (1)
Conference—2 hours; clinical activity—6-8 hours; discussion—1-2 hours. Open to undergraduates only. Supervised work experience in obstetrics and gynecology. May be repeated up to three times for credit. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)* Yasmeen
(change in existing course—eff. winter 15)

Professional

493. Gender Specific Medicine 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 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.)—*F, W, S, Su. (F, W, S, Su.)* Sweet, Villablanca
(change in existing course—eff. fall 14)

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.)—*F, W, S, Su. (F, W, S, Su.)* Yasmeen
(change in existing course—eff. winter 15)

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.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 15)

Medicine: Orthopaedic Surgery

New and changed courses in Orthopaedic Surgery (OSU)

Professional

421. The Musculoskeletal System (2.5)
Lecture/discussion—4 hours; discussion—2 hours. Prerequisite: consent of committee on student progress. Restricted to Medical students only. Basic and clinical science of orthopaedic surgery and rheumatology. (P/NP grading only.)—*F. (F.)* Marder, VanDenBogaerde
(change in existing course—eff. winter 15)

428. Ambulatory and Emergency Room Orthopaedics (3-6)
Clinical activity. Prerequisite: fourth-year medical student in good academic standing; 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. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Eastman
(change in existing course—eff. winter 16)

462. Community Preceptorship (3-6)
Clinical activity. Prerequisite: fourth-year medical student in good academic standing; consent of instructor. Acquaints student with private practice of orthopaedics in the community setting. Opportunity to observe and assist private practitioners in office, emergency room, operating room and inpatient environment. Student must provide own transportation. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Bovill, Eastman
(change in existing course—eff. winter 16)

464. Acting Internship (6)
Clinical activity. Prerequisite: fourth-year medical student in good academic standing; consent of instructor. Rotation designed to increase basic knowledge of musculoskeletal abnormalities at clinical level. Attention focused on selective case material. For those students who demonstrate proficiency, responsibility will be similar to that of intern. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Eastman
(change in existing course—eff. winter 16)

Medicine: Pathology

New and changed courses in Medicine: Pathology (PMD)

Professional

407. Advanced Neuropathology (3-18)
Lecture/discussion—40 hours. Prerequisite: third- or fourth-year medical student; consent of instructor. Restricted to Medical students only. Presents an integrated introduction to mechanisms of the central and peripheral nervous system injury. Gain an understanding of pathological mechanisms underlying disease, the anatomic and molecular manifestations of pathologic processes of the CNS and PNS. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Lechpammer
(change in existing course—eff. fall 15)

410A. General and Endocrine Pathology (2.5)
Lecture—4 hours; laboratory/discussion—4.5 hours. Restricted to Medical students only. Pathologic mechanisms of human disease. Concepts of general pathologic processes, i.e., cell death, inflammation and neoplasia. Endocrine pathology in the context of clinical human disease. Emphasis on integration of clinical practice with gross and histologic images emphasizing team-based learning. (P/F grading only.)—*W. (W.)* Olson
(change in existing course—eff. winter 15)

435. Clinical Patient Care in Pathology (3-9)
Clinical activity—24 hours; independent study—7 hours; lecture/discussion—4 hours. Prerequisite: completed one of the following 3rd year clerkships: Family Medicine, Internal Medicine, Surgery, OBGYN or Pediatrics; consent of instructor. Four-week course is designed to give the third-year medical student an exposure to the diverse roles that pathologists have in clinical patient care. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Gandour-Edwards, Tomic
(new course—eff. summer 15)

440. Surgery-Pathology-Radiology (SPR) Research Laboratory (2)
Lecture/discussion—1 hours; laboratory/discussion—2 hours. Provide future clinicians and scientists with basic clinical and bioengineering laboratory skills to prepare for careers in translational research. (P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Tran, Wang
(new course—eff. summer 14)

464. Anatomic Pathology (3-6)
Clinical activity—40 hours. Prerequisite: fourth-year Medical Students; consent of instructor. Restricted to Medical Students only. Anatomic pathology with an emphasis on autopsy and surgical pathology with application to clinical practice. Specimen grossing, frozen sections, microscopic sign-out and conferences. Exposure to cytopathology, hematopathology, and clinical pathology is available. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Bishop
(change in existing course—eff. winter 15)

475. Anatomic Pathology Acting Internship (3-9)
Clinical activity—40-80 hours. Prerequisite: completion of course 410 series or equivalent; successful completion of third-year clinical rotations; consent of instructor. Restricted to Medical Students only. Year four level course is designed to provide a concentrated experience in Surgical Pathology and Cytolopathology. Rotate on the surgical and cytopathology sub-specialty teams and assume responsibility for patient cases. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Bishop, Gregg
(change in existing course—eff. summer 15)

499. Research (1-18)
Prerequisite: medical student; consent of instructor. Limited enrollment. Research in experimental, molecular, comparative, and applied pathology. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 15)

Medicine: Pediatrics

New and changed courses in Medicine: Pediatrics (PED)

Professional

405. Pediatrics Lecture Series (0.5)
Lecture—15 sessions. Prerequisite: consent of instructor. Lecture series covers major topics in pediatrics with case presentations and panels from pediatric subspecialists. Topics include, but are not limited to: cardiology, pulmonology, nephrology, gastroenterology, critical care, and primary care pediatrics. May be repeated for credit.—*F. (F.)* Gross
(new course—eff. fall 14)

415. Fetal and Neonatal Physiology (1)
Lecture/discussion—4 hours; independent study—4 hours. Prerequisite: consent of instructor. Elective is designed to combine for study a variety of aspects of the physiology, anatomy and biochemistry of the fetus and newborn with relevant clinical examples of disorders in each of the 10 topics that will be discussed. (P/F grading only.)—*S. (S.)* Philipps, Subramanian
(new course—eff. spring 14)

420. Human Genetics (2)
(cancelled course—eff. winter 16)

430. Pediatric Clerkship (12)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to Medical students only. Eight week clinical clerkship providing students with the opportunity to learn fundamentals of caring for the pediatric patient by participating in nursery, ambulatory and inpatient services at UCDMC and affiliated clinical sites. Rounds, conferences, student presentations ongoing. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Butani, Plant
(change in existing course—eff. winter 15)

430F. SJVP Pediatric Clerkship at UCSF (12)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to Medical students only. Eight-week clinical clerkship providing students with the opportunity to learn fundamentals of caring for the pediatric patient by participating in nursery, ambulatory and inpatient services at UCSF Fresno. Rounds, conferences, student presentations ongoing. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Butani, Plant
(change in existing course—eff. winter 15)

460A. Acting Internship: General Inpatient Pediatric Clerkship (6-18)
Clinical activity—full time (4 to 12 weeks). Prerequisite: completion of course 430 with grade of B or better; letter of recommendation from Pediatrics faculty member. Limited enrollment. The Ward Acting Intern functions in a manner similar to that of a pediatric intern. The Acting Intern takes admissions in the regular sequence and is expected to take night call. The Acting Intern can expect to manage between six and ten patients at a time. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Shah
(change in existing course—eff. winter 15

460B. Acting Internship: Outpatient Pediatrics (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: completion of course 430 with grade of B or better; letter of recommendation from Pediatrics faculty member. Limited enrollment. Supervised experience in pediatric care on outpatient service at UCDMC. Student functions as "Acting Intern" with appropriate supervision by residents and attending faculty. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Palmer
(change in existing course—eff. winter 15)

461. Pediatric Inpatient AI in Hematology/ Oncology (6)
Clinical activity—37.5 hours; lecture—7.5 hours. Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of oncologic and hematologic disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Pawar
(change in existing course—eff. winter 15)

462. Elective in Pediatric Endocrinology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: completion of course 430 with grade of B or better; letter of recommendation from Pediatrics faculty member; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of endocrine disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Styne
(change in existing course—eff. winter 15)

465. Pediatric Specialty Clinic Elective (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Supervised experience in a variety of pediatric subspecialty clinics. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 15)

466. Elective in Pediatric Cardiology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430. Inpatient and outpatient experience in diagnosis and management of cardiologic disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Berger
(change in existing course—eff. winter 15)

468. Elective in Pediatric Nephrology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of renal disorders in children. Laboratory experience and participation in clinical investigation may be arranged. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Butani
(change in existing course—eff. winter 15)

469. Elective in Pediatric Infectious Disease (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and treatment of infectious disease of infants and children. Laboratory and clinical investigation may be arranged. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Blumberg
(change in existing course—eff. winter 15)

470. Elective in Pediatric Neurology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430, Internal Medicine 430, Obstetrics and Gynecology 430, and Pediatrics 430 and consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of neurological disorders in children. Students will also participate in other pediatric subspecialty clinics which serve children with neurological disorders. This course does not satisfy the fourth year neurology requirement. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Chang
(change in existing course—eff. winter 15)

471. Elective in Pediatric Gastroenterology (3-18)
Clinical activity—full time (2 to 12 weeks). Prerequisite: satisfactory completion of course 430; consent of instructor. Limited enrollment. Inpatient and outpatient experience in diagnosis and management of gastroenterology disorders in children. Laboratory experience and participation in clinical investigation may be arranged. Limited enrollment. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Kawatu
(change in existing course—eff. winter 15)

476. Acting Internship in Pediatric Intensive Care (6-18)
Clinical activity—full time (4 to 12 weeks). Prerequisite: completion of course 430 with grade of A or consent of instructor of record; letter of recommendation from Pediatrics faculty member. Limited enrollment. Evaluation and support of critically ill infants and children. In general, student expected to take night call every third night during rotation. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 15)

493C. Fetal and Neonatal Physiology SSM (6)
Lecture/discussion—24 hours; clinical activity—8 hours. Prerequisite: consent of instructor. Elective is available for students interested in exploring the fascinating world of the fetus and neonate. The elective is designed to combine the basic sciences with relevant clinical examples of disorders. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Chan, Philipps, Tache
(new course—eff. fall 14)

Medicine: Pharmacology and Toxicology

New and changed courses in Medicine: Pharmacology and Toxicology (PHA)

Graduate

225. Gene Therapy (3)
Lecture/discussion—3 hours. Prerequisite: Genetics 201C, Molecular and Cellular Biology 214, or equivalent. Gene therapy from basic concepts to clinical applications. Topics include the human genome and genetic variation, genetic diseases, methods to manipulate gene expression, viral and non-viral delivery vectors, history and progress of gene therapy, case studies, and ethical issues. (Same course as Genetics 225.)—*S. (S.)* Anderson
(new course—eff. fall 14)

250. Functional Genomics: From Bench to Bedside (3)
Lecture/discussion—3 hours. Prerequisite: Genetics 201C, Molecular and Cellular Biology 214, or equivalent. Functional genomics (how genetic variation and epigenomics affect gene expression), with an emphasis on clinical relevance and applications. Topics include genetic variation and human disease, cancer therapeutics, and biomarker discovery. (Same course as Genetics 250.)—*S. (S.)* Diaz, LaSalle, Segal
(new course—eff. spring 15)

Professional

400A. Pharmacology (2)
Lecture—1 hour; discussion/laboratory—0.3 hours. Prerequisite: approval by School of Medicine Committee on Student Progress. Restricted to Medical student 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.)—*W, S. (W, S.)* Gelli, Wulff
(change in existing course—eff. winter 15)

400C. Pharmacology (3.5)
Lecture—2 hours; discussion—0.5 hours. Prerequisite: Approval by School of Medicine Committee on Student Progress; medical student only; successful completion of courses 400A and 400B. Treatment of respiratory and cardiovascular disease, central nervous system drugs, GI, Toxicology and chemotherapy. Specific topics include: asthma, chronic obstructive pulmonary disease, hypertension, congestive heart failure, and the treatment of arrhythmias. Pain Management, depression, psychosis, acid reflux, IBS and toxicology. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. W. (F, W.)* Clancy, Gelli
(change in existing course—eff. fall 15)

400D. Pharmacology (2)
(cancelled course—eff. spring 16)

Medicine: Physical Medicine and Rehabilitation

New and changed courses in Medicine: Physical Medicine and Rehabilitation (PMR)

Professional

405. Healthy Living: Leading by Example (1.5)
Lecture—4 sessions; discussion—2 sessions; laboratory—4 sessions; clinical activity—1 session. Prerequisite: consent of instructor. Course is to improve the physical and mental health of participating students while supplementing their medical education with specific concepts. May be repeated for credit. (P/F grading only.)—*F. (F.)* Gerritz
(new course—eff. fall 14)

405A. Healthy Living: Leading by Example (1)
Lecture—4 sessions; discussion—2 sessions; laboratory—4 sessions; clinical activity—1 session. Prerequisite: consent of instructor. Improve the physical and mental health of participating students while supplementing their medical education with specific con-

cepts. May be repeated for credit. (P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Gerritz

(new course—eff. fall 14)

405B. Healthy Living: Leading by Example (0.5)
Lecture—4 sessions; discussion—2 sessions; laboratory—4 sessions; clinical activity—1 session. Prerequisite: consent of instructor. Improve the physical and mental health of participating students while supplementing their medical education with specific concepts. May be repeated for credit. (P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Gerritz

(new course—eff. fall 14)

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.)—*F, W, S, Su. (F, W, S, Su.)* Shin

(change in existing course—eff. winter 15)

Medicine: Psychiatry

New and changed courses in Medicine: Psychiatry (PSY)

Professional

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.)—*W. (W.)* Hah, Newman

(change in existing course—eff. winter 15)

410. Klingenstein Summer Elective (2.5)
Clinical activity—20 hours. Prerequisite: consent of instructor. During this "mini-clerkship," fellows will attend clinics, in-patient settings, and clinicians' offices. They will meet weekly to present cases and review current literature, and will complete a summary narrative at the end of their experience. (P/F grading only.)—*S. (S.)* Horst

(new course—eff. spring 15)

410L. Klingenstein Longitudinal Elective (2)
Clinical activity—5 sessions; laboratory/discussion—10 sessions; discussion—2 sessions. Prerequisite: consent of instructor. Year-long mentoring program provides clinical exposure to child and adolescent psychiatric healthcare during a medical student's pre-clinical years. (P/F grading only; deferred grading only, pending completion of sequence.)—*W, S, Su. (W, S, Su.)* Horst

(change in existing course—eff. fall 15)

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.)—*F, W, S, Su. (F, W, S, Su.)* Liu

(change in existing course—eff. fall 14)

420. Acting Internship in Psychiatry (62)
Clinical activity—40 hours. Prerequisite: course 430 and/or consent of course coordinator. Acting intern position with close faculty supervision with emphasis on biological psychiatry, psychopharmacology and psychodynamic aspects appropriate to diagnostic and long-term patient management. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Liu

(change in existing course—eff. fall 14)

430FA. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Ton

(change in existing course—eff. spring 15)

430FB. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*Su. (Su.)* Ton

(change in existing course—eff. spring 15)

430FC. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 1 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Ton

(change in existing course—eff. spring 15)

430FD. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*F. (F.)* Ton

(new course—eff. spring 15)

430FE. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Ton

(new course—eff. spring 15)

430FF. SJVP Longitudinal Psychiatry Clerkship at UCSF Track 2 (4)
Clinical activity—45 hours. Prerequisite: approval by School of Medicine Committee on Student Progress; consent of instructor. Longitudinal Clerkship runs concurrently with Primary Care and Psychiatry for 24 weeks at UCSF Fresno. Time is spent in direct patient care situations under the guidance of faculty. On-going patient write-ups, rounds, conferences are required. May be repeated for credit. (H/P/F grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Ton

(new course—eff. spring 15)

493. Culture, Medicine and Society (6)
Seminar—12 hours; clinical activity—16 hours; independent study—8 hours; discussion—4 hours. Prerequisite: consent of instructor. Restricted to UC Davis School of Medicine students only. Students will learn about the epidemiological significance of health disparities and barriers to access to health care. Covers (1) Epidemiology/Health Disparities; (2) Society and Medicine; (3) Cinemeducation; (4) Reflection/Integration. (H/P/F grading only.)—*S. (S.)*

(change in existing course—eff. winter 15)

Medicine: Public Health Sciences

New and changed courses in Medicine: Public Health Sciences (SPH)

Upper Division

101. Introduction to Public Health (3)
Lecture—3 hours. Prerequisite: undergraduate standing. Provide basic concepts and controversies in public health, basic science of public health, social and behavioral factors in health and disease, environmental and occupational health issues, the relationship of public health to the medical care system and health care reform. GE credit: SciEng or SocSci | SE or SS.—*W, S. (W, S.)* McCurdy

(change in existing course—eff. winter 16)

102. Introduction to Human Epidemiology (3)
Lecture—1.5 hours; discussion—1.5 hours. Learn and understand the practice of epidemiology as it relates to human populations. The content is fundamental to the Public Health minor and a required core course. GE credit: SE.—*S. (S.)* Garcia

(new course—eff. spring 16)

104. Globalization and Health: Evidence and Policies (3)
Lecture—3 hours. Provides an overview of the evidence on the multiple effects of globalization policies on health. GE credit: SS, WC.—*W. (W.)* De Vogli

(change in existing course—eff. winter 17)

105. Health Disparities in the U.S. (2)
Lecture—2 hours. Introduction to the principles and practice of health disparities research. GE credit: DD, SS.—*W. (W.)* Garcia

(new course—eff. winter 16)

160. General Health Education and Prevention (5)
Lecture—4 hours; discussion—1 hour. Open to students in the internship program for the Health Education Program only; class size limited to 50 students. 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. (P/NP grading only.)—*Su. (Su.)* Ferguson

(change in existing course—eff. winter 15)

Graduate

204. Globalization and Health: Evidence and Policies (3)
Lecture—3 hours. Open to graduate student standing. In-depth integration of advanced epidemiological concepts. Provides an overview of the evidence on the multiple effects of globalization policies on health.—*F. (F.)* De Vogli

(new course—eff. fall 15)

205. Health Disparities in the U.S. (2)
Lecture—2 hours. Introduction to the principles and practice of health disparities research. GE credit: DD, SS.—*W. (W.)* Garcia

(new course—eff. spring 16)

207. Advanced Epidemiologic Methodology (4)
Lecture/discussion—4 hours. Prerequisite: course 206. In-depth integration of advanced epidemiological concepts. Theory, methods, and applications for observational studies including random and systematic error, confounding, counterfactuals, causal inference, effect modification, internal and external validity, estimability, and interpretation of effect measures, and advanced study designs. (Same course as Epidemiology 206.)—*S. (S.)* Hertz-Picciotto, Kass

(new course—eff. winter 16)

209. History of Epidemiology in Public Health (2)
Lecture—0.5 hours; discussion—1.5 hours. Introduction to the history of epidemiology in solving major public health problems. Original historical articles will be read/discussed. Topics may include: infectious disease, accidents/adverse events, nutritional deficiencies, community vaccination trials, occupational exposures, cancer, birth defects, cardiovascular disease, and smoking. (Same course as Epidemiology 209.)—*W. (W.)* Hertz-Picciotto

(new course—eff. fall 14)

211. Infectious Disease Epidemiology (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: introductory epidemiology course (e.g., Epidemiology 205). Infectious disease epidemiology and prevention, with emphasis on human and veterinary diseases of global health importance. Major global health epidemics and challenges of infectious diseases, by mode of transmission. (Same course as Epidemiology 231.)—*W. (W.)* DeRiemer

(change in existing course—eff. winter 15)

223. Obesity Prevention in Community Settings (3)
Lecture/discussion—3 hours. Prerequisite: consent of instructor. Look at causes of the obesity epidemic in the U.S.; identify and critically assess the research literature on various prevention strategies; understand, and apply evidence-based public health strategies to combat obesity; and translate the science to a general audience.—*F. (F.)* Cassady

(change in existing course—eff. spring 15)

245. Biostatistics for Biomedical Science (4)
Lecture—4 hours. Prerequisite: Clinical Research 244 or course 244 or the equivalent; consent of instructor. Analysis of data and design of experiments for laboratory data. (Same course as Clinical Research 245.)—*W. (W.)* Kim

(change in existing course—eff. spring 15)

246. Biostatistics for Clinical Research (4)
Lecture—4 hours. Prerequisite: course 245 or Clinical Research 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. (Same course as Clinical Research 246.) May be repeated for credit. Offered in alternate years.—*W.* Qi

(change in existing course—eff. winter 15)

247. Statistical Analysis for Laboratory Data (4)
Lecture—4 hours. Prerequisite: Clinical Research 245 or course 245. Statistical methods for experimental design and analysis of laboratory data including gene expression arrays, RNA-Seq, and mass spec. (Same course as Clinical Research 247.)—*S.* Rocke

(change in existing course—eff. spring 15)

255. Human Reproductive Epidemiology (3)
Lecture—3 hours. Prerequisite: Preventative Veterinary Medicine 405, 406, Physics 220, Physiology 222 or equivalents or consent of instructor. Human reproductive effects and risk of reproductive disorders, examined from macro- and micro-environmental exposures in community and occupational settings, epidemiologic study designs and analyses. Offered in alternate years.—*F.* Hertz-Picciotto

(change in existing course—eff. spring 15)

273. Health Services Administration (3)
Laboratory—3 hours. Prerequisite: consent of instructor. Limited enrollment. Structure and function of public and private medical care. Topics include categories and trends in national medical spending, predictors of patient use, causes of death, managed care, HMOs, Medicare, Medicaid, costs of technology, and medical care in other countries.—*W. (W.)* Leigh

(change in existing course—eff. winter 15)

276. Critical Assessment in Health Policy and Economics (2)
Lecture/discussion—2 hours. Course aims to develop critical reading skills of the health policy and health economics literature, mainly following the microeconomic paradigm and analytical techniques. Some basic concepts of micro economic theory will be explained in the class.—*F. W. (F, W.)* Yoo

(new course—eff. fall 14)

Medicine: Radiation Oncology

New and changed courses in Medicine: Radiation Oncology (RON)

Graduate

211. Introduction to Radiation Oncology Physics (3-6)
Prerequisite: consent of instructor; restricted to physics and engineering graduate students and senior undergraduate physics majors. Class size limited to three students. Introduction to radiation oncology physics. Overview of treatment methodologies. Medical physics equipment. Treatment machine dosimetry, including calibration. Machine quality assurance. Patient dosimetry. Treatment planning. Simulation and treatment. Treatment quality assurance, including calculation checks and chart checks. Brachytherapy. (S/U grading only.)—*F, W, S, Su. (F, W, S, Su.)* Stern

(change in existing course—eff. winter 15)

Professional

465. Externship in Radiation Oncology (3-16)
Clinical activity—30 hours. Prerequisite: consent of instructor. Externship provides in-depth exposure to the field of Radiation Oncology for students who rotation through an affiliated institution. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Fragoso

(new course—eff. spring 15)

499. Independent Study and Research in Therapeutic Radiology (1-18)
Prerequisite: consent of instructor. Advanced-level research seminar in clinical and/or translational radiation oncology. Work with the course instructor to generate a testable hypothesis. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Coleman, Fragoso, Li, Mayadev, Monjazeb, Vaughan

(change in existing course—eff. fall 14)

Medicine: Radiology—Nuclear Medicine

New and changed courses in Medicine: Radiology—Nuclear Medicine (RNU)

Professional

463. Clinical Clerkship in Nuclear Medicine (3-8)
Clinical Activity—full time (2-6 weeks). Prerequisite: satisfactory completion of second-year medical school; Radiology—Diagnostic 461 recommended; consent of instruct4or. Limited enrollment. Clerkship correlates radioisotopic methods with clinical, pathophysiological, and other diagnostic aspects of the patient's care. Each patient reviewed with student by faculty member. Reading assignments, informal projects, and research techniques available. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Shelton

(change in existing course—eff. winter 15)

Medicine: Surgery

New and changed courses in Medicine: Surgery (SUR)

Professional

450. Surgical Skills Boot Camp (3-6)
Workshop—10 hours; independent study—30 hours. Prerequisite: consent of instructor. Goal of the surgical skills boot camp didactic is to enable students to demonstrate competence in basic surgical skills and theory, using analytical thinking and hands-on simulation. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Pierce

(new course—eff. spring 15)

461. Surgery Burn Unit Clerkship (6 or 9)
Clinical activity. Prerequisite: fourth-year medical student or third-year medical student with completion of course 430; consent of instructor. Externship in the eight-bed Burn Unit, and the 80 bed Shriners Hospital for Children. Principles of critical care, fluid and electrolyte resuscitation and management of surgical wounds in both adults and children. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Greenhalgh

(change in existing course—eff. spring 15)

462. Surgery Trauma Service Clerkship (6 or 9)
Clinical activity. Prerequisite: fourth-year medical student, or third-year medical student with completion of course 430; consent of instructor. Student works as an extern on one of the two general surgery Trauma teams, participating in resuscitation and management of critically injured patients. Team

hours consist of 24 hours on, and 24 hours off. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Phan, Salcedo

(change in existing course—eff. spring 15)

463. Surgery Intensive Care Unit (6 or 9)
Clinical activity. Prerequisite: fourth-year medical student, or third-year medical student with completion of course 430; consent of instructor. Student participates in direct supervision of critically ill surgical patients in a twelve-bed surgery ICU. Each student is closely supervised. Provides in-depth experience with management of critically ill patients. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Cocanour

(change in existing course—eff. spring 15)

466. Clinical Plastic Surgery Elective (3-9)
Clinical activity—50 hours. Prerequisite: third- or fourth-year medical students; Surgery 430; consent of instructor. Total involvement in patient care involving surgical preparation, treatment, operative care, and follow-up. Developing and understanding reconstruction and aesthetic plastic surgery. Microvascular surgery included. Student rotation. (H/P/F grading only.).—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 15)

467. Surgical Oncology (3-9)
Clinical activity. Prerequisite: fourth-year medical student, or third-year medical student with completion of course 430; consent of instructor. Students actively participate in management of patients requiring surgery for cancer, endocrine disease and selected general surgical problems. Cases include malignant melanoma, sarcomas, gastrointestinal cancer, head and neck pathology, and metastatic malignancies. Attending rounds daily. Four teaching conferences weekly. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Bold

(change in existing course—eff. spring 15)

468. Cardiothoracic Surgery Clerkship (6-9)
Clinical activity. Prerequisite: fourth-year medical student, or third-year medical student with completion of course 430; consent of instructor. Student works as an extern on the Cardiothoracic Surgical Service, participating in perioperative management and operations on the heart, lungs, mediastinum, and other thoracic structures. Regularly scheduled teaching conferences are conducted. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Young

(change in existing course—eff. spring 15)

471. Gastrointestinal Surgery (3-9)
Clinical activity. Prerequisite: fourth-year medical student or third-year medical student with completion of course 430, Internal Medicine 430 and Pediatrics 430; consent of instructor. Student participates on the GI Surgery Service, working under the immediate supervision of the faculty and surgical housestaff, involving the full spectrum of gastrointestinal diseases performed by the medical student. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Ho

(change in existing course—eff. spring 15)

472. Vascular Surgery (3-9)
Clinical activity—full time. Prerequisite: fourth-year medical student or third-year medical student with completion of course 430, Internal Medicine 430 and Pediatrics 430; consent of instructor. Student participates on the vascular surgery service and in the management and operations of arterial and venous system, exclusive of diseases that require cardiopulmonary bypass for treatment. Includes patient care responsibilities with appropriate supervision. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Dawson

(change in existing course—eff. spring 15)

475. Pediatric Surgery (6-9)
Clinical activity. Prerequisite: fourth-year medical student or third-year medical student with completion of course 430; consent of instructor. Care of patients with neonatal congenital surgical problems. Fluid and electrolyte management in infants. General experience with acquired surgical diseases in children. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Marr

(change in existing course—eff. spring 15)

476. Surgical Consult Service (6-9)
Clinical activity. Prerequisite: fourth-year medical student or third-year medical student with completion of course 430; consent of instructor. Students function as acting interns working in parallel with the interns on the service. They consult on all non-trauma patients in the emergency room and on the wards and also participate in the operating room. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Wisner

(change in existing course—eff. spring 15)

477. Clinically Oriented Anatomy (3)
Clinical activity—40 hours. Prerequisite: completion of three years of medical school. Restricted to fourth-year medical student only. Anatomy of selected regions of the body using cadaver dissection, prosections and interactive CD-ROMs. Anatomical relationships relevant to common surgical procedures. Surgical and interventional radiology procedures. (H/P/F grading only.)—*W. (W.)* Khatri

(change in existing course—eff. winter 15)

478. Surgical Preceptorship: Off Campus (3-18)
Clinical activity—60 hours. Prerequisite: fourth-year medical student; consent of instructor. Student participates in the preoperative, operative and postoperative care of surgical patients under the supervision of attending staff. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Holcroft

(change in existing course—eff. fall 14)

481. Interactive Clinical Case Presentation (ICCP) (3)
Clinical activity—1 hour. Prerequisite: fourth-year medical students; however, course is open for third and fourth year student observers. Course taught as one session (4 hours) per month for three quarters (July to March); 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; maximum of 10-15 students in good standing. Case presentation of common clinical scenarios(i.e. chestpain/MI; fever/pneumonia; abdo pain/chlecy stites 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. (H/P/F grading only.)—*F, W, Su. (F, W, Su.)* Khatri

(change in existing course—eff. winter 15)

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. Restricted to 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.)—*F, W, S, Su. (F, W, S, Su.)* Holcroft

(change in existing course—eff. winter 15)

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 Studies 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.)—*F, W, S, Su. (F, W, S, Su.)* Cala, Holcroft

(change in existing course—eff. winter 15)

Medicine: Urology

New and changed courses in Medicine: Urology (URO)

460. Urology Clinical Clerkship (5-18)
Clinical activity—full time. Prerequisite: Third-year medical student; physical diagnosis or the equivalent; consent of instructor. Limited enrollment. Clinical experience in diagnosis and treatment of urologic disease. Student will work closely with house staff, participate in conferences and surgery, and perform initial patient evaluation on new patients. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Low

(change in existing course—eff. spring 15)

Professional

461. Externship in Urology (3-18)
Clinical activity—60 hours. Prerequisite: fourth-year medical student; consent of instructor. Under supervision, student acting as intern will assume full inpatient responsibility including admission history, physical examination, management of hospitalization, and participate in surgical procedures, outpatient clinic and learning diagnostic and therapeutic procedures. May be repeated for credit. (H/P/F grading only.)—*F, W, S, Su. (F, W, S, Su.)* Low

(change in existing course—eff. fall 14)

Microbiology

New and changed courses in Microbiology (MIC)

Lower Division

91. Introduction to Research (1)
Seminar—1 hour. Prerequisite: Biological Sciences 2A or equivalent. Restricted to lower division standing. 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.) GE credit: SE.—*S. (S.)* Hunter

(change in existing course—eff. fall 16)

Upper Division

102. Introductory Microbiology (4)
Lecture—3 hours. Prerequisite: Biological Sciences 1A or 2A; Chemistry 2B (may be taken concurrently). Essentials of microbial biology, emphasizing phylogeny, physiology, genetics, ecology, and pathogenesis. Interactions with other microbes, humans, and the biosphere. Uses of microbes in agriculture and biotechnology. Not open for credit to students who have completed courses 101 or 104. GE credit: SciEng | QL, SE, SL.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

103L. Introductory Microbiology Laboratory (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: course 102 C- or better; Chemistry 2B. Introduction to principles and laboratory methods employed in working with microorganisms. Designed for students requiring microbiology for professional school admission. Not open to students who completed

course 101 before Spring 2016, or who have completed courses 102L or 104L.—*F, W, S. (F, W, S.)* Mann

(change in existing course—eff. fall 16)

104. General Microbiology (4)

(cancelled course—eff. winter 16)

104L. General Microbiology Laboratory (3)

Lecture—1 hour; laboratory—6 hours. Prerequisite: course 102 C or better, (Chemistry 8B or 118B or 129A), consent of instructor. Students must complete a petition for consideration of enrollment; petition available on department of Microbiology and Molecular Genetics website. Principles and laboratory methods employed in working with microorganisms. Designed for students continuing in microbiology, genetics, or biochemistry. Only two units of credit for students who completed course 101 before Spring 2016, or who have completed course 103L. Not open to students who have completed course 102L. GE credit: SciEng | SE, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

105. Microbial Diversity (3)

Lecture—3 hours. Prerequisite: course 102 or 104, Biological Sciences 101; 103 or 105 strongly recommended. Survey of microbial diversity in the three domains of Life: Bacteria, Archaea, and microbial eukaryotes. Emphasizes microbial evolution and phylogeny, physiology and metabolism, global biogeochemical cycles, environmental adaptations, and genomic methods for analyzing culture-independent microbial diversity and microbial communities. GE credit: SciEng | SE.—*W. (W.)* Dawson, Parales

(change in existing course—eff. spring 17)

105L. Microbial Diversity Laboratory (3)

Lecture—1 hour; laboratory—6 hours. Prerequisite: course 102 or 104; 102L or 104L; 105 (may be taken concurrently). Students must complete a petition for consideration of enrollment; petition available on department of Microbiology website. Classical enrichments for the isolation of metabolically diverse microbes; modern molecular methods for the identification of isolates; cultivation independent analysis of microbial communities from local environmental samples. GE credit: SciEng | SE, WE.—*W. (W.)* Dawson, Parales

(change in existing course—eff. winter 17)

111. Human Microbiology (3)

Lecture—3 hours. Prerequisite: course 102; Biological Sciences 101. Biology of microorganisms that form commensal, mutualistic, and pathogenic relationships with human beings, emphasizing their phylogeny, physiology, genetics, and ecology. Effects on human nutrition, development and physiology. Mechanisms of pathogenesis, immune response evasion, antibiotic action, and antibiotic resistance. GE credit: SciEng | SE.—*F. (F.)* Stewart

(new course—eff. spring 16)

150. Genomes of Pathogenic Bacteria (3)

Lecture—3 hours. Prerequisite: course 102; Biological Sciences 101. Molecular genetics and comparative genomics of representative pathogenic bacteria. Roles of mobile genetic elements, lateral gene transfer, and genome rearrangements in pathogen evolution. Mutation, recombination, and complementation as tools for genetic analysis. Content includes close examination of primary research articles. GE credit: SciEng | SE.—*S. (S.)* Stewart

(change in existing course—eff. spring 16)

162. General Virology (4)

Lecture—4 hours. Prerequisite: Biological Sciences 101; 102 or 105 recommended. 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. GE credit: SciEng | SE.—*W. (W.)*

(change in existing course—eff. winter 17)

170. Yeast Molecular Genetics (3)

Lecture—3 hours. Prerequisite: Biological Sciences 101; 102 or 105 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. GE credit: SciEng | SE.—*S. (S.)* Shiozaki

(change in existing course—eff. fall 16)

175. Cancer Biology (3)

Lecture—3 hours. Prerequisite: Biological Sciences 101; 102 or 105. Exploration of the causes and treatments of cancer at multiple levels: molecular/cell biology, clinical manifestations, epidemiology and prevention. GE credit: SE, SL.—*S. (S.)* Privalsky

(new course—eff. spring 16)

191. Introduction to Research for Advanced Undergraduates (1)

Seminar—1 hour. Prerequisite: Biological Sciences 2A or equivalent. Restricted to upper division standing. 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.) GE credit: SE.—*S. (S.)* Hunter

(change in existing course—eff. fall 16)

Middle East/South Asia Studies

New and changed courses in Middle East/South Asia Studies (MSA)

Upper Division

121A. Shahnameh: The Persian Book of Kings (4)

Lecture/discussion—3 hours; term paper. In-depth analysis of the Persian Book of Kings (Shahnameh) by Abu al-Qasim Ferdowsi (d. 1020 CE) in its historical context with a comparative perspective on the role of this work in Persian and world literature. (Same course as Comparative Literature 175.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Anooshahr, Sharlet

(change in existing course—eff. winter 15)

121C. A Story for a Life: The Arabian Nights (4)

Lecture/discussion—3 hours; term paper. In-depth exploration of The Arabian Nights, the best-known work of pre-modern Arabic literature and a major work of world literature. Analysis of the work in its historical context and in comparison to other frame tales in world literature. (Same course as Comparative Literature 172 and Arabic 140.) Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Radwan, Sharlet

(change in existing course—eff. winter 16)

131C. Religion and Media in Arab World (4)

Lecture—4 hours. Exploration of the role and experience of media technologies in the Arab world. Study of digital and electronic media as well as alternative media practices. Investigation of new trends in political activism and identity formation. Offered in alternate years. (Same course as Religious Studies 166.) GE credit: SocSci | OL, SS, VL, WC, WE.—Miller

(new course—eff. fall 14)

181A. Topics in Regional ME/SA Studies (4)

Lecture—3 hours; term paper. Iran & Persian topics for students specializing in region-specific Middle East and South Asia Studies. May be repeated three times for credit. GE credit: ArtHum or SocSci | AH or SS, WC, WE.

(change in existing course—eff. winter 15)

182A. Undergraduate Proseminar in Middle East/South Asia (4)

Seminar—3 hours; term paper. Prerequisite: course 100 recommended. Class size limited to 15 students. Seminar in Iran & Persian topics specializing in region-specific Middle East and South Asia studies. May be repeated three times for credit.—*W. (W.)*

(change in existing course—eff. winter 15)

Military Science

New and changed courses in Military Studies (MSC)

Upper Division

143. U.S. Army Management Systems (2)

Lecture—2 hours. Prerequisite: upper division standing and course 142 or consent of instructor. Leadership and management, focusing on four management systems: planning, organizing, leading and controlling. Practical methodologies for assessing management decisions while balancing competing ethical, economic, infrastructure and future growth trade-offs.—*S. (S.)*

(change in existing course—eff. spring 15)

Molecular and Cellular Biology

New and changed courses in Molecular and Cellular Biology (MCB)

Upper Division

110Y. iBioseminars in Cell and Molecular Biology (3)

Web Virtual Lecture—1.5 hours; web electronic discussion—1.5 hours; lecture/discussion—2 hours. Prerequisite: Biological Sciences 101, 102 and 103 (or 105) and 104. Hybrid course in Cell and Molecular Biology for senior level (1) Biochemistry/Molecular Biology; (2) Genetics; or (3) Cell Biology majors. Face-to-face instruction combined with online lectures available at iBioseminars website delivered by leading researchers in Cell and Molecular Biology. Students who have previously taken MCB 110V cannot receive credit for MCB 110Y. GE credit: SciEng | SE, SL.—*S. (S.)* Scholey

(new course—eff. fall 14)

120L. Molecular Biology and Biochemistry Laboratory (6)

Laboratory—10 hours; lecture—2 hours; laboratory/discussion—1 hour. Prerequisite: Biological Sciences 102 or consent of instructor. Restricted enrollment. Introduction to laboratory methods and procedures employed in studying molecular biology and biochemical processes. Designed for students who need experience in the use of molecular biology and biochemical techniques as research and analytical tools. GE credit: SciEng | QL, SE, SL, VL, WE.—*F, W, S. (F, W, S.)* Dinesh-Kumar, Hilt, Lagarias, Liu, Morand, Theg, Wilson

(change in existing course—eff. fall 16)

121. Advanced Molecular Biology (3)
Lecture—3 hours. Prerequisite: Biological Sciences 101 and one course from among Biological Sciences 102, 105, or Animal Biology 102 (Biological Sciences 102, 105 or Animal Biology 102 may be taken concurrently although prior completion is recommended). Structure, expression, and regulation of eukaryotic genes. Chromosome structure and replication; gene structure, transcription, and RNA processing; protein synthesis and translation control; development, immune system, and oncogenes. Not open for credit to students who have completed course161. GE credit: SciEng | QL, SE, SL.—*F, W, S. (F, W, S.)* Burgess, Gasser, Harmer, Natzle, Powers

(change in existing course—eff. fall 14)

139. Undergraduate Seminar in Biochemistry (2)
Seminar—2 hours. Prerequisite: Biological Sciences 103. Discussion of the historical developments of modern biochemistry or current major research problems. May be repeated two times for credit when topic differs. (P/NP grading only.) GE credit: SciEng | OL, SE.—*F, W, S. (F, W, S.)* Callis, Gasser, Nunnari

(new course—eff. spring 15)

162. Human Genetics and Genomics (3)
Lecture—3 hours. Prerequisite: Biological Sciences 101. The human genome and genetic variation in human populations, molecular and genomic approaches in the practice of human genetics, epigenetic gene regulation, personal genetics and genomic medicine. GE credit: SciEng | QL, SE, SL.—*F. (F.)* Chedin

(change in existing course—eff. fall 16)

194. Thesis Research (3)
Independent study—9 hours. Prerequisite: 6 units of course 193 and/or 199 with faculty director; senior standing. Continuation of an intensive, individual laboratory research project in biochemistry, genetics, or cell biology culminating with the presentation of the work in a written thesis and in a seminar. (P/NP grading only.) GE credit: SciEng | OL, SE, WE.—*F, W, S. (F, W, S.)* Wheeler

(new course—eff. fall 15)

Graduate

213. Developmental Biology (3)
(cancelled course—eff. fall 14)

214. Molecular Biology (3)
(cancelled course—eff. fall 14)

215. Graduate Reading Course (2)
(cancelled course—eff. fall 14)

220L. Advanced Biochemistry Laboratory Rotations (5)
(cancelled course—eff. spring 15)

241. Membrane Biology (3)
(cancelled course—eff. fall 15)

251. Molecular Mechanisms in Early Development (3)
(cancelled course—eff. winter 15)

255. Molecular Mechanisms in Pattern Formation and Development (3)
(cancelled course—eff. fall 14)

257. Cell Proliferation and Cancer Genes (3)
(cancelled course—eff. fall 15)

282. Biotechnology Internship (7-12)
Internship—21-36 hours. Prerequisite: graduate standing and consent of instructor. Open only to students participating in the Designated Emphasis in Biotechnology program. Research at a biotechnology company or interdisciplinary cross-college lab for a minimum of 3 months as part of the Designated Emphasis in Biotechnology Program. (S/U grading only.)—*F, W, S. (F, W, S.)* Dandekar

(change in existing course—eff. winter 15)

Molecular, Cellular, and Integrative Physiology

New and changed courses in Molecular, Cellular, and Integrative Physiology (MCP)

Graduate

210L. Physiology Laboratory Rotations (5)
Laboratory—15 hours. Restricted to Molecular, Cellular and Integrative Physiology (MCIP) graduate students. One mandatory rotation and up-to two voluntary rotations. Students learn techniques and perform experiments related to particular research problems. At the end of the rotations students give a short talk and hand in a research paper. May be repeated two times for credit. (S/U grading only.)—*F. W. (F, W.)* Sack, Yarov-Yarovoy

(change in existing course—eff. winter 15)

215. Electrophysiology Techniques and Applications (3)
Lecture—1.5 hours; discussion—1.5 hours. Broad scope of topics in electrophysiology techniques and applications. (Same course as Pharmacology and Toxicology 215.) (S/U grading only.)—*S. (S.)* Chen

(new course—eff. spring 15)

234. Current Topics in Neurotoxicology (3)
Lecture—3 hours. Prerequisite: core courses in one of the following graduate programs: Pharmacology and Toxicology, Agricultural and Environmental Chemistry, Biochemistry and Molecular Biology, Cell and Developmental Biology, Immunology, Molecular Cellular and Integrative Physiology or Neuroscience. Restricted to upper level undergraduate students must obtain permission from the course coordinator. General principles of neurotoxicology, the cell and molecular mechanisms and health impacts of specific neurotoxicants and the contribution of neurotoxic compounds to complex neurodevelopmental disorders and neurodegenerative diseases. (Same course as Environmental Toxicology 234 and Molecular Biosciences 234.) Offered in alternate years.—*W.* Lein

(change in existing course—eff. winter 15)

Professional

300A. Pedagogical Aspects of Physiology in Higher Education (3)
Lecture; discussion; laboratory. Prerequisite: meet qualifications for teaching assistant in physiology. Participation as a teaching assistant for one quarter in a designated physiology course. Instruction in methods of leading discussion groups, leading laboratory sections, writing and grading quizzes, operation and use of laboratory equipment, and reading and grading laboratory reports. Course meets teaching requirements for Ph.D. program in Physiology. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

300B. Pedagogical Aspects of Physiology in Higher Education (3)
Lecture; discussion; laboratory. Prerequisite: meet qualifications for teaching assistant in physiology. Participation as a teaching assistant for one quarter in a designated physiology course. Instruction in methods of leading discussion groups, leading laboratory sections, writing and grading quizzes, operation and use of laboratory equipment, and reading and grading laboratory reports. Course meets teaching requirements for Ph.D. program in Physiology. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

Music

New and changed courses in Music (MUS)

Lower Division

2A. Keyboard Competence, Part 1 (2)
Performance—2 hours. Prerequisite: course 6A and 16A required concurrently. Training to meet the minimum piano requirements for the major in music. Scales and simple harmonic progressions in twelve keys, both major and minor. (P/NP grading only.) GE credit: AH.—*F. (F.)* Triest

(change in existing course—eff. spring 16)

2B. Keyboard Competence, Part 2 (2)
Performance—2 hours. Prerequisite: course 6B and course 16B required concurrently; completion of course 2A or demonstration of required keyboard proficiency level on diagnostic exam; consent of instructor. Training to meet the minimum piano requirements for the major in music. Harmonic progressions, modulations and score reading at the piano. (P/NP grading only.) GE credit: AH.—*W. (W.)* Triest

(change in existing course—eff. spring 16)

2C. Keyboard Competence, Part 3 (2)
Performance—2 hours. Prerequisite: course 6C and course 16C required concurrently; completion of course 2B or demonstration of required keyboard proficiency level on diagnostic exam; consent of instructor. Training to meet the minimum piano requirements for the major in music. Harmonic progressions, figured bass realization, sight reading and keyboard repertory. (P/NP grading only.) GE credit: AH.—*S. (S.)* Triest

(change in existing course—eff. spring 16)

3B. Introduction to Music Theory, Part II (4)
Lecture—1 hour; recitation—3 hours. Prerequisite: completion of course 3A or consent of instructor. Continuation of course 3A. Development of melodic and harmonic writing skills. Basic analysis training. Intended for the general student. GE credit: ArtHum | AH.—*W, S. (W, S.)* Craig, Triest

(change in existing course—eff. spring 16)

6A. Elementary Theory, Part 1 (3)
Lecture—3 hours. Prerequisite: course 2A and course 16A required concurrently. Development of music writing and listening skills through the study of music fundamentals, species counterpoint, harmony, analysis of repertory. Intended primarily for music majors. GE credit: ArtHum | AH.—*F. (F.)* Nichols

(change in existing course—eff. fall 16)

6B. Elementary Theory, Part 2 (3)
Lecture—3 hours. Prerequisite: course 2B and course 16B required concurrently; completion of course 6A or demonstration of required proficiency level on diagnostic exam. Continuation of course 6A. GE credit: ArtHum | AH.—*W. (W.)* Nichols

(change in existing course—eff. fall 16)

6C. Elementary Theory, Part 3 (3)
Lecture—3 hours. Prerequisite: course 2C and course 16C required concurrently; completion of course 6B or demonstration of required proficiency level on diagnostic exam. Continuation of courses 6A-B. GE credit: ArtHum | AH.—*S. (S.)* Nichols

(change in existing course—eff. fall 16)

7A. Intermediate Theory, Part 1 (3)
Lecture—3 hours. Prerequisite: course 6C; course 17A concurrently. Homophonic music of the Classical era with a focus on analysis of music by Haydn, Mozart, and Beethoven. Composition of pieces in the homophonic forms such as minuet and trio, theme and variations, rondo and sonata. Intended for music majors. GE credit: ArtHum | AH.—*F. (F.)* Bauer, Pelo, Rohde, San Martin
(change in existing course—eff. fall 16)

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. GE credit: ArtHum | AH.—*W. (W.)* Bauer, Pelo, Rohde, San Martin
(change in existing course—eff. fall 16)

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. GE credit: ArtHum | AH.—*S. (S.)* Bauer, Pelo, Rohde, San Martin
(change in existing course—eff. fall 16)

16A. Elementary Musicianship, Part 1 (2)
Lecture/laboratory—2 hours. Prerequisite: course 2A and course 6A required concurrently. The melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis. GE credit: ArtHum | AH.—*F. (F.)* Triest
(change in existing course—eff. spring 16)

16B. Elementary Musicianship, Part 2 (2)
Lecture/laboratory—2 hours. Prerequisite: course 2B and course 6B required concurrently; completion of 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. GE credit: ArtHum | AH.—*W. (W.)* Triest
(change in existing course—eff. spring 16)

16C. Elementary Musicianship, Part 3 (2)
Lecture/laboratory—2 hours. Prerequisite: course 2C and course 6C required concurrently; completion of 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. GE credit: ArtHum | AH.—*S. (S.)* Triest
(change in existing course—eff. spring 16)

17A. Intermediate Musicianship, Part 1 (2)
Lecture/laboratory—2 hours. Prerequisite: course 7A concurrently; completion of course 16C or demonstrate required proficiency level on diagnostic exam. Melodic, rhythmic, and harmonic materials of Western music. Includes sight singing, explanations, drills, melodic/rhythmic/harmonic dictations, and listening analysis. GE credit: ArtHum | AH—*F. (F.)* Craig
(change in existing course—eff. fall 16)

17B. Intermediate Musicianship, Part 2 (2)
Lecture/laboratory—2 hours. Prerequisite: course 7B or 100B required concurrently; completion of course 17A 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. GE credit: ArtHum | AH—*W. (W.)* Craig
(change in existing course—eff. spring 16)

24A. Introduction to the History of Music I (3)
Lecture—3 hours. Prerequisite: can be concurrent with course 6A or consent of instructor. History of music from the late Baroque to Beethoven. Intended primarily for majors in music. GE credit: ArtHum, Wrt | AH, VL, WE.—*F. (F.)*
(change in existing course—eff. spring 16)

24B. Introduction to the History of Music II (3)
Lecture—3 hours. Prerequisite: completion of course 24A or consent of instructor. The history of music from the Romantic Period to the nineteenth century. Intended primarily for majors in music. GE credit: ArtHum, Wrt | AH, VL, WE.—*W. (W.)*
(change in existing course—eff. spring 16)

24C. Introduction to the History of Music III (3)
Lecture—3 hours. Prerequisite: completion of course 24B or consent of instructor. The history of music of the 20th century. Intended primarily for majors in music. GE credit: ArtHum, Wrt | AH, VL, WE.—*S. (S.)*
(change in existing course—eff. spring 16)

98. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

99. Special Study for Undergraduates (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

Upper Division

101A. Advanced Theory, Part 1 (4)
Lecture—3 hours; lecture/laboratory—1 hour. Prerequisite: completion of course 101A. 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. GE credit: ArtHum | AH.—*F. (F.)* Bauer, Pelo, Rohde, San Martin
(change in existing course—eff. spring 16)

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 Babbit, Carter, Dallapiccola, Ligeti, Messiaen, Reich and others. Composition of small pieces for ensemble. GE credit: ArtHum | AH.—*W. (W.)* Bauer, Pelo, Rohde, San Martin
(change in existing course—eff. spring 16)

103. Workshop in Composition (3)
Workshop—3 hours. Prerequisite: completion of course 6C or consent of instructor. Workshop in musical composition for undergraduates who are interested in pursuing serious compositional studies and intending to follow the composition track of the major. Course will explore the techniques and materials of musical composition. May be repeated for credit. GE credit: ArtHum | AH.—*F, W, S. (F, W, S.)* Bauer, Nichols, Ortiz, Pelo, Rohde, San Martin
(change in existing course—eff. spring 16)

105. History and Analysis of Jazz (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or 3B or 28 or consent of instructor. Jazz and the evolution of jazz styles in historical and cultural context. For non-majors. GE credit: ArtHum, Div, Wrt | ACGH, AH, DD, WE.—*F. (F.)* Bauer
(change in existing course—eff. spring 16)

106. History of Rock Music (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or 3B or consent of instructor. Rock and the evolution of rock styles in historical and cultural context. For non-majors. GE credit: ArtHum, Wrt | ACGH, AH, VL, WE.—*W. (W.)* Reynolds
(change in existing course—eff. spring 16)

107A. Computer and Electronic Music (3)
Lecture—3 hours; laboratory—1 hour. Prerequisite: consent of instructor. Limited enrollment. Studies in electronic and computer music composition. The principles and procedures of composition in various electronic media are explored through compositional exercises. GE credit: ArtHum | AH.—*W. (W.)* Nichols
(change in existing course—eff. spring 16)

107B. Computer and Electronic Music (3)
Lecture—3 hours; laboratory—1 hour. Prerequisite: completion of course 107A or consent of instructor. Limited enrollment. Continuation of course 107A. Offered in alternate years. GE credit: ArtHum | AH.—*S. (S.)* Nichols
(change in existing course—eff. spring 16)

108A. Orchestration (2)
Lecture—2 hours. Prerequisite: completion of course 6C or consent of instructor. Techniques of orchestration from study of basic instrumental techniques to analysis of orchestral scores and scoring for various instrumental combinations. GE credit: ArtHum | AH, VL.—*F. (F.)* Ortiz
(change in existing course—eff. spring 16)

108B. Orchestration (2)
Lecture—2 hours. Prerequisite: completion of course 108A or consent of instructor. Techniques of orchestration from study of basic instrumental techniques to analysis of orchestral scores and scoring for various instrumental combinations. GE credit: ArtHum | AH, VL.—*W. (W.)* Ortiz
(change in existing course—eff. spring 16)

110A. The Music of a Major Composer: Beethoven (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or 3A or consent of instructor. The work of Beethoven will be studied in the context of his time and his contemporaries. Lectures, discussion/guided listening sections, and selected readings. For non-majors. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WC, WE.—*F. (F.)*
(change in existing course—eff. spring 16)

110B. The Music of a Major Composer: Stravinsky (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or course 3A or consent of instructor. The work of Stravinsky will be studied in the context of his time and his contemporaries. Lectures, discussion/guided listening sections, and selected readings. For non-majors. GE credit: ArtHum, Wrt | AH, VL, WC, WE.
(change in existing course—eff. spring 16)

110C. The Music of a Major Composer: Bach (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or course 3A or consent of instructor. The work of Bach will be studied in the context of his time and his contemporaries. Lectures, discussion/guided listening sections, and selected readings. For non-majors. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WC, WE.
(change in existing course—eff. spring 16)

110D. The Music of a Major Composer: Mozart (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or 3A or consent of instructor. The work of Mozart will be studied in the context of his time and his contemporaries. Lectures, discussion/guided listening sections, and selected readings. For non-majors. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WC, WE.
(change in existing course—eff. spring 16)

110E. The Music of a Major Composer: Haydn (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or 3A or consent of instructor. The work of Haydn in the context of his time and his contemporaries. Lectures, discussion/guided listening sections, and selected readings. For non-majors. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WC, WE.
(change in existing course—eff. spring 16)

110F. American Masters (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or course 3A or consent of instructor. An overview of American concert music by master composers from Charles Ives to the present. Lectures, discussion/guided listening sections, and selected readings. For non-majors. Offered in alternate years. GE credit: ArtHum, Wrt | ACGH, AH, DD, VL, WE.—*S. (S.)* Levy
(change in existing course—eff. spring 16)

110G. Music of a Major Composer—Handel (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: completion of course 10 or course 3A or consent of instructor. Work of Handel in the context of his time and his contemporaries. Lectures, discussion/guided listening sections, and selected readings. For non-majors. Offered in alternate years. GE credit: ArtHum, Wrt | AH, VL, WC, WE.—Thomas
(change in existing course—eff. spring 16)

113. Introduction to Conducting (2)
Lecture—1 hour; performance—1 hour. Prerequisite: completion of course 6C or consent of instructor. Principles and techniques of conducting as they apply to both choral and instrumental ensembles. GE credit: ArtHum | AH.—*F, W. (F, W.)* Baldini, Thomas
(change in existing course—eff. spring 16)

114. Intermediate Conducting (2)
Lecture—1 hour; performance—1 hour. Prerequisite: completion of course 113 or consent of instructor. Intermediate conducting with a continued focus on principles and techniques as they apply to both choral and instrumental ensembles. GE credit: ArtHum | AH.—*W, S. (W, S.)* Baldini, Thomas
(change in existing course—eff. spring 16)

115. History of Film Music (4)
Lecture—3 hours; film viewing—3 hours. Prerequisite: completion of course 10 or course 3A or consent of instructor. Film music from silent films to movies of the past decade. How music supports and shapes film narrative and structure. Use of jazz, rock and classical music in film. Offered in alternate years. Offered irregularly. GE credit: ArtHum, Wrt | AH, VL, WE.—*S. (S.)* Ortiz
(change in existing course—eff. spring 16)

116. Introduction to the Music of The Beatles (4)
Lecture—3 hours; listening—1 hour. Prerequisite: completion of course 10 or course 3A or consent of instructor. Survey of music of The Beatles, focusing on the songs of Lennon and McCartney. Emphasis on understanding their evolution as musicians, composers and cultural figures. Discussion of their musical influences in wider cultural contexts. GE credit: AH, VL, WC.—*S. (S.)* Reynolds
(change in existing course—eff. spring 16)

121. Topics in Music Scholarship (4)
Seminar—4 hours. Prerequisite: course 6C and course 24C; or consent of instructor. Sources and problems of a historical period or musical style selected by the instructor and announced in advance. May be repeated for credit. GE credit: ArtHum | AH, OL.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

122. Topics in Analysis and Theory (4)
Seminar—4 hours. Prerequisite: course 6C and course 24C; or consent of instructor. Analysis of works of a composer or musical style selected by the instructor and announced in advance. Consideration of theoretical issues. May be repeated for credit. GE credit: ArtHum | AH, OL.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

123. Music as Culture (3)
Lecture/discussion—3 hours. Prerequisite: course 124B or consent of instructor. Introduction to the study of music in cross-cultural perspective. Basic theories and frameworks of ethnomusicology; in-depth case studies of three musical traditions from around the world. Intended for music majors. Offered in alternate years. GE credit: ArtHum | AH, WC, WE.—*F. (F.)* Lee, Spiller
(change in existing course—eff. spring 16)

124A. History of Western Music: Middle Ages to 1600 (3)
Lecture—3 hours. Prerequisite: course 24C or consent of instructor. Historical survey of composers and musical styles from the Middle Ages to the beginning of the 17th century. GE credit: ArtHum, Wrt | AH, VL, WE.—*F. (F.)* Berger, Busse, Owens
(change in existing course—eff. spring 16)

124B. History of Western Music: 1600-1750 (3)
Lecture—3 hours. Prerequisite: course 124A or consent of instructor. Historical survey of composers and musical styles from the late 1500s to the mid-18th century. GE credit: ArtHum, Wrt | AH, VL, WE.—*W. (W.)* Berger, Busse, Owens
(change in existing course—eff. spring 16)

126. American Music (4)
Lecture—3 hours; listening—1 hour. Prerequisite: course 10 or course 3A or consent of instructor. Introductory survey of American musics, including Native American music, Hispanic polyphony, New England psalmody, and selected 20th-century composers and styles. Offered in alternate years. GE credit: ArtHum, Div, Wrt | ACGH, AH, DD, WE.—*S. (S.)* Hess, Levy
(change in existing course—eff. spring 16)

127. Music from Latin America (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Examination of music from Latin America. Characteristic music (i.e., tango, bossa nova, salsa, musica motena, musica andina) as well as its implications in other musical genres. Taught in Spanish. Not open to students who taken Spanish 171 and 171S. (Same course as Spanish 171) May be repeated one time for credit when topic differs. Offered in alternate years. GE credit: ArtHum | AH, WC.—*W. (W.)* Irwin, Ortiz
(change in existing course—eff. fall 16)

129A. Musics of the Americas (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 10 or course 11 or course 3A or consent of instructor. Survey of music cultures from North, Central, and South America, including the Caribbean, with emphasis on the role of music in society and on the elements of music (instruments, theory, genres and form, etc.). Introduction to ethnomusicological theory, methods, approaches. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, DD, VL, WC, WE.
(change in existing course—eff. spring 16)

129B. Musics of Africa, Middle East, Indian Subcontinent (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 10 or course 11 or course 3A or consent of instructor. Survey of music cultures with special emphasis on the role of music in society and on the elements of music (instruments, theory, genres and form, etc.). Introduction to ethnomusicological theory, methods, approaches. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.
(change in existing course—eff. spring 16)

129C. Musics of East and Southeast Asia (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 10 or course 11 or course 3A or consent of instructor. Survey of music cultures from Japan, China, Korea, Vietnam, and Indonesia, with special emphasis on the role of music in society and on the elements of music (instruments, theory, genres and form, etc.). Introduction to ethnomusicological theory, methods, approaches. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.—Lee, Spiller
(change in existing course—eff. spring 16)

129D. Folk Musics of Europe (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 10 or course 11 or course 3A or consent of instructor. Survey of folk musics from all of Europe, with emphasis on the role of music in society and on the elements of music (instruments, genres, form, etc.). Introduction to ethnomusicological theory, methods, approaches. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.
(change in existing course—eff. spring 16)

130A. Applied Study of Music: Advanced; Voice (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Voice. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

130B. Applied Study of Music: Advanced; Piano (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Piano. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130C. Applied Study of Music: Advanced; Harpsichord (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Harpsichord. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130D. Applied Study of Music: Advanced; Organ (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Organ. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130E. Applied Study of Music: Advanced; Violin (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Violin. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130F. Applied Study of Music: Advanced; Viola (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Viola. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130G. Applied Study of Music: Advanced; Cello (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Cello. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130H. Applied Study of Music: Advanced; Double Bass (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Double Bass. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130I. Applied Study of Music: Advanced; Flute (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Flute. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130J. Applied Study of Music: Advanced; Oboe (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Oboe. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130K. Applied Study of Music: Advanced; Clarinet (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Clarinet. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130L. Applied Study of Music: Advanced; Bassoon (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Bassoon. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130M. Applied Study of Music: Advanced; French Horn (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; French Horn. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130N. Applied Study of Music: Advanced; Trumpet (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Trumpet. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130O. Applied Study of Music: Advanced; Trombone (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Trombone. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130P. Applied Study of Music: Advanced; Tuba (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Tuba. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130Q. Applied Study of Music: Advanced; Percussion (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Percussion. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

130R. Applied Study of Music: Advanced; Classical (1)
Performance instruction—1 hour. Prerequisite: consent of instructor; admission by audition. Class instruction, arranged by section; Classical. Offered as demand indicates. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

130U. Applied Study of Music: Advanced; Recorder (1)
Performance instruction—1 hour. Prerequisite: open to Music majors with ability to perform scales and short compositions from standard repertoire; admission by audition and consent of instructor. Class instruction, arranged by section; Recorder.
(change in existing course—eff. summer 15)

131A. Applied Study of Music: Advanced (Individual); Voice (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: course 1 or the equivalent; open to Music majors only; admission by audition and consent of instructor. Individual instruction in Voice. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

131B. Applied Study of Music: Advanced (Individual); Piano (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Piano. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131C. Applied Study of Music: Advanced (Individual); Harpsichord (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Harpsichord. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131D. Applied Study of Music: Advanced (Individual); Organ (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Organ. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131E. Applied Study of Music: Advanced (Individual); Violin (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Violin. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131F. Applied Study of Music: Advanced (Individual); Viola (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: open to Music majors only; admission by audition and consent of instructor. Individual instruction in Viola. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131G. Applied Study of Music: Advanced (Individual); Cello (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Cello. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131H. Applied Study of Music: Advanced (Individual); Double Bass (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Double Bass. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131I. Applied Study of Music: Advanced (Individual); Flute (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Flute. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131J. Applied Study of Music: Advanced (Individual); Oboe (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: admission by audition. Individual instruction in Oboe. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131K. Applied Study of Music: Advanced (Individual); Clarinet (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Clarinet. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131L. Applied Study of Music: Advanced (Individual); Bassoon (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Bassoon. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131M. Applied Study of Music: Advanced (Individual); French Horn (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in French Horn. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131N. Applied Study of Music: Advanced (Individual); Trumpet (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Trumpet. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131O. Applied Study of Music: Advanced (Individual); Trombone (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Trombone. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131P. Applied Study of Music: Advanced (Individual); Tuba (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Tuba. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131Q. Applied Study of Music: Advanced (Individual); Percussion (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Percussion. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131R. Applied Study of Music: Advanced (Individual); Classical Guitar (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor; admission by audition. Individual instruction in Classical Guitar. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

131U. Applied Study of Music: Advanced (Individual); Saxophone (2)
Performance instruction—0.5 hour; independent practice—5 hours. Prerequisite: consent of instructor. Open to Music majors only; admission by audition. Admission by audition and consent of instructor. Individual instruction in Saxophone. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

140. University Jazz Band (2)
Rehearsal—4 hours. Prerequisite: consent of instructor; admission by audition. Rehearsal, study, and performance of jazz band music and full variety of jazz band styles, including swing, be-bop, and contemporary jazz styles. May be repeated for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)* Griffin
(change in existing course—eff. spring 16)

141. University Symphony (2)
Rehearsal—4 hours. Prerequisite: consent of instructor; admission by audition. Sight-reading, rehearsal and performance of music from the orchestral literature. May be repeated for credit. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)* Baldini
(change in existing course—eff. spring 16)

142. University Chamber Singers (2)
Rehearsal—3 hours. Prerequisite: consent of instructor; admission by audition. Rehearsal and performance of works for small choral group. May be repeated for credit. (P/NP grading only.) GE credit: AH.—*(F, W, S.)* Thomas
(change in existing course—eff. spring 16)

143. University Concert Band (2)
Rehearsal—4 hours. Prerequisite: consent of instructor; admission by audition. Rehearsal and performance of music for band. May be repeated for credit. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)* Nowlen
(change in existing course—eff. spring 16)

144. University Chorus (2)
Rehearsal—4 hours. Prerequisite: consent of instructor; admission by audition. Rehearsal and performance of choral music. May be repeated for credit. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)* Thomas
(change in existing course—eff. spring 16)

145. Early Music Ensemble (2)
Rehearsal—4 hours. Prerequisite: consent of instructor; admission by audition. Rehearsal and performance of Medieval, Renaissance, and Baroque music for vocal ensemble and historical instruments. May be repeated for credit. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

146. Chamber Music Ensemble (1)
Rehearsal—2 hours; student practice—1 hour. Prerequisite: consent of instructor; admission by audition. Open to any student in the University whose proficiency meets the requirements of concert performance. Study, rehearsal, and performance of ensemble music for strings, winds, voice, piano, harpsichord, and organ. May be repeated for credit. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

147. University Wind Ensemble (2)
Rehearsal—4 hours. Prerequisite: consent of instructor. Rehearsal, study, and performance of a full variety of wind ensemble music; and to have students share their work in public performances. May be repeated for credit. (P/NP grading only.) GE credit: AH.—*F. (F.)* Nowlen
(change in existing course—eff. fall 16)

148. Hindustani Vocal Ensemble (2)
Rehearsal—2 hours. Prerequisite: consent of instructor. Basics of Hindustani music through theory and practice. Fundamentals of raga (mode) and tala (rhythms) with special emphasis on improvisation, a central feature of khyal (singing style). Five ragas each quarter. May be repeated up to six times for credit. (P/NP grading only.) GE credit: AH.—*W, S. (W, S.)* Sahai
(change in existing course—eff. fall 16)

192. Internship in Music (1-4)
Internship—3-12 hours. Prerequisite: consent of instructor or academic adviser. Student must submit a written proposal to an appropriate Music Department instructor. Internship outside the university related to music. May be repeated up to eight units of credit. (P/NP grading only.) GE credit: AH.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 16)

194HA. Special Study for Honors Students (2-4)
Independent study—6-12 hours. Prerequisite: courses 7C and 123. Open only to students who qualify for the honors program and admission to music Senior Honors Program. Preparation and presentation of a culminating project, under the supervision of an instructor, in one of the creative or scholarly areas of music. (Deferred grading only, pending completion of sequence.) GE credit: ArtHum | AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

194HB. Special Study for Honors Students (2-4)
Independent study—6-12 hours. Prerequisite: completion of course 194HA; consent of instructor. Open only to students who qualify for honors program and admission to Music Senior Honors Program. Preparation and presentation of a culminating project, under the supervision of an instructor, in one of the creative or scholarly areas of music. (Deferred grading only, pending completion of sequence.) GE credit: ArtHum | AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

195. Senior Project (2)
Project—6 hours. Prerequisite: completion of course 7C and 123; consent of instructor. Preparation of a senior project in music composition (public presentation of a new work), in music performance (a public recital), or in music history and theory (public presentation of research results). GE credit: ArtHum | AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

198. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

199. Special Study for Advanced Undergraduates (1-5)
(P/NP grading only.) GE credit: AH.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

Graduate

202. Notation (4)
Seminar—3 hours; term paper. Open to graduate students in music; advanced undergraduates with consent of instructor. Study of musical notation; investigation of techniques for editing Medieval and Renaissance music. Offered in alternate years.—*F, W, S. (F, W, S.)* Berger
(change in existing course—eff. spring 16)

203. Music Composition (4)
Seminar—3 hours; term paper. Open to graduate students in music; advanced undergraduates with consent of instructor. Technical projects that explore compositional problems, the skill and techniques with which to solve them, and free composition. May be repeated for credit.—*F, W, S. (F, W, S.)* Bauer, Nichols, Ortiz, Pelo, Rohde, San Martin
(change in existing course—eff. spring 16)

204. Advanced Conducting (3)
Tutorial—2 hours; practice. Prerequisite: consent of instructor. Open to graduate students in conducting. This course covers the technical aspects of conducting and the broader issues in music history and analysis that conductors must face before leading a rehearsal or performance. May be repeated for credit.—*F, W, S. (F, W, S.)* Baldini, Thomas
(change in existing course—eff. fall 16)

207. Advanced Electronic and Computer Music (4)
Seminar—2 hours. Prerequisite: consent of instructor. Advanced composition of computer and electronic music.—*F. (F.)* Pelo
(change in existing course—eff. spring 16)

210A. Proseminar in Music (Theory and Analysis) (4)
Seminar—3 hours; term paper. Open to graduate students in music; advanced undergraduates with consent of instructor. Voice-leading analysis of tonal music derived from Schenker and pitchclass set theory. Recent work on compositional design, generalizations of the concept of interval, psychologically oriented music theory, and theories of durational structure and timbre.—*W. (W.)*
(change in existing course—eff. spring 16)

210B. Proseminar in Music (Musicology and Criticism) (4)
Seminar—3 hours; term paper. Open to graduate students in music; advanced undergraduates with consent of instructor. Issues and concepts of music history, including performance practice questions for specific repertoires and periods; principles, aims, and methods of archival study; historical theory; evolution of musical styles; philosophical debates about goals and aims of the discipline in general.—*S. (S.)*
(change in existing course—eff. spring 16)

210C. Proseminar in Music (Ethnomusicology) (4)
Seminar—3 hours; term paper. Open to graduate students in music; advanced undergraduates with consent of instructor. Introduction to ethnomusicology through its intellectual history, theoretical approaches, analytical techniques, and methodologies.—*F. (F.)*
(change in existing course—eff. spring 16)

212. Ethics of Musical Ethnography (4)
Seminar—3 hours; fieldwork. Open to graduate students in music. Advanced undergraduates with consent of instructor. The role, methodology, perception, and assumptions of the ethnomusicologist in ethnographic scholarship. Examination of complex ethical and political questions in relation to practical fieldwork techniques. Offered in alternate years.—*W. (W.)* Lee
(change in existing course—eff. fall 16)

213. Transcription and Notation (4)
Seminar—3 hours; project. Prerequisite: Open to graduate students in music. Advanced undergraduates with consent of instructor. Practical instruction in the transcription and analysis of primarily non-Western musics. Analytical and theoretical issues, the politics of representation, and the cultural values and ideologies implicit in notation. Offered in alternate years.—*S. (S.)* Spiller
(change in existing course—eff. fall 16)

214. Recent Issues in Ethnomusicology (4)
Seminar—3 hours; term paper. Open to graduate students in music; advanced undergraduates with consent of instructor. Issues, schools of thought, and basic literature in ethnomusicology from the 1980s to present. Emphasis on theory and methodology. Offered in alternate years.
(change in existing course—eff. spring 16)

221. Topics in Music History (4)
Seminar—3 hours. Open to graduate students in music; advanced undergraduates with consent of instructor. Studies in selected areas of music history and theory. May be repeated for credit.—*F, W, S. (F, W, S.)*
(change in existing course—eff. spring 16)

222. Techniques of Analysis (4)
Seminar—3 hours. Open to graduate students in music; advanced undergraduates with consent of instructor. Analysis and analytical techniques as applied to music of all historical style periods. May be repeated for credit.—*F, S. (F, S.)*
(change in existing course—eff. spring 16)

223. Topics in Ethnomusicology (4)
Seminar—4 hours. Prerequisite: open to graduate students in music; advanced undergraduates with consent of instructor. Intended for graduate students in Music; Anthropology students may enroll with consent of instructor. In-depth ethnomusicological studies of selected cultures and their musics; study of historical, theoretical, contextual, and cultural features.—*W. (W.)* Lee, Spiller
(change in existing course—eff. fall 16)

Native American Studies

New and changed courses in Native American Studies (NAS)

Lower Division

34. Native American Art Studio (4)
Lecture—2 hours; studio—6 hours. Limited enrollment. Studio projects to be influenced by contemporary and traditional Native American arts. Examples of designs and media presented in lectures will be of indigenous origin. Introduction and familiarized with various materials and techniques. GE credit: ArtHum | ACGH, AH, DD, OL, VL, WC.—Tsinhnahjinnie
(change in existing course—eff. winter 16)

46. Orientation to Research in Native American Studies (4)
Lecture/discussion—3 hours; term paper. Prerequisite: Native American Studies major or minor, or consent of instructor. Limited enrollment. Introduces students to basic research resources pertinent to Native American subjects available in the region, including libraries, archives, museums, etc. Emphasis is upon learning to use documentary resources or other collections of data. Students will carry out individual projects. GE credit: SocSci, Div, Wrt.
(change in existing course—eff. winter 15)

Upper Division

108. Indigenous Languages of California (4)
Lecture/discussion—3 hours; term paper. 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: ArtHum or SocSci | ACGH, AH or SS, DD, WE.—*W. (W.)* Spence
(change in existing course—eff. spring 16)

110A. Quechua Language and Society, Beginning Level 1 (4)
Lecture/discussion—4 hours. Not open to students who took course 107 in the Fall quarter of 2007. Introduction to Quechua language and society emphasizing the practical use of the language. Provides the student with some basic Quechua communication skills and with an initial knowledge about contemporary Andean society and the status of Quechua language today. GE credit: SocSci | SS.—Mendoza
(change in existing course—eff. winter 15)

115. Native Americans in the Contemporary World (4)
Lecture/discussion—4 hours. Prerequisite: upper division standing or consent of instructor. Important issues facing Native Americans in the contemporary world. Focus primarily on the diverse ways of life, histories and realities of indigenous people throughout the Americas as they develop their own cultural and political institutions. GE credit: ArtHum or SocSci, Div | AH or SS, ACGH, DD, OL, WE.—*W. (W.)* Crum
(change in existing course—eff. fall 16)

118. Native American Politics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: upper division standing or consent of instructor. Examination of the various interest groups and movements found among Native people and how they relate to the determination of Indian affairs. Study of political action available to Native groups, and local communities, along with relevant theory relating to underdevelopment. Offered in alternate years. GE credit: SocSci | ACGH, DD, SS, WC, WE.—Crum
(change in existing course—eff. spring 16)

121. Corporate Colonialism (4)
Lecture/discussion—4 hours. Prerequisite: course 1, 10 or 12 encouraged, but not required. Price of progress and modernity for native and non-native people. History of the corporation and neoliberalism, military and intelligence agencies, debt, Taylorism, education institutions, media, and law. Discussion of alternatives advocated by contemporary and indigenous social movements. GE credit: SocSci | ACGH, DD, SS, WC, WE.—*W. (W.)* Grandia
(new course—eff. fall 15)

123. Native Foods and Farming of the Americas (4)
Lecture/discussion—2 hours. Prerequisite: course 7A concurrently; completion of course 16C or demonstrate required proficiency level on diagnostic exam. Crop domestication, agrodiversity, and cuisines of the Americas. Cultural and social history of native American foods like maize, potatoes, quinoa, chocolate, peppers, beans, avocados, etc. Discussion of socio-economic, environmental, legal challenges facing indigenous and peasant farmers today. Offered in alternate years. GE credit: SciEng or SocSci, Wrt | DD, OL, SE or SS, WC.—*S. (S.)* Grandia
(new course—eff. spring 16)

130A. Native American Ethno-Historical Development (4)
Lecture—4 hours. Prerequisite: upper division standing or consent of instructor. Study of Native American ethno-history in North America before 1770s. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WC, WE.—*F. (F.)* Crum
(change in existing course—eff. spring 16)

130B. Native American Ethno-Historical Development (4)
Lecture/discussion—4 hours. Prerequisite: upper division standing or consent of instructor. Study of Native American ethno-history in North America, 1770-1890. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.—*W. (W.)* Crum
(change in existing course—eff. spring 16)

130C. Native American Ethno-Historical Development (4)
Lecture/discussion—4 hours. Prerequisite: upper division standing or consent of instructor. Study of Native American ethno-history in North America after 1890. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.—*S. (S.)* Crum
(change in existing course—eff. spring 16)

134. Race, Culture, and Nation (4)
Lecture—4 hours. Prerequisite: upper division standing or consent of instructor. Exploration of complexities of Native American racial, cultural and national identities and alliances. Study of tribal and federal citizenship, mixed descent and diasporic people(s), claims to resources, ethnic fraud and contemporary movements of cultural resurgence and political sovereignty and self-determination. Offered in alternate years. GE credit: SocSci | ACGH, DD, SS, WE.—*W (W.)* Perea
(change in existing course—eff. spring 16)

135. Gender Construction in Native Societies (4)
Lecture—4 hours. Prerequisite: upper division standing or consent of instructor. Historical and traditional Native American constructions of feminine and masculine genders as well as third, fourth, and fifth genders. Examines gender roles and statuses. Addresses the problems with contemporary terminologies and impacts of colonization on contemporary construc-

tions of gender identities. Offered in alternate years. GE credit: ArtHum or SocSci | AH or SS, DD, OL, WE.—Perea

(change in existing course—eff. spring 16)

157. Native American Religion and Philosophy (4)
Lecture/discussion—4 hours. Religious and philosophical traditions of Native American/indigenous peoples of the Americas. Offered in alternate years. GE credit: ArtHum, Div | AH, OL, WE.—Hernández-Ávila

(change in existing course—eff. fall 16)

180. Native American Women (4)
Lecture/discussion—4 hours. Prerequisite: course 1, 10, or Women's Studies 50. Native American women's life experiences, cross-cultural comparisons of gender roles, and Native women's contemporary feminist thought. Utilizes texts from literature, social science, and autobiography/biography. GE credit: ArtHum or SocSci | AH or SS, DD, OL, WE.—*W. (W.)*

(change in existing course—eff. fall 16)

181C. Contemporary Native American Poetry (4)
Lecture—4 hours. Works of poetry by contemporary Native American/indigenous poets, with some attention to traditional cultural poetic expressions. GE credit: ArtHum, Div, Wrt | AH, DD, OL, WE.—*F, W, S. (F, W, S.)* Hernández-Avila

(change in existing course—eff. fall 16)

192. Internship (1-12)
Internship—1 hour. Prerequisite: enrollment dependent on availability of intern position in Native American Studies or the CN Gorman Museum, with priority to Native American Studies minors/majors; consent of instructor. Restricted to upper division standing. Supervised internship in the CN Gorman Museum, community, and institutional settings related to Native American concerns. May be repeated up to 12 units for credit including 192 and other internships taken in other departments and institutions. (P/NP grading only.) GE credit: ArtHum | AH.—*F, W, S, Su. (F, W, S, Su.)* Tsinhnahjinnie

(change in existing course—eff. winter 15)

194HA. Special Studies for Honors Students (4)
Independent study—12 hours. Prerequisite: senior qualifying for honors. Directed reading, research and writing culminating in the completion of a senior honors thesis or project under direction of faculty adviser. (Deferred grading only, pending completion of sequence.)—*F. W. (F, W.)*

(change in existing course—eff. summer 15)

194HB. Special Studies for Honors Students (4)
Independent study—12 hours. Prerequisite: senior qualifying for honors. Directed reading, research and writing culminating in the completion of a senior honors thesis or project under direction of faculty adviser. (Deferred grading only, pending completion of sequence.)—*F. W. (F, W.)*

(change in existing course—eff. summer 15)

Graduate

220. Colonialism, Neoliberalism, and Indigenous Self-Determination (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. History, political economy and legacies of imperial/colonial systems. Continuities and discontinuities with corporate globalization and neoliberalism. Focus on resistance and self-determination of indigenous peoples, but with comparison to other groups. Offered in alternate years.—Grandia

(change in existing course—eff. winter 16)

246. Native American/Indigenous Research Methodologies (4)
Seminar—3 hours; term paper. Introduction to advanced methodologies currently influencing research in Native American Studies and amongst Indigenous communities. Students will develop an original project and course assignments will guide them through the process of research design and implementation. Offered in alternate years.—*W. (W.)* Perea

(new course—eff. fall 15)

Nature and Culture

New and changed courses in Nature and Culture (NAC)

Upper Division

192. Internship in Nature and Culture (1-12)
(cancelled course—eff. winter 17)

Nematology

New and changed courses in Nematology (NEM)

Lower Division

10V. General Biology (4)
Web virtual lecture—3 hours; web electronic discussion—1 hour. 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. Significant writing is required. Designed for students not specializing in biology. Not open for credit to students who have completed course Biological Sciences 1A, 1B, 1C, 2A, 2B, 2C, 10 or 10V. GE credit: SciEng, Wrt | SE, SL, WE.—*S. (S.)* Westerdahl

(change in existing course—eff. fall 15)

Upper Division

150. Revising Scientific Prose (4)
Lecture/discussion—3 hours; term paper. Prerequisite): one course in English composition; understanding of English grammar and parts of speech; upper division standing in a science major; or consent of the instructor. Class size limited to 15 students. Principles of detailed revision; close analysis of writing styles in research papers, popular scientific articles, and other scientific reports; use of verb-based and noun-based writing styles. GE credit: Wrt.—*W. (W.)* Jaffee

(change in existing course—eff. winter 15)

Neurobiology, Physiology, and Behavior

New and changed courses in Neurobiology, Physiology, and Behavior (NPB)

Lower Division

10. Elementary Human Physiology (3)
Lecture—3 hours. Introduction to physiology for nonscience 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 | SE.—*W. (W.)* Bautista

(change in existing course—eff. winter 16)

17. The Path to Cyborgs: Introduction to Prostheses and Human Machine Interfaces (3)
Lecture—3 hours. Interface of biology and technology. Mind-controlled prosthetic limbs, artificial organs, and implantable devices. Emphasis on basic physiological functions and how they can be replaced by devices. Suitable for majors and nonmajors. GE credit: SciEng | SE, SL.—*W. (W.)* Sutter

(new course—eff. winter 16)

90A. Lower Division Seminar: Issues in Body Weight Regulation (2)
Seminar—2 hours. Prerequisite: lower division standing, consent of instructor. Limited enrollment. Critical examination of issues in body weight regulation through shared readings, discussions, written assignments, debates and oral presentations.—C. Warden

(change in existing course—eff. winter 15)

90B. Human Color Perception (2)
Seminar—2 hours; term paper. Prerequisite: lower division standing. Class size limited to 15 students with lower division standing. 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.—Werner

(change in existing course—eff. winter 15)

90C. Current Issues in Animal Behavior (2)
Seminar—2 hours. Prerequisite: lower division standing. Limited enrollment. The mechanisms and outcomes of sexual selection (mate choice and mate competition). Theory, current models and evidence that supports or refutes the models.—*W. (W.)* Hedrick

(change in existing course—eff. winter 15)

91C. Research Conference (1)
Discussion—1 hour. Prerequisite: Lower division standing in Neurobiology, Physiology and Behavior or related biological science and consent of instructor; concurrent enrollment in course 99. Restricted to lower division students. Research findings and methods in neurobiology, physiology, and/or behavior. Presentation and discussion of research by faculty and students. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Upper Division

101D. Systemic Physiology Discussion (1)
Discussion—1 hour. Prerequisite: course 101 (concurrently); consent of instructor. Discussion and problem solving related to fundamental principles of systemic physiology as presented in course 101. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. spring 16)

110A. Foundations 1: From Molecules to Individuals (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: Biological Sciences 2A, 2B and 2C, Chemistry 2A and 2B, Physics 7A, 7B, and 7C at least concurrent. Pass One restricted to majors in Neurobiology, Physiology and Behavior. Major concepts in cell biology with special emphasis on connections between cell biology and behavior. Includes: cellular metabolism, cellular sensing and signaling, membrane structure-function, molecular switches, electrical and chemical signaling, endocrine signaling, cell cycle and differentiation, cytoskeleton, and integrative examples. Credit limited to 3 units for students who have taken Biological Sciences 104. GE credit: SciEng | SE.—*F, S. (F, S.)* Gomes, Hahn

(new course—eff. spring 16)

110B. Foundations 2: Neurobiology (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: Physics 7C and course 110A completed with a grade of C- or above. Open to declared NPB majors only. Core concepts of neurobiology including single-neuron biophysics, synapses and transmitters, neuronal development, motor systems, central pattern generation, neuronal circuits, intracellular signal transduction, sensory processing, multisensory integration, autonomic nervous system, neuromodulation, learning and memory, and higher cognition and disease. Credit limited to 2 units for students who have taken course 100. GE credit: SciEng | SE.—*F, S. (F, S.)* Britten, Sutter
(new course—eff. fall 16)

110C. Foundations 3: Physiology (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: course 110B completed with a grade of C- or above. Open to declared NPB majors only. Focuses on the structure, function, and interactions of animal organ systems in homeostasis and reproduction, and the response to perturbations of homeostasis; neural and endocrine signaling; skeletal muscle and movement; cardiovascular and respiratory systems; renal, digestive, immune, and reproductive physiology. Credit limited to two units for students who have taken course 101. GE credit: SciEng | SE.—*W, S. (W, S.)* Furlow, Usrey
(new course—eff. winter 17)

122. Developmental Endocrinology (3)
Lecture—3 hours. Prerequisite: course 101. Restricted to upper division standing. Hormonal control of development, maturation and senescence from the cellular to organismal level, with emphasis on the human. Prenatal and neonatal life, childhood and adolescence, adulthood and pregnancy, as well as the endocrinology of aging. Offered irregularly.
(change in existing course—eff. winter 15)

142. Environmental Endocrinology: Mechanisms for Life Cycles (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, 2C. Effects of environmental factors on endocrine responses that affect vertebrate life history and fitness. Introduction to finite state machine theory and allostasis in life histories and coping strategies. Focus on life history stages including nonbreeding, hibernation, reproduction, migration and moult. GE credit: SciEng | SE, WE.—*W. (W.)* Wingfield
(new course—eff. winter 15)

194HA. Neurobiology, Physiology, and Behavior–Honors (1)
Laboratory—3-12 hours. Prerequisite: senior standing; minimum 3.500 GPA in courses counted toward major; approval by the Master Adviser. Honors project in Neurobiology, Physiology, and Behavior. Laboratory research on a specific question. The project is developed with the sponsoring faculty member and approved by the student's Honors Thesis Committee. Honors thesis to be submitted upon completion of the project. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HB. Neurobiology, Physiology, and Behavior–Honors (1-4-2)
Laboratory—12 hours. Prerequisite: senior standing; minimum 3.500 GPA in courses counted toward major; approval by the Master Adviser. Honors project in Neurobiology, Physiology, and Behavior. Laboratory research on a specific question. The project is developed with the sponsoring faculty member and approved by the student's Honors Thesis Committee. Honors thesis to be submitted upon completion of the project. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

194HC. Neurobiology, Physiology, and Behavior–Honors (2)
Laboratory—3-12 hours. Prerequisite: senior standing; minimum 3.500 GPA in courses counted toward major; approval by the Master Adviser. Honors project in Neurobiology, Physiology, and Behavior. Laboratory research on a specific question. The project is developed with the sponsoring faculty member and approved by the student's Honors Thesis Committee. Honors thesis to be submitted upon completion of the project. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Graduate

211. Advanced Topics in Neuroimaging (2)
Seminar—2 hours. Prerequisite: Psychology 210 or consent of instructor. Restricted to 16 students. Critical presentation and discussion of the most influential advanced issues in neuroimaging, emphasizing fMRI design/analysis and the integration of fMRI with EEG/MEG. (Same course as Neuroscience 211 and Psychology 211.) May be repeated for credit. (S/U grading only.)—*W. (W.)* Miller
(change in existing course—eff. spring 15)

221. Cellular Neuroscience (4)
Lecture—3 hours; discussion—1.5 hours. Advanced course on cellular and subcellular organization of the nervous system. Membrane channels, sensory transduction, synaptic transmission and cellular aspects of development and learning.—*F. (F.)* Burns, McAllister, Trimmer, Zito
(new course—eff. winter 15)

270. How to Write a Fundable Grant Proposal in the Biomedical Sciences (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. Restricted to members of the Neuroscience and BMCDB graduate groups; graduate students in other biomedical programs may enroll with instructor permission. Teaches the do's and don'ts of writing grants in the biomedical sciences and the mechanisms of the review process. Offered in alternate years. May be repeated for credit. (Same course as Neuroscience 270.)—*(S.)* Burns
(new course—eff. spring 16)

Neuroscience

New and changed courses in Neuroscience (NSC)

Graduate

220. How to Give a Scientific Seminar (3)
Lecture/discussion—3 hours. Prerequisite: consent of instructor. Presentation of effective seminars. Student presentations of selected neuroscience topics in seminar format. Must be taken in two consecutive quarters. Offered in alternate years.—*W, S. (W, S.)* DeBello, McAllister
(change in existing course—eff. winter 15)

250. Biology of Neuroglia (2)
Lecture/discussion—1.5 hours. Prerequisite: consent of instructor. The properties and functions of non-neuronal or neuroglial cells in the mammalian central nervous system with relevance to neuronal development, physiology and injury response. Offered in alternate years. (S/U grading only.)—III.
(change in existing course—eff. fall 14)

270. How to Write a Fundable Grant Proposal in the Biomedical Sciences (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. Restricted to members of the Neuroscience and BMCDB graduate groups; graduate students in other biomedical programs may enroll with instructor permission. Teaches the do's and don'ts of writing grants in the biomedical sciences and the mechanisms of the review process. Offered in alternate years. May be repeated for credit. (Same course as Neurobiology, Physiology and Behavior 270.)—*(S.)* Burns
(new course—eff. spring 16)

292. Cortical Plasticity and Perception (2)
Lecture/discussion—2 hours. Prerequisite: Neurobiology, Physiology, and Behavior 100 or 112 or equivalent or consent of instructor. Examination of research articles on cortical plasticity and changes in perception. Examples drawn from studies of the somatosensory, visual, auditory, and motor cortex. Offered in alternate years. (S/U grading only.)—(II.)
(change in existing course—eff. fall 14)

Nursing, School of

New and changed courses in Nursing (NRS)

Graduate

205A. Overview of Research in Nursing Science and Health Care (2)
Lecture—2 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Provides an overview of quantitative and qualitative paradigms in scientific inquiry and the major designs related to each paradigm. First of a three-course series on research design and methods in nursing science and healthcare research.—*F. (F.)*
(new course—eff. fall 15)

205B. Quantitative Research in Nursing Science and Health Care (4)
Lecture—4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Introduces principles of quantitative data collection and analysis as applied to major study designs in nursing and health-care research. Provides a basic foundation for producing, interpreting, and applying quantitative research findings to answer clinical, system, and policy questions.—*W. (W.)*
(new course—eff. fall 15)

205C. Qualitative Research in Nursing Science and Health Care (4)
Lecture—4 hours. Prerequisite: consent of instructor. Restricted to current Ph.D. students in NSHL program or consent of instructor. Introduces principles of qualitative data collection and analysis as applied to major study designs in nursing and health-care research. Provides a basic foundation for producing, interpreting, and applying qualitative research findings to answer clinical, system, and policy questions.—*S. (S.)*
(new course—eff. fall 15)

210Y. Applied Health Informatics (4)
Lecture/discussion—1 hour; web virtual lecture—3 hours. Prerequisite: consent of instructor. Open to current student in NSHL graduate programs or consent of instructor. Within the conceptual framework of the Foundation of Knowledge model, this course integrates nursing science, information science, computer science and cognitive science to acquire, process, generate and disseminate knowledge.—*F. W. (F, W.)*
(change in existing course—eff. winter 15)

211Y. Rural Health (2-3)
Lecture/discussion—2 hours; fieldwork. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instruc-

tor. Interprofessional graduate course provides an introduction to rural health theory, research, policy, and practice, with an emphasis on rural health assets and disparities.—*F, W, S, Su. (F, W, S, Su.)* Bigbee

(new course—eff. spring 15)

220. Social, Cultural, and Behavioral Determinants of Health (2)
Lecture/discussion—2 hours. Prerequisite(s): consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Effects of globalization, political systems, local and global economies, culture, race, class, gender, and sexuality on population health.—*Su. (Su.)*

(new course—eff. summer 16)

221. Biophysical Concepts in Nursing (3)
Lecture/discussion—3 hours. Prerequisite(s): consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Pathophysiological processes that contribute to different disease states across the lifespan; case studies; selective clinical decisions using current, reliable sources of pathophysiology information.—*Su. (Su.)*

(new course—eff. summer 16)

242A. Implementation Science for Clinicians (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course focuses on identification of relevant research or improvement questions specific to patient care and evaluating the pertinent research literature related to the implementation of evidence based care. The course is 1st of a 3-course series.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

242B. Implementation Science for Clinicians (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course is a continuation of course 242A, Implementation Science for Clinicians, with a focus on implementing and evaluating a change.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

242C. Implementation Science for Clinicians (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Advanced skills in application of implementation science into systems based practice and incorporating quality improvement and patient safety knowledge with particular focus on prevention of medical errors.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

243A. Leadership in Professional Practice (2)
Lecture/discussion—2 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course is a critical examination of leadership using theoretical and philosophical perspectives with an applied approach applicable to clinical practice. The 3 course series is conducted across three quarters in the 1st, 3rd and 8th quarters.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

243B. Leadership in Professional Practice (1)
Lecture/discussion—1 hour. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course introduces professional role topics including history of the profession, the role in interprofessional teams and the health care system, transitioning to the role from other health professions, scope of practice, certification and licensure and professional organizations.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

243C. Leadership in Professional Practice (1)
Lecture/discussion—1 hour. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course expands upon the leadership role as it relates to their clinical practice and professional role. Professional role topics including: transitioning from student to practicing professional, scope of practice, the physician relationship, and more advanced concepts in ethics.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

250. Foundations of Primary Health Care (7)
Lecture/discussion—6 hours; laboratory—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course is designed to promote the understanding and clinical application of human anatomy, physiology, histology, immunology and pathology.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15

251A. Primary Health Care (8)
Lecture/discussion—8 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course introduces primary health care concepts essential to the care of common medical problems seen in primary care settings. Module content will focus on various organ systems and specialty areas.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

251B. Foundations of Primary Health Care (8)
Lecture/discussion—8 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course introduces primary health care concepts essential to the care of common medical problems seen in primary care settings.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

251C. Primary Heath Care (8)
Lecture/discussion—8 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course introduces primary health care concepts essential to the care of common medical problems seen in primary care settings.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

251D. Primary Heath Care (6)
Lecture/discussion—6 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course introduces primary health care concepts essential to the care of common medical problems seen in primary care settings.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

260. Foundations of Behavioral Health (1)
Lecture/discussion—1 hour. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course focuses on the spectrum of normal psychological development over the lifespan for children, adults and elders. Theories of stress and coping mechanism are presented as a framework for the assessment of individuals.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15

270. Foundations of Pharmacology (2)
Lecture/discussion—1 hour; laboratory—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Course introduces the student to the major concepts in pharmacology and relevant human physiology related to pharmacotherapeutics and toxicology.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

271A. Pharmacology (2)
Lecture/discussion—1 hour; laboratory—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Systems based pharmacology focused on classes of drugs used to treat disorders in specialty systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

271B. Pharmacology (2)
Lecture/discussion—1 hour; laboratory—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Systems based pharmacology focused on classes of drugs used to treat disorders in specialty systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

271C. Pharmacology (2)
Lecture/discussion—1 hour; laboratory—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Systems based pharmacology focused on classes of drugs used to treat disorders in specialty systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

272. Foundations of Pharmacology (2)
Lecture/discussion—2 hours. Prerequisite(s): consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Theoretical background to providing safe and effective care related to drugs and natural products.—*Su. (Su.)*

(new course—eff. summer 16)

273. Pharmacology Concepts in Nursing (2)
Lecture/discussion—2 hours. Prerequisite(s): courses 221, 272, 420, 421; consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Application of principles for safe and effective use of medications and natural products; use of current, reliable information to make clinical decisions.—*F. (F.)*

(new course—eff. fall 16)

290. Master's Seminar (2)
Discussion—2 hours. Prerequisite: current enrollment in the Nursing Science and Health-Care Leadership graduate program or consent of instructor. Open to NSHL MS students only or by consent of course instructor. Subject varies from quarter to quarter. Current knowledge and issues relevant to one of two

fields of emphasis: population health or health systems. May be repeated 10 times for credit.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Professional

301. Learner Centered Teaching (3-4)

Lecture/discussion—3 hours; practice—1 hour. Open to current students in the Nursing Science and Health-care Leadership graduate programs; outside students with prior educational or work experience in education may register for this class with the consent of instructor. Students will explore best practices in learner-centered teaching, performance-based curriculum models, instructional design, and assessing/evaluating student learning. Students will have experience in planning learner-centered activities that are engaging and effective in achieving desired student performance.—*S. (S.)*

(change in existing course—eff. spring 16)

302. Teaching Methods—Use of Emerging Technologies to Improve Student Learning (4)

Lecture/discussion—3 hours; practice—1 hour. Open to current students in the Nursing Science and Health-care Leadership graduate programs; outside students with prior educational or work experience in education may register for this class with the consent of instructor. Students will examine, design and develop instructional strategies that use innovative and emerging technologies to promote motivation, performance and learning in health professions education. Research findings associated with use of various emerging technologies will be examined.—*F. (F.)*

(change in existing course—eff. fall 16)

303. Professional Role Formation (2-4)

Lecture/discussion—2 hours; Laboratory—2 hours. Exploration of the educator role. Open to current students in the Nursing Science and Health-care Leadership graduate programs; outside students with prior educational or work experience in education may register for this class with the consent of instructor. Exploration of the educator role. Topics include Role Expectations, Legal and Regulatory Issues, Professional Ethics, Educational Scholarship, Individual Differences, Learning Environments, and Lifelong Learning. Placements for the optional practicum are arranged in a wide variety of settings.—*W. (W.)*

(change in existing course—eff. winter 17)

Professional

400. Basic Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Instruction and practice of the fundamental clinical skills necessary for patient care comprise this course with a primary focus on principles of effective communication in establishing the therapeutic provider-patient relationship.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

401. Basic Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410A. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410B. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410C. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410D. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410E. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410F. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410G. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related to specified specialty systems.—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. fall 15)

420. Foundations of Clinical Nursing Practice (3)

Clinical activity—9 hours. Prerequisite: consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Foundational course introduces students to core concepts of clinical nursing, including clinical reasoning, professional ethics, therapeutic communication and activities of daily living. Develop skills for the provision of safe, high quality, culturally-sensitive, person-centered care across the lifespan.—*Su. (Su.)*

(new course—eff. summer 16)

421. Health Assessment Across the Lifespan (3)

Lecture/discussion—1 hour; clinical activity—6 hours. Prerequisite: consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Prepares students to conduct a health history assessment using developmentally and culturally appropriate approaches for individuals across the lifespan. Acquire the knowledge, understanding, and skills needed to perform, interpret and communicate a health history.—*Su. (Su.)*

(new course—eff. summer 16)

422. Care of Adults with Chronic Conditions (6)

Lecture/discussion—3 hours; clinical activity—9 hours. Prerequisite: courses 221, 272, 420, and 421; consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Learn concepts central to the effective management of a variety of common chronic illness and disabling conditions across the lifespan in a variety of different settings. Practice conducting in-depth health assessments of individuals with chronic conditions.—*F. (F.)*

(new course—eff. fall 16)

423. Psychosocial Wellness & Illness (5)

Lecture/discussion—3 hours; clinical activity—6 hours. Prerequisite: courses 221, 272, 420, and 421; consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Explore the biological, psychological, cultural, societal, and environmental factors that affect psychological wellness and illness. Practice providing care to individuals and families experiencing disruptions in mental health secondary to physical or psychiatric illness, trauma or loss.—*F. (F.)*

(new course—eff. fall 16)

424. Nursing Care of Older Adults (3)

Lecture/discussion—2 hours; clinical activity—3 hours. Prerequisite: courses 221, 272, 420, 421, 273, 422, 423, 425, 223, and 426; consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Build skills for situations involving older adults, such as in the management of complex clinical and administering and interpreting standardized assessment tools. Develop plans of care for older adults experiencing a variety of geriatric syndromes.—*Su. (Su.)*

(new course—eff. summer 17)

425. Family Focused Nursing (9)

Lecture/discussion—5 hours; clinical activity—12 hours. Prerequisite: courses 221, 272, 420, 421, 273, 422, and 423; consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Focuses on family as the unit of nursing and interprofessional care. Includes influences of family on health and illness, reproductive and gender/sexuality issues, pregnancy, birth and child-rearing, and the health and illness in children and youth.—*W. (W.)*

(new course—eff. winter 17)

426. Nursing Care of Adults with Complex Illness or Injury (8)

Lecture/discussion—4 hours; clinical activity—12 hours. Prerequisite: courses 221, 272, 420, 421, 273, 422, 423 and 425; consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Prepares students to provide

comprehensive, patient-centered nursing care for patients with acute or complex illness and injury. Theory portion focuses on concepts associated with complex physiological alterations.—*S. (S.)*

(new course—eff. spring 17)

427. Fostering Healthy Communities (7)
Lecture/discussion—4 hours; clinical activity—9 hours. Prerequisite: consent of the instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Focuses on populations & communities, and emphasizes working with diverse communities in providing health promotion, chronic disease management, transitional support and crisis intervention. Develop skills to critically analyze and shape health policy and develop accessible community resources.—*S. (S.)*

(new course—eff. summer 17)

428. Capstone Clinical Nursing Practicum (8)
Clinical activity—24 hours. Prerequisite: courses 220, 221, 222A, 272, 420, 421, 429A, 222B, 273, 422, 423, 429B, 203, 212, 425, 429C, 202, 223, 426, 429D, 224, 424, 427, and 429E; consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Practicum experience is designed to facilitate transition to professional practice. Opportunity to choose a clinical practice area of interest and to work with a preceptor with expertise in that area.—*F. (F.)*

(new course—eff. fall 17)

429A. Collaborative Practice A (1)
Clinical activity—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Interprofessional course uses experiential learning activities including simulation, role play, and case studies. Concepts include but are not limited to; communication, person-centered care, ethical decision making, end-of-life decisions, culturally appropriate care, quality and safety, social justice, and professionalism.—*Su. (Su.)*

(new course—eff. summer 16)

429B. Collaborative Practice B (1)
Clinical activity—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Interprofessional course uses experiential learning activities including simulation, role play, and case studies. Concepts include but are not limited to; communication, person-centered care, ethical decision making, end-of-life decisions, culturally appropriate care, quality and safety, social justice, and professionalism.—*F. (F.)*

(new course—eff. summer 16)

429C. Collaborative Practice C (1)
Clinical activity—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Interprofessional course uses experiential learning activities including simulation, role play, and case studies. Concepts include but are not limited to; communication, person-centered care, ethical decision making, end-of-life decisions, culturally appropriate care, quality and safety, social justice, and professionalism.—*W. (W.)*

(new course—eff. summer 16)

429D. Collaborative Practice D (1)
Clinical activity—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Interprofessional course uses experiential learning activities including simulation, role play, and case studies. Concepts include but are not limited to; communication, person-centered care, ethical decision making, end-of-life decisions, culturally appropriate care, quality and safety, social justice, and professionalism.—*S. (S.)*

(new course—eff. summer 16)

429E. Collaborative Practice E (1)
Clinical activity—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Interprofessional course uses experiential learning activities including simulation, role play, and case studies. Concepts include but are not limited to; communication, person-centered care, ethical decision making, end-of-life decisions, culturally appropriate care, quality and safety, social justice, and professionalism.—*S. (S.)*

(new course—eff. summer 17)

429F. Collaborative Practice F (1)
Clinical activity—3 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Group or by consent of the instructor. Interprofessional course uses experiential learning activities including simulation, role play, and case studies. Concepts include but are not limited to; communication, person-centered care, ethical decision making, end-of-life decisions, culturally appropriate care, quality and safety, social justice, and professionalism.—*F. (F.)*

(new course—eff. fall 17)

440. Preparation for Clinical Practice (1-3)
Clinical Activity—3-9 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Students are placed in clinical settings and/or clinical simulation laboratories to observe and practice the integration of clinical skills with direct supervision by faculty.—*S. (S.)*

(change in existing course—eff. winter 16)

450A. Supervised Clinical Practice-Primary Health Care (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Each of the required primary care rotations is a four-week supervised clinical practice experience in primary care, under the supervision of an appropriate community-based primary care provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

450B. Supervised Clinical Practice-Primary Health Care (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Each of the required primary care rotations is a four-week supervised clinical practice experience in primary care, under the supervision of an appropriate community-based primary care provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

450C. Supervised Clinical Practice-Primary Health Care (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Each of the required primary care rotations is a four-week supervised clinical practice experience in primary care, under the supervision of an appropriate community-based primary care provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

450D. Supervised Clinical Practice-Primary Health Care (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Each of the required primary care rotations is a four-week supervised clinical practice experience in primary care, under the supervision of an appropriate community-based primary care provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

450E. Supervised Clinical Practice-Primary Health Care (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Each of the required primary care rotations is a four-week supervised clinical practice experience in primary care, under the supervision of an appropriate community-based primary care provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

451. Supervised Clinical Practice-Pediatrics (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Four-week clinical rotation under the supervision of an appropriate community-based Pediatric Medicine provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

452. Supervised Clinical Practice-Women's Health (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Four-week clinical rotation under the supervision of an appropriate community-based women's health and prenatal care provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

453. Supervised Clinical Practice-Mental Health (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Four-week clinical rotation under the supervision of an appropriate community-based psychiatrist, psychiatric/mental health provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

454. Supervised Clinical Practice-Emergency Medicine (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Four-week clinical rotation under the supervision of an appropriate Emergency Medicine provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

455. Supervised Clinical Practice-Inpatient Surgery (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Four-week clinical experience under the supervision of an appropriate surgical provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 16)

456. Supervised Clinical Practice-Inpatient Medicine (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Four-week clinical rotation under the supervision of an appropriate inpatient provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 16)

459. Supervised Clinical Practice-Other Specialties (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Two four-week selective rotations are available to accommodate student interest and/or accommodate a student's clinical deficits identified by the program. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 16)

471. Supervised Clinical Practice-Geriatrics (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Four-week clinical rotation under the supervision of an appropriate community-based Geriatric Medicine provider per accreditation requirements. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 16)

475. Supervised Clinical Practice-Acute Care (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Two- to four-week rotation focus on providing acute care in inpatient settings. Students will work directly with specific inpatient units. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 16)

480. Supervised Clinical Practice-Rural Health (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Rural health rotations focus on providing care in medically underserved rural sites. Students will experience care across the continuum in ambulatory, inpatient, and community based settings. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 16)

490. Supervised Clinical Practice-Quality and Safety (1-16)
Clinical activity—48 hours. Prerequisite: consent of instructor. Open to graduate students in the Nursing Science and Health-Care Leadership Graduate Degree programs or by consent of instructor. Clinical rotation that allow students to work directly with patient safety and quality improvement committees in a various organizations. May be repeated five times for credit.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. winter 16)

493A. Improving Quality in Health Care (4)
Lecture/discussion—4 hours. Open to Nursing Science and Health-Care Leadership Students and/or consent of instructor. Working in interdisciplinary teams, will explore the theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interprofessional educational experience. (S/U grading only; deferred grading only, pending completion of sequence.)—*F. (F.)*
(change in existing course—eff. spring 16)

493B. Improving Quality in Health Care (4)
Lecture/discussion—4 hours. Open to Nursing Science and Health-Care Leadership Students and/or consent of instructor. Working in interdisciplinary teams, will explore advanced theory and practical methods being employed to make improvement in health care systems while providing an opportunity for interprofessional educational experience (S/U grading only; deferred grading only, pending completion of sequence.)—*W. (W.)*
(change in existing course—eff. spring 16)

Nutrition

New and changed courses in Nutrition (NUT)

Upper Division

111AV. Introduction to Nutrition and Metabolism (3)
(cancelled course—eff. spring 16)

111AY. Introduction to Nutrition and Metabolism (3)
Web virtual lecture—3 hours; lecture/discussion—1 hour. Prerequisite: Chemistry 8B; Neurology, Physiology, and Behavior 101 or the equivalent. Restricted to upper division or graduate level students only. Introduction to metabolism of protein, fat and carbohydrate: the biological role of vitamins and minerals; nutrient requirements during the life cycle; assessment of dietary intake and nutritional status. Not open for credit to students who have completed course 101 or 111AV. GE credit: SciEng | SE.—*W. (W.)*
(new course—eff. fall 16)

105. Nutrition and Aging (3)
Lecture—3 hours. Prerequisite: course 111AV or 111AY and Animal Biology 103 or the equivalent. Role of nutrition in the aging process from both an organismal/cell perspective, including demographics, theories of aging, nutrition and evolution, nutritional manipulation and life-span extension, and nutrition's impact on the diseases of aging. GE credit: SciEng | SE.—*S. (S.)*
(change in existing course—eff. spring 17)

111AV. Introduction to Nutrition and Metabolism (3)
Web virtual lecture—3 hours. Prerequisite: Chemistry 8B, Neurobiology, Physiology, and Behavior 101 or the equivalent. Restricted to upper division or graduate level students only. Introduction to metabolism of protein, fat and carbohydrate; the biological role of vitamins and minerals; nutrient requirements during the life cycle; assessment of dietary intake and nutritional status. Not open for credit to students who have completed course 101. GE credit: SciEng | SE.—*S. (S.)* McDonald
(change in existing course—eff. winter 15)

111B. Recommendations and Standards for Human Nutrition (2)
Lecture—2 hours. Prerequisite: Chemistry 8B; Neurology, Physiology, and Behavior 101 or the equivalent, course 111AV or 111AY. Critical analysis of the development of nutritional recommendations for humans. Topics include history of modern recommendations, development of the Recommended Dietary Allowance (RDA) and other food guides; the Dietary Reference Intakes (DRI); administrative structure of regulatory agencies pertinent to nutrition recommendations; introduction to scientific methods used to determine the recommendations; food labeling laws; nutrition recommendations in other countries and cultures. Not open for credit to students who have completed course 111.—*S. (S.)* Zidenberg-Cherr
(change in existing course—eff. spring 17)

112. Nutritional Assessment (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Animal Biology 102 and 103 or course 101, Nutrition 111AV or 111AY, Statistics 13. Restricted to upper division or graduate level Nutrition students only. Methods of human nutritional assessment, including dietary, anthropometric, biochemical methods. Principles of precision, accuracy, and interpretation of results for individuals and populations. GE credit: SciEng | QL, SE.—*S. (S.)* Satre, Stewart
(change in existing course—eff. fall 16)

113. Principles of Epidemiology in Nutrition (4)
Lecture/discussion—4 hours. Prerequisite: Plant Sciences 120 or equivalent. Introduction to epidemiology as it relates to the field of nutrition, including study design, principles of epidemiologic inference, criteria for causality, and interpreting measures of disease risk. GE credit: SciEng | QL, SE.—*F. (F.)* Stewart
(new course—eff. fall 14)

114. Developmental Nutrition (4)
Lecture—4 hours. Prerequisite: Animal Biology 102 and 103; course 111AV or 111AY, 111B. Role of nutritional factors in embryonic and postnatal development. GE credit: SciEng, Wrt | SE.—*W. (W.)* Keen
(change in existing course—eff. winter 17)

115. Animal Nutrition (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Chemistry 8B or 118B or consent of instructor. Comparative differences among animals in digestion and metabolism of nutrients. Nutrient composition of feeds, digestive systems, digestion, absorption, feeding strategies. GE credit: SciEng, Wrt | OL, QL, SE, SL, VL, WE.—*W. (W.)* DePeters
(change in existing course—eff. winter 17)

116A. Clinical Nutrition (3)
Lecture—3 hours. Prerequisite: course 111AV or 111AY, 111B, 112; Neurobiology, Physiology, and Behavior 101 or the equivalent. Biochemical and physiological bases for therapeutic diets. Problems in planning diets for normal and pathological conditions. GE credit: SciEng | SE.—*F. (F.)* Steinberg
(change in existing course—eff. fall 16)

116B. Clinical Nutrition (3)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 111AV or 111AY, 111B, 112; Neurobiology, Physiology, and Behavior 101 or the equivalent. Biochemical and physiological bases for therapeutic diets. Problems in planning diets for normal and pathological conditions. GE credit: SciEng | SE.—*W. (W.)* Zivkovic
(change in existing course—eff. winter 17)

116BL. Clinical Nutrition Practicum (3)
Lecture—1 hour; laboratory—3 hours; discussion—1 hour. Prerequisite: course 116AL, and 116B (may be taken concurrently). Fundamental principles of planning and evaluating therapeutic diets and

patient education for pathological conditions covered in 116B. Continuation of course 116AL. GE credit: SciEng | SE.—*W. (W.)*

(change in existing course—eff. winter 17)

117. Experimental Nutrition (6)
Lecture—3 hours; laboratory—6 hours; extensive writing. Prerequisite: course 111AV or 111AY, 111B, 112, Biological Sciences 102, 103; Molecular and Cellular Biology 120L or other laboratory course in biochemistry is recommended. Methods of assessing nutritional status. Application of chemical, microbiological, chromatographic and enzymatic techniques to current problems in nutrition. GE credit: SciEng, Wrt | SE, WE.—*F. (F.)* Gaikwad

(change in existing course—eff. fall 16)

118. Community Nutrition (4)
Lecture—4 hours. Prerequisite: course 111AV or 111AY, 111B, and 116A. Nutrition problems in contemporary communities and of selected target groups in the United States and in developing countries. Nutrition programs and policy, principles of nutrition education. GE credit: SciEng | SE, SL.—*W. (W.)* Heinig

(change in existing course—eff. winter 17)

119B. International Community-Based Nutritional Assessment (6)
Lecture—2 hours; fieldwork—12 hours. Prerequisite: course 119A and consent of instructor. Restricted to upper division students in Clinical Nutrition, Community Nutrition, Dietetics, and Nutrition Science. A six-week summer course in Peru. Implementation of a community-based nutritional assessment survey, including development of the survey instrument, selection of the study sample, collection and verification of data, and analysis and interpretation of the results; the project will be carried out by paired participation of students and faculty members of UC Davis and the collaborating foreign institution.

(change in existing course—eff. winter 15)

120AN. Nutritional Anthropology (4)
Lecture—3 hours, discussion—1 hour. Prerequisite: course 10 and Anthropology 2 recommended. Nutritional anthropology from historical and contemporary perspectives; the anthropological approach to food and diet; field work methods; case histories that explore food patterns and their nutritional implications. GE credit: SciEng or SocSci, Div | SE, SS.—*Su. (Su.)* Kurtz

(change in existing course—eff. spring 17)

120BN. Nutritional Geography (4)
Lecture—3 hours; discussion—1 hour. Nutritional geography from historical and contemporary perspectives; the geographical approach to food and diet; cultural and environmental factors that influence dietary practices; food-related landscapes and patterns. GE credit: SciEng or SocSci, Div | SE, SS.

(change in existing course—eff. fall 16)

122. Ruminant Nutrition and Digestive Physiology (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Biological Sciences 2A, 2B, 2C; Animal Biology 103 or Biological Sciences 103; Animal Science 100 or Neurobiology, Physiology, and Behavior 101 or consent of instructor; Mathematics 16B recommended. Study of nutrient utilization as influenced by the unique aspects of digestion and fermentation in ruminants, both domestic and wild. Laboratories include comparative anatomy, feed evaluation, digestion kinetics using fistulated cows, computer modeling, and microbial exercises. GE credit: SciEng | QL, SE.—*S. (S.)* Fadel

(change in existing course—eff. spring 17)

123L. Comparative Animal Nutrition Laboratory (1)
Laboratory—3 hours. Prerequisite: Animal Biology 103 or Biological Sciences 103. Laboratory exercises leading to written reports on establishment of nutritional requirements and formulation of complete diets for laboratory, companion, zoo and wild animals.—*S. (S.)* Klasing

(change in existing course—eff. spring 17)

123. Comparative Animal Nutrition (3)
Lecture—3 hours. Prerequisite: Animal Biology 103 or Biological Sciences 103. Restricted to upper division and graduate level students. Comparative nutrition of animals; including laboratory, companion, zoo, and wild, animals. Digestion and metabolic adaptations required for animal species to consume diverse diets. Relation of nutrition to metabolic adaptations and physiological states, including growth, reproduction, and diseases. GE credit: SciEng | SE.—*S. (S.)* Klasing

(change in existing course—eff. spring 17)

124. Nutrition and Feeding of Finfishes (3)
Lecture—3 hours. Prerequisite: Animal Biology 103 or Biological Sciences 103. Principles of nutrition and feeding of fishes under commercial situations; implication of fish nutrition to the environment and conservation of endangered species. GE credit: SciEng | QL, SE, SL.

(change in existing course—eff. fall 16)

129. Journalistic Practicum in Nutrition (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: course 111AV or 111AY, 111B; a course in written or oral expression or consent of instructor. Critical analysis and discussion of current, controversial issues in nutrition; the use of journalistic techniques to interpret scientific findings for the lay public. Students will be required to write several articles for campus media. Course may be repeated one time for credit. GE credit: SciEng | OL, SE, SL, WE.

(change in existing course—eff. spring 17)

130. Experiments in Nutrition: Design and Execution (2)
Laboratory—6 hours. Prerequisite: consent of instructor; course 111AV, 111AY, 111B or 114 recommended. Experiments in current nutritional problems. Experimental design: students choose project and, independently or in groups of two-three, design a protocol, complete the project, and report findings. May be repeated for credit up to six times (three times per instructor) with consent of instructor. GE credit: SciEng | SE.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

190. Proseminar in Nutrition (1)
Seminar—1 hour. Prerequisite: course 111AV or 111AY, 111B. Restricted to senior standing. Discussion of human nutrition problems. Each term will involve a different emphasis among experimental, clinical, and dietetic problems of community, national and international scope. May be repeated two times for credit with consent of instructor. GE credit: SciEng | OL, SE, VL.—*F, W, S. (F, W, S.)* Zidenberg-Cherr

(change in existing course—eff. fall 16)

197T. Tutoring in Nutrition (1-2)
Discussion/laboratory—3 or 6 hours. Prerequisite: Nutrition Science, Clinical Nutrition or related major; consent of instructor. Tutoring of students in nutrition courses, assistance with discussion groups or laboratory sections, weekly conference with instructor in charge of course: written evaluations. May be repeated if tutoring a different course. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

Graduate

202. Advanced Nutritional Energetics (2)
(cancelled course—eff. fall 15)

253. Control of Energy Balance and Body Weight (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: course 210A or 210B or consent of instructor. Comprehensive study of the biochemical, nutritional and physiological mechanisms controlling food intake, body composition and energy expenditure. Subject matter will be approached through lectures and discussions where students and staff will critically evaluate the literature. Offered in alternate years.—*S.* Havel, Ramsey

(change in existing course—eff. spring 16)

261. Lactation and Infant Nutrition (6)
Lecture—5 hours; discussion—1 hour. Prerequisite: course 260. Restricted to students enrolled in the MAS program; Nutrition graduate students by consent of instructor. Overview of the physiological and biochemical processes underlying human lactation and nutritional needs of both mother and infant. Development of skills in assessment, nutrition counseling, education and support of new mothers and their families.—*W. (W.)* Heinig

(change in existing course—eff. winter 15)

262. Child and Adolescent Nutrition (6)
Lecture—5 hours; discussion—1 hour. Prerequisite: course 261. Restricted to students enrolled in the MAS program; Nutrition graduate students by consent of instructor. Relationships among nutrition, growth, and development during childhood and adolescence. Nutritional assessment for normal and high risk groups; psychological, social, and economic factors contributing to nutritional status. Nutritional needs and interventions for special groups, including obese children/adolescents, athletes, and eating disordered.—*(S.)* Heinig

(change in existing course—eff. winter 15)

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; Nutrition 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.—*(F.)* Heinig

(change in existing course—eff. winter 15)

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; Nutrition 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.—*W.* Heinig

(change in existing course—eff. winter 15)

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; Nutrition 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.—*W.* Heinig

(change in existing course—eff. winter 15)

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; Nutrition 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.—*S.* Heinig

(change in existing course—eff. winter 15)

270. Scientific Ethics in Biomedical Studies: Emphasis on Nutrition (3)

Lecture—1 hour; discussion—1 hour; term paper. Restricted to graduate standing or consent of instructor. Scientific ethics in biomedical studies, especially nutrition. Discussion and case study presentations on scientific integrity, fraud, misconduct, conflict of interest, human and animal research protections. Not open for credit to students who have completed course 492B.—Steinberg

(change in existing course—eff. winter 15)

294A. Current Topics in Developmental Nutrition (2)

Seminar—2 hours. Prerequisite: course 114 or 252 or consent of instructor. Restricted to graduate standing or consent of instructor. Effects of nutrition on embryology, morphogenesis, and developmental mechanisms. May be repeated for credit when topic differs.—*F. (F.)*

(change in existing course—eff. winter 15)

Nutritional Biology (A Graduate Group)

New and changed courses in Nutritional Biology (NUB)

Graduate

210B. Advanced Nutrition II: Nutrition and Cell Biology, Micronutrients (5)

Lecture—4 hours; discussion—1 hour. Prerequisite: admission to the Nutritional Biology Graduate Group or consent of instructor. Class size limited to 30 students. Effects of nutrients at the cellular level. Principles of cell signaling and signaling modulation by nutrients. Advanced concepts of mineral and vitamin metabolism. Mineral and vitamin deviencies and associated pathologies.—*W. (W.)* Haj

(new course—eff. fall 14)

Pharmacology and Toxicology

New and changed courses in Pharmacology and Toxicology (PTX)

Graduate

215. Electrophysiology Techniques and Applications (3)

Lecture—1.5 hours; discussion—1.5 hours. Broad scope of topics in electrophysiology techniques and applications. (Same course as Molecular, Cellular and Integrative Physiology 215.) (S/U grading only.)—*S. (S.)* Chen

(new course—eff. spring 15)

277. Molecular Mechanisms in Cancer and other Diseases (3)

Lecture/discussion—2 hours; project. Prerequisite: undergraduate or graduate introductory course in cell biology (such as Biological Sciences 104), and general biochemistry (Molecular & Cellular Biology 121 or 122) required; course 202 recommended. Restricted to graduate standing or consent of instructor. Exploration of cutting edge investigations on the underlying mechanisms of cancer biology, cancer therapy and other diseases. Current medical research in Cancer and other diseases, as it spans the bench to bedside.—*S. (S.)* Goldkorn

(change in existing course—eff. winter 15)

Philosophy

New and changed courses in Philosophy (PHI)

Lower Division

5. Critical Reasoning (4)

Lecture—3 hours; discussion—1 hour. Criteria of good reasoning in everyday life and in science. Topics to be covered may include basic principles of deduction and induction; fallacies in reasoning; techniques and aids to reasoning; principles of scientific investigation; aids to clarity. Not open for credit to students who have completed course 6. GE credit: Wrt | WE.

(change in existing course—eff. winter 15)

7Y. Philosophical Perspectives on Sexuality (3)

Web virtual lecture—1.5 hours; discussion—1 hour. Philosophical issues related to sexuality, including, but not limited to, ethical and social issues regarding sexual practice, orientation, classification and identity. Not open for credit to students who have completed course 7. GE credit: ArtHum | AH, DD.—*W. (W.)* Sennet

(new course—eff. winter 15)

10. Introduction to Cognitive Science (4)

Lecture/discussion—4 hours. Introduction to the interdisciplinary cognitive scientific approach to the study of mind, drawing concepts and methods from psychology, philosophy, linguistics, artificial intelligence, and other disciplines. GE credit: SciEng | SE, SL.—*F. (F.)* Molyneux

(new course—eff. fall 14)

13. Minds, Brains, and Computers (3)

Lecture—3 hours. Computational theories of the nature of the mind. The mind as a computer process. The possibility of machine intelligence, consciousness, and mentality. Not open for credit for students who have completed course 13G for four units. GE credit: SciEng or SocSci | SE or SS, SL.—*S. (S.)* Molyneux

(change in existing course—eff. fall 14)

13G. Minds, Brains, and Computers with Discussion (4)

Lecture—3 hours; discussion—1 hour. Computational theories of the nature of the mind. The mind as a computer process. The possibility of machine intelligence, consciousness, and mentality. Not open for credit for students who have completed course 13. GE credit: ArtHum or SciEng | AH or SE, SL, WE.—*S. (S.)* Molyneux

(change in existing course—eff. fall 14)

15. Introduction to Bioethics (4)

Lecture—3 hours; discussion–1 hour. Critical analysis of normative issues raised by contemporary medicine and biology. Possible topics include euthanasia, abortion, reproductive technologies, genetic engineering, practitioner/patient relationships, allocation of medical resources, experimentation on human subjects. GE credit: ArtHum, Wrt | AH, WE.—Rulli

(change in existing course—eff. fall 16)

Upper Division

102. Theory of Knowledge (4)

Lecture—3 hours; extensive writing; discussion. Prerequisite: one course in philosophy recommended. Analysis of the concept of knowledge. The relation between knowledge, belief and truth. Development of foundationalist, coherentist and externalist theories of justified belief. Examination of skepticism. GE credit: ArtHum, Wrt | AH, WE.—*F. (F.)* Mattey

(change in existing course—eff. fall 16)

104. The Evolution of Mind (4)

Lecture/discussion—3 hours; term paper. Prerequisite: one previous course in Philosophy recommended. The interpretation of human thought and behavior through the lens of evolutionary theory. Topics include the nature/nurture debate concerning cognitive and other mental capacities and traits, and the interaction between evolution, learning and development. GE credit: SocSci | SS, WE.—*S. (S.)*

(change in existing course—eff. fall 16)

108. Philosophy of the Biological Sciences (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: one course in biology or one course in philosophy recommended. Nature of biological theories, explanations, and models. Problems of evolutionary theory, ecology, genetics, and sociobiology. Science and human values. GE credit: ArtHum or SciEng, Wrt | AH or SE, SL, WE.—Griesemer, Millstein

(change in existing course—eff. fall 16)

111. Philosophy of Space and Time (4)

Lecture/discussion—3 hours; term paper. Prerequisite: one upper division philosophy course recommended. Philosophical problems of space and time. The philosophical implications of space-time theories, such as those of Newton and Einstein. Topics may include the nature of geometry, conventionalism, absolutist versus relationist views of space and time, philosophical impact of relativity theory. Offered in alternate years. GE credit: AH, WE.—*W. (W.)* Gilmore

(change in existing course—eff. fall 16)

114. History of Ethics (4)

Lecture/discussion—4 hours. Prerequisite: one previous philosophy course recommended. Study of some classic texts from the history of philosophical writing on central problems of ethics, taking the form either of a survey or concentrated examination of selected historical figures. Readings from such philosophers as Aristotle, Butler, Hume, Kant, Mill. GE credit: ArtHum, Wrt | WC.—Mattey, Oshana

(change in existing course—eff. fall 16)

115. Problems in Normative Ethics (4)

Lecture/discussion—3 hours; term paper. Prerequisite: one previous course in philosophy recommended. Moral philosophy studied through examination of moral problems and the moral principles and common sense intuitions that bear on them. Problems discussed may include: animal rights, fetal rights, euthanasia, justice and health care, war, nuclear deterrence, world hunger, environmental protection. GE credit: ArtHum, Wrt | AH, WE.—*S. (S.)* Millstein

(change in existing course—eff. fall 16)

116. Ethical Theories (4)

Lecture/discussion—3 hours; term paper. Prerequisite: one course in ethics recommended. Study of fundamental concepts and problems in ethical theory through an examination of classical and contemporary philosophical theories of ethics. Among the theories that may be discussed are utilitarianism, virtue theory, theories of natural rights, Kantian ethical theory, and contractarianism. GE credit: AH, WE.—*W. (W.)* Copp

(change in existing course—eff. fall 16)

121. Bioethics (4)

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 15 recommended. In-depth coverage of topics in bioethics including resource allocation, measures of health and disease/disabil-

ity, public health, and ethical issues related to research on human subjects and emerging technologies. GE credit: AH, WE.—Rulli

(change in existing course—eff. spring 16)

170. Spinoza and Leibniz (4)
Lecture/discussion—4 hours. Prerequisite: course 22 recommended. Seventeenth-century philosophical writings of Spinoza and Leibniz. Topics drawn from both philosophers include: the nature and existence of God, the nature of mind, the relation between mind and body, human freedom, metaphysical monism vs. pluralism. Offered in alternate years. GE credit: ArtHum | AH, WE.—*F.* Mattey

(change in existing course—eff. fall 14)

175. Kant (4)
Lecture/discussion—4 hours. Prerequisite: course 22 recommended. Immanuel Kant's *Critique of Pure Reason* and related writings. Topics include the nature of human cognition, space and time, *a priori* concepts, substance, causality, human freedom, and the existence of God. Offered irregularly. GE credit: AH, WE.—*S. (S.)* Mattey

(change in existing course—eff. fall 16)

178. Frege (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one upper-division course in philosophy recommended; consent of instructor. Development of Gottlob Frege's views about language and logic. Formulation of his grand mathematical idea known as logicism and how it led to the philosophy of language. GE credit: AH, WE.—May

(change in existing course—eff. fall 16)

189A. Special Topics in Philosophy; History of Philosophy (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in History of Philosophy. May be repeated up to eight units of credit. GE credit: ArtHum | AH, WE.—Mattey, Szaif

(change in existing course—eff. summer 15)

189B. Special Topics in Philosophy (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Metaphysics. May be repeated up to eight units of credit. GE credit: ArtHum | AH, WE.—*W. (W.)* Gilmore

(change in existing course—eff. summer 15)

189C. Special Topics in Philosophy; Theory of Knowledge (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Theory of Knowledge. May be repeated up to eight units of credit. GE credit: WE.—*S. (S.)* Mattey, Molyneux

(change in existing course—eff. summer 15)

189D. Special Topics in Philosophy; Ethics (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Ethics. May be repeated up to eight units of credit. GE credit: ArtHum | AH, WE.—Copp, Oshana

(change in existing course—eff. summer 15)

189E. Special Topics in Philosophy; Political Philosophy (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Political Philosophy. May be repeated up to eight units of credit. GE credit: ArtHum | AH, WE.—Oshana

(change in existing course—eff. summer 15)

189F. Special Topics in Philosophy; Philosophy of Law (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Philosophy of Law. May be repeated up to eight units of credit. GE credit: ArtHum | AH, WE.—Oshana

(change in existing course—eff. summer 15)

189G. Special Topics in Philosophy; Aesthetics (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Aesthetics. May be repeated up to eight units of credit. GE credit: ArtHum | AH, WE.

(change in existing course—eff. summer 15)

189H. Special Topics in Philosophy; Philosophy of Mind (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Philosophy of Mind. May be repeated up to eight units of credit. GE credit: ArtHum | AH, WE.—Molyneux

(change in existing course—eff. summer 15)

189I. Special Topics in Philosophy; Philosophy of Science (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Philosophy of Science. May be repeated up to eight units of credit. GE credit: ArtHum or SocSci | AH or SE, WE.—Griesemer, Landry, Millstein

(change in existing course—eff. summer 15)

189J. Special Topics in Philosophy; Philosophy of Language (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Philosophy of Language. May be repeated up to eight units of credit. GE credit: ArtHum | AH.—May, Sennet

(change in existing course—eff. summer 15)

189K. Special Topics in Philosophy; Logic (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: one course in the area of the special topic. Special topics in Logic. May be repeated up to eight units of credit. GE credit: ArtHum | AH.—*S. (S.)* Antonelli

(change in existing course—eff. summer 15)

194HA. Honors Research Project (4)
Tutoring—3 hours; term paper. Prerequisite: consent of instructor; open to students who are members of the honors program in Philosophy. Completion of honors research project under direction of an instructor. Consult departmental major adviser for list of instructors available in a given quarter.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

194HB. Honors Research Project (4)
Tutoring—3 hours; term paper. Prerequisite: consent of instructor; open to students who are members of the honors program in Philosophy. Completion of honors research project under direction of an instructor. Consult departmental major adviser for list of instructors available in a given quarter.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

Graduate

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.—*F. (F.)*

(change in existing course—eff. winter 15

200B. Proseminar II (4)
Seminar—3 hours; term paper. Prerequisite: consent of instructor. Open 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.—*F. (F.)*

(change in existing course—eff. winter 15)

238. Philosophy of Language Workshop (4)
Seminar—3 hours; extensive writing. Open to graduate students only. Discussion of recently published, unpublished and in-progress research in philosophy of language, including work on the relation of language and mind, of language and logic, and linguistic theory. May be repeated for credit when topic differs.—May

(change in existing course—eff. winter 15)

Physical Education

New and changed courses in Physical Education (PHE)

Upper Division

1. Physical Activities (0.5)
Laboratory—2 hours. Physical Education Activities classes offered in the following areas: aquatics, personal fitness, martial arts, individual sports, and team sports. These academic classes are instructional rather than recreational and are intended to improve activity specific skills and knowledge. May be repeated, along with course 6, for a combined total of 6 units. Credit limited to 6 units in combination with course 6. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

6. Preparation and Participation in ICA Competition (1)
Practice—3 hours. Prerequisite: consent of instructor (head coach). Classes offered in all UC Davis intercollegiate athletic sports and are restricted to student-athletes who are members. May be repeated, along with course 1, for a combined total of 6 units. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

29. Basic Scuba (2)
(cancelled course—eff. fall 14)

Upper Division

128A. Intermediate Scuba Diving (4)
(cancelled course—eff. fall 14)

128B. Research Diving Techniques (4)
(cancelled course—eff. fall 14)

Physicians Assistant Studies

New and changed courses in Physicians Assistant Studies (PAS)

Graduate

299. Research and Writing (1-4)
Extensive writing or discussion—3-12 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Students in the Nursing Science and Health-Care Leadership graduate programs conduct research and writing under the supervision of a faculty member. Students may repeat this course for

credit in different quarters, depending on the length of their program of study to complete their Master's Degree. (S/U grading only.) —*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

Professional

400. Basic Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Instruction and practice of the fundamental clinical skills necessary for patient care comprise this course with a primary focus on principles of effective communication in establishing the therapeutic provider-patient relationship.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

401. Basic Clinical Skills (1-4)

Lecture/discussion—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410A. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours.Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410B. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related specialty systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410C. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related to specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410D. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related to specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410E. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related to specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410F. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Continuation of focus on history taking and physical examination skills with advanced/specialized content related to specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

410G. Advanced Clinical Skills (1-4)

Lecture/laboratory—1-4 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs. Continuation of focus on history taking and physical examination skills with advanced/specialized content related to specified systems.—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. fall 15)

440. Preparation for Clinical Practice (1-3)

Clinical activity—36 hours. Prerequisite: consent of instructor. Open to Graduate Students in the Nursing Science and Health-Care Leadership Graduate Degree programs, or by consent of instructor. Students are placed in clinical settings and/or clinical simulation laboratories to observe and practice the integration of clinical skills with direct supervision by faculty.—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. spring 14

Physics

New and changed courses in Physics (PHY)

Lower Division

1A. Principles of Physics (3)

Lecture—3 hours. Prerequisite: trigonometry or consent of instructor. Mechanics. Introduction to general principles and analytical methods used in physics with emphasis on applications in applied agricultural and biological sciences and in physical education. Not open to students who have received credit for course 7B or 9A. GE credit: SciEng | SE.—*F. (F.)*

(change in existing course—eff. winter 15)

9B. Classical Physics (5)

Lecture—3 hours; laboratory—2.5 hours; discussion—1 hour. Prerequisite: course 9A, Mathematics 21C, 21D (may be taken concurrently). Continuation of course 9A. Fluid mechanics, thermodynamics, wave phenomena, optics. Only two units of credit for students who have completed course 7A; not open for credit to students who have completed course 9HB, 9HC, or Engineering 105. GE credit: SciEng | SE.—*F. W. (F, W.)*

(change in existing course—eff. winter 15)

10C. Physics of California (3)

Lecture—3 hours. Atmospheric phenomena common in CA, local weather patterns and microclimes. Applications to CA energy, water, and resource management policies. Physics underlying regional sports in CA. Not open for credit to students who have completed any quarter of Physics 9 or 9H, or any upper division physics course. GE credit: SciEng | SE, VL, SL.—*F. (F.)* Bradac

(new course—eff. fall 14)

90X. Lower Division Seminar (2)

Seminar—2 hours. Prerequisite: lower division standing; consent of instructor. Limited enrollment. Examination of a special topic in Physics through shared readings, discussions, written assignments, or special activities such as laboratory work. May be repeated for credit. GE credit: SciEng | SE.

(change in existing course—eff. winter 15)

Upper Division

105A. Analytical Mechanics (4)

Lecture—3 hours; extensive problem solving. Prerequisite: courses 9B, 9C, 9D and Mathematics 21D, 22A, and 22B passed with grade C– or better; or consent of department; course 104A and 105A passed with a grade C– or better or consent of department required for 105B. Principles and applications of Newtonian mechanics; introduction to Lagrange's and Hamilton's equations. GE credit: SciEng | SE.—*F. (F.)* Svoboda

(change in existing course—eff. summer 15)

105B. Analytical Mechanics (4)

Lecture—3 hours; extensive problem solving. Prerequisite: courses 9B, 9C, 9D and Mathematics 21D, 22A, and 22B passed with grade C– or better; or consent of department; course 104A and 105A passed with a grade C– or better or consent of department required for 105B. Principles and applications of Newtonian mechanics; introduction to Lagrange's and Hamilton's equations. GE credit: SciEng | SE.—*W. (W.)* Conway

(change in existing course—eff. summer 15)

130A. Elementary Particle Physics (4)

Lecture—3 hours; extensive problem solving. Prerequisite: course 115A passed with a grade of C- or better or consent of instructor. Properties and classification of elementary particles and their interactions. Experimental techniques. Conservation laws and symmetries. Strong, electromagnetic, and weak interactions. Introduction to Feynman calculus. GE credit: SciEng | SE.—*W. (W.)* Tripathi

(change in existing course—eff. summer 15)

130B. Elementary Particle Physics (4)

Lecture—3 hours; extensive problem solving. Prerequisite: course 115A passed with a grade of C- or better or consent of instructor. Properties and classification of elementary particles and their interactions. Experimental techniques. Conservation laws and symmetries. Strong, electromagnetic, and weak interactions. Introduction to Feynman calculus. GE credit: SciEng | SE.—*S. (S.)* Tripathi

(change in existing course—eff. summer 15)

140A. Introduction to Solid State Physics (4)

Lecture—3 hours; extensive problem solving. Prerequisite: course 115A or the equivalent passed with a grade of C- or better or consent of instructor. Survey of fundamental ideas in the physics of solids, with selected device applications. Crystal structure, x-ray and neutron diffraction, phonons, simple metals, energy bands and Fermi surfaces, semiconductors, optical properties, magnetism, superconductivity. GE credit: SciEng | SE.—*W. (W.)* Scalettar

(change in existing course—eff. summer 15)

140B. Introduction to Solid State Physics (4)

Lecture—3 hours; extensive problem solving. Prerequisite: course 115A or the equivalent passed with a grade of C- or better or consent of instructor. Survey of fundamental ideas in the physics of solids, with selected device applications. Crystal structure, x-ray and neutron diffraction, phonons, simple metals, energy bands and Fermi surfaces, semiconductors, optical properties, magnetism, superconductivity. GE credit: SciEng | SE.—*S. (S.)* Scalettar

(change in existing course—eff. summer 15)

157. Astronomy Instrumentation and Data Analysis Laboratory (4)

laboratory—8 hours. Prerequisite: course 104A, 105A, 110A; 115A and 110B may be taken concurrently; consent of instructor. Open to Astrophysics Specialization majors. Experimental techniques, data acquisition and analysis involving laboratory astrophysics plus stellar, nebular and galaxy digital imaging, photometry and/or spectroscopy. Students perform three experiments. Individual work stressed. Minimum 10-15 page journal style articles of two

experiments are required. Offered in alternate years. GE credit: SciEng | SE, WE.—*(S.)* Boeshaar, Tyson

(change in existing course—eff. winter 15)

160. Environmental Physics and Society (3)
Lecture—3 hours. Prerequisite: course 9D or 7C; or course 10 or 1B and Mathematics 16B or the equivalent. Impact of humankind on the environment will be discussed from the point of view of the physical sciences. Calculations based on physical principles will be made, and the resulting policy implications will be considered. (Same course as Engineering 160.) GE credit: SciEng or SocSci | SE, SL.—*S. (S.)* Cox

(change in existing course—eff. winter 16)

190. Careers in Physics (1)
Seminar—2 hours. Restricted to Physics and Applied Physics majors only. 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. (P/NP grading only.) GE credit: SE.—*F. (F.)*

(change in existing course—eff. winter 15)

194HA. Special Study for Honors Students (4)
Independent study—12 hours. Prerequisite: consent of instructor required. Open only to Physics and Applied Physics majors who satisfy the College of Letters and Science requirements for entrance into the Honors Program. Independent research project at a level significantly beyond that defined by the normal physics curriculum. (Deferred grading only, pending completion of sequence). GE credit: SciEng | SE.*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (4)
Independent study—12 hours. Prerequisite: consent of instructor required. Open only to Physics and Applied Physics majors who satisfy the College of Letters and Science requirements for entrance into the Honors Program. Independent research project at a level significantly beyond that defined by the normal physics curriculum. (Deferred grading only, pending completion of sequence). GE credit: SciEng | SE.*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

Graduate

200B. Theory of Mechanics and Electromagnetics (4)
Lecture—3 hours; independent study—1 hour. Prerequisite: course 200A, and course 204B concurrently. Theoretical approaches in electromagnetics including static electromagnetic fields; Maxwell's equations; plane waves in various media; magnetohydrodynamics; diffraction theory; radiating systems; and special relativity.—*W. (W.)* Chiang

(change in existing course—eff. summer 15)

200C. Theory of Mechanics and Electromagnetics (4)
Lecture—3 hours; independent study—1 hour. Prerequisite: course 200A, and course 204B concurrently. Theoretical approaches in electromagnetics including static electromagnetic fields; Maxwell's equations; plane waves in various media; magnetohydrodynamics; diffraction theory; radiating systems; and special relativity.—*S. (S.)* Knox, Scalettar

(change in existing course—eff. summer 15)

204A. Methods of Mathematical Physics (4)
Lecture—3 hours; independent study—1 hour. Prerequisite: course 104A or the equivalent. Linear vector spaces, operators and their spectral analysis, complete sets of functions, complex variables, functional analysis, Green's functions, calculus of variations, introduction to numerical analysis.—*F. (F.)* Kaloper, Zieve

(change in existing course—eff. spring 16)

204B. Methods of Mathematical Physics (4)
Lecture—3 hours; independent study—1 hour. Prerequisite: courses 104A and 104B or the equivalent. Linear vector spaces, operators and their spectral analysis, complete sets of functions, complex variables, functional analysis, Green's functions, calculus of variations, introduction to numerical analysis.—*W. (W.)* Kaloper, Zieve

(change in existing course—eff. summer 15)

215A. Quantum Mechanics (4)
Lecture—3 hours; independent study—1 hour. Prerequisite: course 115B or the equivalent. Formal development and interpretation of non-relativistic quantum mechanics; its application to atomic, nuclear, molecular, and solid-state problems; brief introduction to relativistic quantum mechanics and the Dirac equation.—*F. (F.)* Cheng

(change in existing course—eff. summer 15)

215B. Quantum Mechanics (4)
Lecture—3 hours; independent study—1 hour. Prerequisite: course 115B or the equivalent. Formal development and interpretation of non-relativistic quantum mechanics; its application to atomic, nuclear, molecular, and solid-state problems; brief introduction to relativistic quantum mechanics and the Dirac equation.—*W. (W.)* Cheng

(change in existing course—eff. summer 15)

215C. Quantum Mechanics (4)
Lecture—3 hours; independent study—1 hour. Prerequisite: course 115B or the equivalent. Formal development and interpretation of non-relativistic quantum mechanics; its application to atomic, nuclear, molecular, and solid-state problems; brief introduction to relativistic quantum mechanics and the Dirac equation.—*S. (S.)* Fong

(change in existing course—eff. summer 15)

243A. Surface Physics of Materials (3)
Lecture—3 hours. Prerequisite: courses 140A-140B, 115A-115B or the equivalents; courses 215A, 240A, or the equivalents recommended. Experimental and theoretical fundamentals of surface and interface physics and chemistry, including electronic and magnetic structure, thermodynamics, adsorption kinetics, epitaxial growth, and a discussion of various spectroscopic and structural probes based on photons, electrons, ions, and scanning probes. Offered irregularly.

(change in existing course—eff. summer 15)

243B. Surface Physics of Materials (3)
Lecture—3 hours. Prerequisite: courses 140A-140B, 115A-115B or the equivalents; courses 215A, 240A, or the equivalents recommended. Experimental and theoretical fundamentals of surface and interface physics and chemistry, including electronic and magnetic structure, thermodynamics, adsorption kinetics, epitaxial growth, and a discussion of various spectroscopic and structural probes based on photons, electrons, ions, and scanning probes. Offered irregularly.

(change in existing course—eff. summer 15)

243C. Surface Physics of Materials (3)
Lecture—3 hours. Prerequisite: courses 140A-140B, 115A-115B or the equivalents; courses 215A, 240A, or the equivalents recommended. Experimental and theoretical fundamentals of surface and interface physics and chemistry, including electronic and magnetic structure, thermodynamics, adsorption kinetics, epitaxial growth, and a discussion of various spectroscopic and structural probes based on photons, electrons, ions, and scanning probes. Offered irregularly.

(change in existing course—eff. summer 15)

280. Seminar in Ethics for Scientists (2)
Seminar—2 hours. Restricted to 20 students; graduate standing in any department of science or engineering. Studies of topical and historical issues in the ethics of science, possibly including issues such as proper authorship, peer review, fraud, plagiarism, responsible collaboration, and conflict of interest. Limited enrollment. (Same course as Chemistry 280 and Chemical Engineering and Materials Science 280.) (S/U grading only.)—*S. (S.)*

(change in existing course—eff. fall 14)

Professional

371. Teaching in an Active-Engagement Physics Discussion/Lab Setting (1)
Lecture/discussion—1 hour. Prerequisite: course 9D or equivalent; consent of instructor. Open to graduate students only. Analysis of recent research on science/physics teaching and learning and its implications for teaching labs, discussions, and discussion/labs with an emphasis on differences between conventional and active-engagement instructional settings. The appropriate role of the instructor in specific instructional settings. May be repeated two times for credit. *F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Plant Biology

New and changed courses in Plant Biology (PLB)

Lower Division

10. Plant Biology (3)
Lecture—3 hours. The social and natural science of plants. Cultural history and socioeconomic importance of plants. Biology of plants reproduction, including flowers, seeds and fruits. Historical, cultural, religious and medicinal uses of plants. Plants in the visual arts, music and literature.GE credit: SciEng | SE, SL.—*W, S. (W, S.)* O'Neill

(new course—eff. winter 16)

Upper Division

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.) GE credit: SciEng | SE, VL.—*S. (S.)* Potter

(change in existing course—eff. fall 15)

111. Plant Physiology (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, and 2C; Chemistry 118B or 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.—*F. (F.)* Dehesh, Lucas

(change in existing course—eff. fall 16)

112. Plant Growth and Development (3)
Lecture—3 hours. Prerequisite: Sciences 2A, 2B, and 2C; Chemistry 118B or 8B; Biological Sciences 101. 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 | QL, SE, SL.—*W. (W.)* Harada, Sundaresan

(change in existing course—eff. fall 16)

113. Molecular and Cellular Biology of Plants (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, 2C; Biological Sciences 101. 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. GE credit: QL, SL, VL.—*S. (S.)* Harada
(change in existing course—eff. fall 16)

116. Plant Morphology and Evolution (5)
Lecture—3 hours; laboratory—4 hours. Prerequisite: introductory plant biology (e.g., Biological Sciences 2C, Plant Sciences 2). 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. Not open for credit to students who have completed Plant Sciences 116. (Same course as Plant Sciences 116.) GE credit: SciEng | SE, VL.—*W. (W.)* Jernstedt
(change in existing course—eff. winter 15)

148. Introductory Mycology (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A, 1B, 1C. Limited enrollment. Systematics, ecology, evolution, and morphology of fungi. Importance of fungi to humans. (Same course as Plant Pathology 148.) GE credit: SE.—*F.* MacDonald, Rizzo
(change in existing course—eff. winter 15)

Plant Biology (A Graduate Group)

New and changed courses in Plant Biology (A Graduate Group) (PBI)

Graduate

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. Open to senior undergraduate students in Plant Biology major. Recent progresses in plant cell biology. Intracellular motility in plant cells. Common techniques associated with the progress of plant cell biology. Offered in alternate years. (S/U grading only.)—Liu
(change in existing course—eff. winter 15)

290A. Faculty Seminar (1)
Discussion—1 hour. Restricted to Plant Biology (PBGG) graduate students. Discussion of research area of seminar speakers in Plant Biology Graduate Group Seminar Series. May be repeated six times for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. winter 15)

Plant Pathology

New and changed courses in Plant Pathology (PLP)

Lower Division

90. Introduction to Global Disease Biology (1)
Seminar—1 hour. Introduction to the Global Disease Biology major, research and internship opportunities, and potential career paths in human, animal, and plant health. Communication, ethics and the nature of science. (P/NP grading only.)—*F. (F.)* Rizzo
(new course—eff. fall 14)

Upper Division

101. Epidemiology (4)
Lecture—2 hours; laboratory—3 hours; discussion—1 hour. Prerequisite: Science and Society 13; Biological Science 2A, 2B, 2C; Statistics 13, 100 or Plant Sciences 120. Principles and practice of epidemiology as applied to human, animal, and plant populations and the environment in which these populations co-exist. Quantitative analysis of both infectious and non-infectious disease. Inter-dependence between epidemiological analysis, decision-making and policy formulation will be highlighted. GE credit: SciEng | QL, SE. —*W. (W.)* McRoberts, Papageorgiou
(new course—eff. winter 15)

102. Disease Intervention and Policy (4)
Lecture—3 hours; discussion—1 hour; project. Prerequisite: course 101; Science and Society 13; Biological Sciences 2A, 2B, 2C; Pathology, Microbiology and Immunology 129Y; Medicine and Epidemiology 158. Examination of the prevention and treatment of diseases affecting humans, animals, and plants. Case studies will illustrate the merits of a unified approach to promoting health at local, regional, and global scales. GE credit: SciEng | OL, SE, SL.—*S. (S.)* Rizzo
(new course—eff. fall 14)

103. The Microbiome of People, Animals, and Plants (3)
Lecture—3 hours. Prerequisite: Biological Science 2A, 2B, 2C. Examination of the structure and function of microbial communities that live inside and on host organisms. Introduction to general concepts of the microbiome and microbiota, and their relationship to host health and disease. GE credit: SciEng | QL, SE. —*F. (F.)* Cook, Leveau
(new course—eff. winter 15)

148. Introductory Mycology (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A, 1B, 1C. Limited enrollment. Systematics, ecology, evolution, and morphology of fungi. Importance of fungi to humans. (Same course as Plant Biology 148.) GE credit: SE.—*F.* MacDonald, Rizzo
(change in existing course—eff. winter 15)

185. Advanced Mushroom Taxonomy (2)
Laboratory/discussion—3 hours; fieldwork—1 hour. Prerequisite: course 135 or 148, and Biological Sciences 101 or the equivalent. Class size limited to 12 students. Microscopic and molecular methods used in the identification of mushroom species; molecular characterization including PCR-amplification of ribosomal nuclear DNA, digestion of the product with restriction enzymes, and DNA sequencing; a one-day field trip is required. Offered in alternate years.—*F.* Davis
(change in existing course—eff. winter 15)

187. Global Disease Biology Seminar (3)
Seminar—1 hour; discussion—1 hour; term paper. Prerequisite: junior standing, course 90, Science and Society 13. Open to Global Disease Biology majors. Seminar leading to development of the research proposal and academic plan for the Global Disease Biology major.—*F. (F.)*
(new course—eff. winter 15)

189. Global Disease Biology Senior Research (3)
Independent study—3 hours. Prerequisite: senior standing, courses 90, 187; (course 189D concurrently the first time course 189 is taken), Science and Society 13. Restricted to Global Disease Biology majors only. Capstone research experience for the Global Disease Biology major. Project may be experimental, library research, or some other creative activity. May be repeated one time for credit while research is conducted over two quarters; second quarter used to finish research paper.—*F, W, S, Su. (F, W, S, Su.)*
(new course—eff. winter 15)

193. Garden and Farm-Based Experiential Education Methods (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: upper division standing or consent of instructor. Methods of teaching children and youth about fruit and vegetable production and consumption. Lesson and activity planning for garden and farm field trips. Basic biology, ecology, plant science, and crop management practices. Mentorship in experiential learning. Preparation of garden site. (P/NP grading only.) GE credit: SciEng | OL, SE. —*W. (W.)* Van Horn
(new course—eff. winter 15)

Graduate

206A. Diseases of Fruit, Nut, and Vine Crops (3)
Lecture—2 hours; laboratory—6 hours. Prerequisite: course 120; Plant Biology 119. Course 205 may be taken concurrently. Clinical study of fruit, nut, and vine crops diseases with emphasis on etiology, epidemiology, diagnosis, and control. Offered in alternate years. (Deferred grading only, pending completion of sequence.)—*S. (S.)* Kirkpatrick
(change in existing course—eff. summer 15)

206B. Diseases of Fruit, Nut, and Vine Crops (1)
Lecture—2 hours; laboratory—6 hours. Prerequisite: course 120; Plant Biology 119. Course 205 may be taken concurrently. Clinical study of fruit, nut, and vine crops diseases with emphasis on etiology, epidemiology, diagnosis, and control. Offered in alternate years. (Deferred grading only, pending completion of sequence.)—*Su. (Su.)* Kirkpatrick
(change in existing course—eff. summer 15)

Plant Sciences

New and changed courses in Plant Sciences (PLS)

Lower Division

8. Fruits and Nuts of California and the World (3)
(cancelled course—eff. winter 16)

Upper Division

100AL. Metabolic Processes of Cultivated Plants Laboratory (2)
Laboratory/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. GE credit: SciEng | SE.—*(F.)* Blumwald
(change in existing course—eff. fall 07)

100BL. Growth and Yield of Cultivated Plants Laboratory (2)
Laboratory/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. GE credit: SciEng | SE.—*(W.)* Bradford
(change in existing course—eff. fall 07)

100CL. Environmental Interactions of Cultivated Plants Laboratory (2)
Laboratory/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. GE credit: SciEng | SE.—*S. (S.)* Shackel
(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.) GE credit: SciEng | SE, VL.—*S. (S.)* Potter
(change in existing course—eff. fall 15)

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. GE credit: SciEng | SE.—*S. (S.)* Brummer
(change in existing course—eff. fall 15)

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.) GE credit: SciEng | SE.—*W. (W.)* DeJong
(change in existing course—eff. fall 15)

116. Plant Morphology and Evolution (5)
Lecture—3 hours; laboratory—4 hours. Prerequisite: introductory plant biology (e.g., Biological Sciences 2C, Plant Sciences 2). 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. Not open for credit to students who have completed Plant Biology 116. (Same course as Plant Biology 116.) GE credit: SciEng | SE, VL.—*W. (W.)* Jernstedt
(new course—eff. winter 15)

140. Culinary and Medicinal Herbs (3)
(cancelled course—eff. winter 16)

142. Ecology of Crop Systems (4)
(cancelled course—eff. fall 11)

145. Sierra Nevada Flora (3)
(cancelled course—eff. spring 15)

150. Sustainability and Agroecosystem Management (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Soil Science 10, Chemistry 2A, and Plant Sciences 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.) GE credit: SciEng | OL, SE, SL.—*S. (S.)* Gaudin
(change in existing course—eff. fall 15)

154. Introduction to Plant Breeding (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: course 152, Biological Sciences 101 or consent of instructor. 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.) GE credit: SciEng | SE.—*W. (W.)* St. Clair
(change in existing course—eff. fall 15)

160. Agroforestry: Global and Local Perspectives (3)
Lecture/discussion—3 hours. Prerequisite: course 2 or Biological Sciences 1C or 2C; course 142 or 150 or Biological Sciences 2B or a general ecology course. 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 previously taken Agricultural Management and Rangeland Resources 160. (Former course Agricultural Management and Rangeland Resources 160.) Offered in alternate years. GE credit: SciEng | SE.—*F.* Gradziel
(change in existing course—eff. fall 15)

162. Urban Ecology (3)
Lecture/discussion—3 hours. Prerequisite: 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. Discussion of primary literature. GE credit: SciEng | SE, SL.—*W. (W.)* Cadenasso
(change in existing course—eff. fall 15)

163. Ecosystem and Landscape Ecology (4)
Lecture/discussion—4 hours. Prerequisite: course in general, plant, or soil ecology; Evolution and Ecology 117, Plant Biology 117, Environmental Science and Policy 100, Evolution and Ecology 101, Soil Science 112. Integration of concepts to understand and manage ecosystems in a complex and changing world. Emphasis on interactions among biotic, abiotic and human factors and changes over space/time. Local to global controls over water, carbon and nutrients across ecosystems/landscapes. Not open for credit to students who have completed Ecology 201.—*W. (W.)* Cadenasso, Eviner
(change in existing course—eff. fall 15)

164. Practicum in Ecological Restoration (1)
Fieldwork—3 hours. Prerequisite: Environmental Horticulture 160 recommended. Hands-on field course that exposes students to various aspects of ecological restoration throughout the seasonal restoration cycle with real-world practitioners. Emphasis on grassland/rangeland, riparian, and oak woodland communities. May be repeated three times for credit.—*F, W, S. (F, W, S.)* Young
(change in existing course—eff. spring 15)

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. Not open for credit to students who have completed former course Plant Biology 178. (Former course Plant Biology 178.) Offered in alternate years. GE credit: SciEng | SE.—*F.* Anderson
(change in existing course—eff. fall 15)

193. Garden and Farm-Based Experiential Education Methods (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: upper division standing or consent of instructor. Methods of teaching children and youth about fruit and vegetable production and consumption. Lesson and activity planning for garden and farm field trips. Basic biology, ecology, plant science, and crop management practices. Mentorship in experiential learning. Preparation of garden site. (P/NP grading only.) GE credit: SciEng | OL, SE. —*W. (W.)* Van Horn
(change in existing course—eff. winter 15)

Graduate

211. Principles and Practices of HPLC (2)
(cancelled course—eff. winter 15)

230. Forest Biology (4)
Lecture—3 hours; seminar—1 hour. Prerequisite: graduate standing or advanced undergraduate with consent of instructor. Cross-disciplinary review of forest biology, including physiology, genetics, pathology, ecology, and silviculture.—*S. (S.)* Neale, North, Richards, Rizzo, Schwartz
(cancelled course—eff. winter 15)

Political Science

New and changed courses in Political Science (POL)

Lower Division

7. Contemporary Issues in Law and Politics (4)
Seminar—4 hours. Limited enrollment; open to students having no more than 40.1 units. Seminar focusing on the political dimensions of American law and institutions. Examines the role of courts in resolving contemporary issues of law and politics including abortion, capital punishment, and civil rights. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.
(change in existing course—eff. winter 15)

12Y. Data Visualization in the Social Sciences (4)
Lecture—2 hours; laboratory—1.5 hours; web virtual lecture—1.5 hours. Introduction to quantitative data across the social sciences (Communications, Political Science, Psychology, Sociology, and other disciplines). Transforming data, describing data, producing graphs, visual reasoning, and interpretations. (Same course as Communications 12Y, Sociology 12Y, Psychology 12Y.) GE credit: QL, VL.—*F, W, S. (F, W, S.)* Cross
(new course—eff. spring 16)

90X. Lower Division Seminar (4)
Seminar—4 hours. Prerequisite: lower division standing; consent of instructor. Limited enrollment. Examines fundamental issues and concepts that shape the study and practice of politics. Students will read, discuss and write about some of the most significant texts in political science in order to develop a foundation for the study of politics. Offered irregularly.
(change in existing course—eff. winter 15)

Upper Division

100. Local Government and Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Politics and government of local communities in the United States, including cities, counties and special districts. Emphasizes sources and varieties of community conflict, legislative and executive patterns, expertise, decision making and the politics of structure. Observation of local governing boards. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.
(change in existing course—eff. spring 16)

102. Urban Public Policy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended; consent of instructor. Political and economic relationships among central cities, suburbs, and regional, state, and federal governments. Focuses upon policy areas such as poverty, transportation, welfare, and housing, and upon who governs and who benefits from the policies in these areas. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, QL, SS, WE.
(change in existing course—eff. spring 16)

104. California State Government and Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended; consent of instructor. The California political system. Political culture, constitution, elections and parties, direct democracy, legislature, governor, executive branch, courts, finances, state-local relations and policy issues. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.
(change in existing course—eff. spring 16)

105. The Legislative Process (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. The legislative process with emphasis on the United States Congress; legislative organization and procedures, legislative leadership and policy making, legislators and constituents, relations between Congress and other agencies. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.
(change in existing course—eff. spring 16)

106. The Presidency (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. The American presidencies origins and development; presidential power and influence as manifest in relationships with Congress, courts, parties, and the public in the formulation and administration of foreign and domestic policy; nominations, campaigns, and elections. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.
(change in existing course—eff. spring 16)

107. Environmental Politics and Administration (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 recommended. Introduction to the environment as a political issue in the United States and to the development of administrative mechanisms for handling environmental problems. Changing role of Congress, the presidency, the bureaucracy, and the courts in environmental policy formulation and implementation. Offered irregularly. GE credit: SocSci, Wrt | ACGH, QL, SS, WE.
(change in existing course—eff. spring 16)

108. Policy Making in the Public Sector (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended; consent of instructor. Theoretical rationale for governmental activity, program evaluation, PPBS, positive theories of policy making, the quantitative study of policy determinants, implementation, and proposals for improved decision making. GE credit: SocSci, Wrt | ACGH, QL, SS, WE.
(change in existing course—eff. spring 16)

109. Public Policy and the Governmental Process (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. The processes of formulating public policy, including individual and collective decision making, political exchange, competition, bargaining, coalition formation and the allocation of public goods, resources and opportunities. Offered irregularly. GE credit: SocSci, Wrt | ACGH, QL, SS, WE.
(change in existing course—eff. spring 16)

110. The Strategy of Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Introduction to game theory. Explanation of the behavior of individuals in strategic interaction. Rational and behavioral approaches. Applications to political science and other fields. Offered irregularly. GE credit: SocSci, Wrt | QL, SS, WE.
(change in existing course—eff. spring 16)

112. Contemporary Democratic Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Major contemporary attempts to reformulate traditional democratic theory, attempts to replace traditional theory by conceptual models derived from modern social science findings. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WE.
(change in existing course—eff. spring 16)

113. American Political Thought (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Origins and nature of American political thought. Principles of American thought as they emerge from the founding period to the present. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, WE.
(change in existing course—eff. spring 16)

114. Quantitative Analysis of Political Data (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 51 recommended. Logic and methods of analyzing quantitative political data. Topics covered include central tendency, probability, correlation, and non-parametric statistics. Particular emphasis will be placed on understanding the use of statistics in political science research. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS or SE, QL, VL, WE.
(change in existing course—eff. spring 16)

115. Medieval Political Thought (4)
Lecture—3 hours; term paper. Prerequisite: course 4 recommended. Examination of the ideas central to medieval political thinking. Emphasis will be upon the thoughts of the major political thinkers of the period, rather than upon political history. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WE.
(change in existing course—eff. spring 16)

116. Foundations of Political Thought (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Analysis and evaluation of the seminal works of a major political philosopher or of a major problem in political philosophy. May be repeated one time for credit when topic differs. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.
(change in existing course—eff. spring 16)

117. Topics in the History of Political Thought (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. The political thought of a specific historical period. Topics may include: Ancient Athens, the Italian Renaissance, the Enlightenment, or Nineteenth Century Germany. May be repeated once for credit. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

118A. History of Political Theory: Ancient (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Critical analyses of classical and medieval political philosophers such as Plato, Aristotle, Cicero and St. Thomas. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.
(change in existing course—eff. spring 16)

118B. History of Political Theory: Early Modern (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Critical analyses of the works of late modern political philosophers such as Rousseau, Kant, Hegel, Tocqueville, Mill, Marx and Nietzsche. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.
(change in existing course—eff. spring 16)

118C. History of Political Theory: Late Modern (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Critical analyses of the works of late modern political philosophers such as Rousseau, Kant, Hegel, Tocqueville, Mill, Marx and Nietzsche. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.
(change in existing course—eff. spring 16)

119. Contemporary Political Thought (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Contemporary political thought from the end of the nineteenth century to the present. Emphasis upon an individual philosopher, concept, or philosophical movement; e.g., Nietzsche, Continental political thought, Rawls and critics, theories of distributive justice, feminist theory. Offered irregularly. GE credit: ArtHum or SocSci, Wrt | AH or SS, WC, WE.
(change in existing course—eff. spring 16)

120. Theories of International Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. Major contemporary approaches to the study of international politics, including balance of power, game theory, Marxist-Leninist theory, systems theory, and decision-making analysis. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

121. Scientific Study of War (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended. An analysis of political processes involved in the initiation, conduct and termination of modern interstate warfare. Offered irregularly. GE credit: SocSci, Wrt | QL, SS, WE.
(change in existing course—eff. spring 16)

122. International Law (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended. Selected topics in international law; territory, sovereign immunity,

responsibility, the peaceful settlement or nonsettlement of international disputes. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.

(change in existing course—eff. spring 16)

123. The Politics of Interdependence (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. In the past several decades, growing economic interdependence has generated new problems in international relations. Course deals with difficulties in managing complex interdependence and its implication on national policies and politics. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.

(change in existing course—eff. spring 16)

124. The Politics of Global Inequality (4)
Lecture—3 hours; term paper or discussion_1 hour. Prerequisite: course 3 recommended. Analysis of current economic and political international relations resulting from a long standing division of the global system into rich and poor regions. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. spring 16)

126. Ethnic Self-Determination and International Conflict (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended. Compares the claims of the state and ethnic peoples in countries undergoing internal conflicts; e.g., South Africa, Northern Ireland. Analyzes the role of the international community in facilitating the peaceful resolution of conflicts. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. spring 16)

129. Special Studies in International Politics (4)
Lecture—3 hours; term paper. Prerequisite: course 3 recommended. Intensive examination of one or more special problems in international politics. May be repeated one time for credit when different topic is studied. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.—*W.*

(change in existing course—eff. spring 16)

130. Recent U.S. Foreign Policy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. Broad survey of the development of U.S. foreign policy in twentieth century with emphasis on transformation of policy during and after World War II, and the introduction to analytic tools and concepts useful for understanding of current foreign policy issues. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.

(change in existing course—eff. spring 16)

131. Analysis of U.S. Foreign Policy (4)
Lecture—3 hours; term paper. Prerequisite: course 3 recommended; consent of instructor. Detailed presentation and examination of the formulation of execution of U.S. foreign policy. Survey of numerous factors influencing policy outcomes and how such determinants vary according to policy issue areas. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.

(change in existing course—eff. spring 16)

132. National Security Policy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended. Development of national security policies since 1945. Analysis of deterrence and assumptions upon which it is based. Effects of nuclear weapons upon conduct of war, alliance systems, and the international system. Prospects of security and stability through arms control. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.

(change in existing course—eff. spring 16)

134. Africa and U.S. Foreign Policy (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. Overview of American foreign policy toward Africa. Relationship to global adversaries. Legacies of colonialism. Challenge of national self-determination and white racism. Policies on non-alignment, producer cartels, multinational corporations, continental integration and trade and aid relations. Offered irregularly.

(change in existing course—eff. spring 16)

135. International Politics of the Middle East (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. Restricted to 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. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.

(change in existing course—eff. spring 16)

136. The Arab-Israeli Conflict (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended. 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. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.

(change in existing course—eff. spring 16)

137. International Relations in Western Europe (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended. Analysis of European unity, problems of the Atlantic alliance, Atlantic political economy, East-West relations, communism in Western Europe and the relationship between domestic politics and foreign policy. Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.

(change in existing course—eff. spring 16)

139. Special Studies in Foreign Policy (4)
Lecture—3 hours; term paper. Prerequisite: course 3 recommended; consent of instructor. Extensive examination of one or more special problems in foreign policy. May be repeated one time for credit. Offered irregularly.

(change in existing course—eff. spring 16)

140A. Comparative Political Institutions: Electoral Systems (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. 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. Offered irregularly. GE credit: SocSci, Wrt | QL, SS, WE.

(change in existing course—eff. spring 16)

140B. Comparative Political Institutions: Parties (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. The factors shaping political parties and their role in democratic representation. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WE.

(change in existing course—eff. spring 16)

140C. Comparative Political Institutions: Legislatures (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. Examination of legislatures from a comparative perspective. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.

(change in existing course—eff. spring 16)

140D. When Institutions Fail (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Examination of factors contributing to the success and failure of political institutions. Offered in alternate years. GE credit: QL, SS, WE.—*F, S. (F, S.)*

(change in existing course—eff. spring 16)

140E. Policy-Making Processes (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Comparative analysis of policy-making in the U.S. and other countries. Offered irregularly. GE credit: QL, SS, WE.—*F, S. (F, S.)*

(change in existing course—eff. spring 16)

142A. Comparative Development: Political Development in Modernizing Societies (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. 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 irregularly. GE credit: SocSci, Wrt | SS, WC, WE.

(change in existing course—eff. spring 16)

142B. Comparative Development: Politics and Inequality (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. 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 irregularly. GE credit: SocSci, Wrt | SS, WC, WE.

(change in existing course—eff. spring 16)

142C. Comparative Political Development: Democracy and Democratization (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Examination of conditions promoting democratization and democratic stability. Offered irregularly. GE credit: SS, WE.—*F, S. (F, S.)*

(change in existing course—eff. spring 16)

143A. Latin American Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. 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. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. spring 16)

143B. Mexican Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Introduction to the politics of contemporary Mexico. Focus on rise, fall, and aftermath of Mexico's one-party dominant system. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. spring 16)

144A. Politics of Post-Communist Countries: East European Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Post-war democratization, state-building and economic reform in East European states. Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

144B. Politics of Post-Communist Countries: Russia (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Democratization, state-building and economic reform; creation of new institutions; impacts of Soviet rule. Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

146A. Politics of Africa: Issues in Contemporary African Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. 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 irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

146B. Politics of Africa: Development in Africa (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. 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 irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

147A. West European Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. The evolution, politics, and contemporary problems of selected political systems of Western Europe. Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

147B. West European Politics: British Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. The evolution, politics, and contemporary problems of Britain's political system. Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

147C. West European Politics: French Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. The evolution, politics and contemporary problems of France's political system. Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

147D. West European Politics: German Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Political Science & International Relations Majors. Evolution, politics and contemporary problems of Germany's political system. Offered irregularly. GE credit: SocSci, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

148A. Government and Politics of East Asia: China (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. 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 irregularly. GE credit: SocSci, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

148B. Government and Politics in East Asia: Japan (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. Japanese politics, with an emphasis on the postwar period. Particular emphasis on political parties, elections, political economy, and social problems. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

148C. Government and Politics in East Asia: Southeast Asia (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended. 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. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.
(change in existing course—eff. spring 16)

150. Judicial Politics and Constitutional Interpretation (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Politics of judicial policy making, issues surrounding constitutional interpretation and decision making, prerequisite for courses on the politics of constitutional law. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

151. The Constitutional Politics of the First Amendment and the Right to Privacy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. The constitutional politics surrounding such issues as the right to free expression, associational rights, the right to free exercise of religious beliefs and the right to privacy. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

152. The Constitutional Politics of Equality (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Constitutional politics of equality in the American political system; issues surrounding constitutional doctrine and judicial policymaking; special attention on racial and sexual equality. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. fall 16)

153. The Constitutional Politics of the Justice System (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Constitutional politics of the American criminal justice system. Issues surrounding constitutional doctrine and judicial policymaking on issues such as search and seizure. Arrest, trial, incarceration and other issues of due process. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

154. Legal Philosophy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Analysis of the nature and functions of law; law as an instrument of social control and the relationship between law and morality. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

155. Judicial Process and Behavior (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Analysis of the behavior of judges and courts in the political process. Techniques of judicial decision making. Relationships among courts and other decisionmaking bodies. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.
(change in existing course—eff. spring 16)

160. American Political Parties (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Analysis of the structured operations of the party system in the United States; party functions and organizations, nomination processes, campaigns and elections, party trends and reforms. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, QL, SS, WE.
(change in existing course—eff. fall 16)

162. Elections and Voting Behavior (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Analysis of American elections and partisan behavior; political socialization, political participation, partisanship and individual and group determinants of voting. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

163. Group Politics (4)
Lecture—3 hours; term paper or discussion—1 hour Prerequisite: course 1 recommended. Groups, institutions and individuals, especially in American politics. Historical and analytical treatment of group theories as applied to interest groups (especially labor, business, agriculture, science, military); to racial, ethnic and sectional groups; to parties, public and legislative groups, bureaucracies. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

164. Public Opinion (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended; consent of instructor. Nature of public opinion in America as it is supposed to be and as it is. Distribution of opinions among different publics and the significance of that distribution for system stability and institutions. Opinion polling and its problems. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

165. Mass Media and Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Organization of and decision making within the media; media audiences and the effect of the media on attitudes and behavior; the relationship of the government to the media (censorship, secrecy, freedom of the press, government regulation); the media in election campaigns. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

166. Women in Politics (4)
Lecture—3 hours; discussion—1 hour or seminar—1 hour. Prerequisite: course 1 recommended. The role of women in American politics. Historical experiences; contemporary organizations and strategies; areas of legislative concern; the impact of differences in social class, race, and ethnicity upon the involvement of women in politics. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. fall 16)

168. Chicano Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Political aspects of Chicano life in America; examines the Chicanos political role as it has been historically defined by different groups in society and the Chicanos responses to his/her political environment. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

170. Political Psychology (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Overview to the growing literature on political psychology. Introduction to how psychological concepts (personality, attitudes, stereotypes, heuristics, affect, identity, group dynamics) help us understand how citizens think about politics. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

171. The Politics of Energy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Nature and performance of political processes for making energy choices at the international, national and state levels. Interaction of energy policy with other political goals and the ability of governmental institutions to overcome constraints on policy innovation. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

172. American Political Development (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Systematic analysis of contemporary issues in American political development: historical determinants of political change; the timing and character of institutional development; conditions for successful political action. Democratization, cultural change, party formation, state-building, constitutionalism, race relations. Offered irregularly. GE credit: SocSci, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

174. Government and the Economy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Political basis of economic policy (taxation, spending and regulation); impact of prices, employment and growth on political demands; elite responses to economic conditions; policy alternatives and the public interest. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

175. Science, Technology, and Policy (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended; consent of instructor. Analysis of policymaking for science and the use of scientific expertise for making decisions about technology. Topics include funding of basic research, relationship of science to technological development, science and military policy, technological risks, technology assessment and scientists and politics. Offered irregularly. GE credit: SocSci, Wrt | QL, SS, WE.
(change in existing course—eff. spring 16)

176. Racial Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. Race, racial attitudes and racial policies in the United States with a specific emphasis on African Americans. Offered irregularly. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.
(change in existing course—eff. spring 16)

179. Special Studies in Comparative Politics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 2 recommended; consent of instructor. Intensive examination of one or more special problems appropriate to comparative politics. Coverage is given to formal and informal political institutions, economically developing and developed countries, and non-democratic, democratic, and democratizing countries. May be repeated one time for credit. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

180. Bureaucracy in Modern Society (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 or course 2 recommended; consent of instructor. Role of bureaucracy in a complex society, with emphasis upon changing relationships between government and the economy; consequences of rapid technological and social change for bureaucratic structures and processes; the problems of reconciling expertise and democracy and increasing the responsiveness of public bureaucracy. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.
(change in existing course—eff. spring 16)

183. Administrative Behavior (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1 recommended. The implications for American public administration of evolving concepts about behavior in organizations. Offered irregularly. GE credit: SocSci, Wrt | ACGH, SS, WE.

187. Administrative Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 4 recommended. Historical and critical analysis of the principal theories of organization and management of public agencies in light of such concepts as decision making, bureaucracy, authority and power, communication and control; examination of role of government bureaucracies in the total society. Offered irregularly. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. spring 16)

190. International Relations (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 3 recommended; consent of instructor. Analysis and evaluation of substantive issues in contemporary international relations. Readings drawn from current academic and non-academic periodicals. GE credit: SocSci, Wrt | SS, WE.
(change in existing course—eff. fall 16)

192W. Internship in the UC Davis Washington Center Program (7)
(cancelled course—eff. winter 16)

194HA. Special Study for Honors Students (4)
Seminar—2 hours; independent study—2 hours. Prerequisite: major in Political Science with upper division standing and a GPA of 3.500 in the major. Directed reading, research and writing culminating in preparation of a senior honors thesis under the direction of faculty adviser. (Deferred grading only, pending completion of sequence.) Offered irregularly. GE credit: SocSci | OL, SS, VL, WE.
(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (4)
Seminar—2 hours; independent study—2 hours. Prerequisite: major in Political Science with upper division standing and a GPA of 3.500 in the major. Directed reading, research and writing culminating in preparation of a senior honors thesis under the direction of faculty adviser. (Deferred grading only, pending completion of sequence.) Offered irregularly. GE credit: SocSci | OL, SS, VL, WE.
(change in existing course—eff. summer 15)

Graduate

211. Research Methods in Political Science (4)
Seminar—3 hours; laboratory/discussion—1 hour. Prerequisite: graduate standing. Pass One open to graduate majors; Pass Two open to graduate students. Introductory seminar on the foundations of probability theory and mathematical statistics that are critical to empirical investigations in political science.—*F. (F.)* Joyce
(change in existing course—eff. winter 15)

212. Quantitative Analysis in Political Science I (4)
Seminar—3 hours; laboratory/discussion—1 hour. Prerequisite: course 211. Pass One open to graduate majors; Pass Two open to graduate students. Seminar provides students with an introduction to the linear regression model. Students who complete the course will have a working knowledge of basic regression techniques and problems.—*W. (W.)* Huckfeldt
(change in existing course—eff. winter 15)

214A. Research in Political Science (4)
Discussion—2 hours; lecture—1 hour; term paper. Prerequisite: course 213. Advanced level graduate students in the Department of Political Science only. Research seminar sequence required of all Ph.D. students. Design, execution, and defense of an original piece of research in political science, culminating in a paper of publishable quality. (Deferred grading only, pending completion of sequence.)
(change in existing course—eff. winter 15)

214B. Research in Political Science (4)
Discussion—2 hours; lecture—1 hour; term paper. Prerequisite: courses 212 and 214A. Advanced level graduate students in the Department of Political Science only. Research seminar sequence required of all Ph.D. students. Design, execution, and defense of an original piece of research in political science, culminating in a paper of publishable quality. (Deferred grading only, pending completion of sequence.)
(change in existing course—eff. winter 15)

220. Seminar in Political Theory (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Open to graduate students only. Introduction to political theory and current debates over its study. Readings from and textual interpretations of political theory including the Federalist Papers and major works by thinkers such as Plato, Aristotle, Machiavelli, Hobbes, Locke, Rousseau, and Rawls. Other readings addressing issues of textual interpretation.
(change in existing course—eff. winter 15)

229. Theories of International Relations (4)
(cancelled course—eff. winter 15)

280. Bayesian Methods: for Social and Behavioral Sciences (4)
Seminar—3 hours; term paper. Prerequisite: course 212 or equivalent. Pass One open to graduate majors only; Pass Two open to graduate students. Methodology seminar introducing Bayesian quantitative methods to issues and problems in political science and other social and behavioral sciences. Offered in alternate years.
(change in existing course—eff. winter 15)

281. Statistical Computing Issues in Political Science (4)
Seminar—3 hours; discussion/laboratory—1 hour. Prerequisite: course 213 or equivalent. Restricted to graduate standing. Methodology seminar introduc-

ing computing issues in empirical models for political science and other social and behavioral sciences. Offered in alternate years.

(change in existing course—eff. winter 15)

282. Advanced Modeling of Political Behavior (4)
Seminar—3 hours; term paper. Prerequisite: course 215 or equivalent. Restricted to graduate standing or with instructors permission. Applications of formal theory to political science. Review of relevant contributions in other social sciences. Consideration of advanced techniques in game theory. Rational and behavioral approaches.

(change in existing course—eff. winter 15)

Population Biology

New and changed courses in Population Biology (PBG)

Graduate

206. Ecology of Insect Parasitoids (4)
Lecture—3 hours; seminar—1 hour. Prerequisite: introductory animal ecology or behavior. Insect parasitoids will be investigated as model systems to address current topics in behavioral, population, and evolutionary ecology. Theory will be synthesized and critical empirical tests of ecological hypotheses emphasized. Offered in alternate years.

(change in existing course—eff. fall 14)

220. Spatio-Temporal Ecology (2)
(cancelled course—eff. winter 16)

221. Animal Behavior, Ecology and Evolution (3)
Lecture—3 hours. Prerequisite: Neurobiology, Physiology, and Behavior 102, Evolution and Ecology 100, 101 or the equivalent, graduate standing, and consent of instructor.Interface between animal behavior, ecology and evolution. New developments in behavioral ecology and development and testing of hypotheses in this discipline. (Same course as Animal Behavior 221.)—*F. (F.)* Stamps

(change in existing course—eff. fall 14)

270. Research Conference in Evolutionary Biology (1)
Seminar—1 hour. Prerequisite: consent of instructor. Critical presentation and evaluation of current literature and ongoing research in evolutionary biology. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Portuguese

New and changed courses in Portuguese (POR)

Upper Division.

8. Elementary Portuguese Conversation (2)
Discussion—3 hours. Prerequisite: course 3. Not open to native speakers or upper division students. Designed to develop oral communication skills. Emphasis on increasing vocabulary, improving listening comprehension, pronunciation, accuracy and grammar control. Practice of everyday situations. GE credit: WC.—*W, S, Su. (W, S, Su.)*

(new course—eff. fall 14)

28. Intermediate Portuguese Conversation (2)
Discussion—3 hours. Prerequisite: course 8. Continuation of course 8. Designed to develop oral communication skills at a more advanced level. Practice in more complex situations.—*W, Su. (W, Su.)*

(change in existing course—eff. spring 15)

31. Intermediate Portuguese for Spanish Speakers (4)
Lecture/discussion—3 hours; laboratory—1 hour. Development of linguistic and learning skills required for Spanish-speaking students in upper-division courses in Portuguese.

(change in existing course—eff. fall 16)

Upper Division

100. Principles of Luso-Brazilian Literature and Criticism (4)
Lecture—3 hours; term paper. Prerequisite: course 22 or 23 or consent of instructor. Principles of literary criticism applied to the study of fiction, poetry, and essays of major literary writers of the Luso-Brazilian world. GE credit: ArtHum | AH, WC, WE.—*F. (F.)* Bernucci, Newcomb

(change in existing course—eff. fall 16)

111. The Structure of Portuguese: Sounds and Words (3)
Lecture/discussion—3 hours. Prerequisite: consent of instructor. Linguistic description of sound patterns of Portuguese and how those sounds can be used to form larger units, such as morphemes and words. Theoretical and practical comparisons with English and with other Romance languages. GE credit: SS.

(change in existing course—eff. fall 16)

132. Portuguese Literature: Medieval and Renaissance (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. Overview of the origins of the Portuguese literature, spanning from the 13th C to the 16th C. Studies of lyrical and epic poetry, drama, and travel narratives. GE credit: AH, WC.

(change in existing course—eff. fall 16)

141. Introduction to Luso-Brazilian Culture (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 100 or consent of instructor. Introduction to history, geography, and culture of Portugal and Brazil. Art, history of ideas, and everyday cultural manifestations. Introduction to critical reading and textual analysis. Taught in Portuguese. GE credit: ArtHum, Div, Wrt | AH, WC.

(change in existing course—eff. fall 16)

159. Special Topics in Luso-Brazilian Literature and Culture (4)
Lecture—3 hours; term paper. Prerequisite: course 3 or Spanish 24, 24S or 33. Special Topics in Luso-Brazilian Literature and Culture. May be repeated one time for credit. GE credit: ArtHum | AH, WC, WE.—Bernucci, Newcomb

(change in existing course—eff. fall 16)

161. Luso-Brazilian Literature and Culture (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. 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." GE credit: ArtHum | AH, WC, WE.—Bernucci, Newcomb

(change in existing course—eff. fall 16)

162. Introduction to Brazilian Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 3, 31 or 31G. 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. GE credit: ArtHum | AH, WE.—Bernucci, Newcomb

(change in existing course—eff. spring 16)

163. 20th C Masters in Brazilian Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 100 or consent of instructor. 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. GE credit: ArtHum | AH, WC, WE.—Bernucci, Newcomb

(change in existing course—eff. fall 16)

Professional Accountancy

New and changed courses in Professional Accountancy (ACC)

Graduate

201. Financial Reporting (4)
Lecture—4 hours. Restricted to Master of Professional Accountancy graduate students. Coverage includes the fundamentals of accounting and reporting economic events and transactions. Emphasizes the preparation of balance sheets, income statements, statements of cash flow, and statements of stockholders' equity. Not open for credit to students who have taken any Management 200A.—*F. (F.)*

(change in existing course—eff. winter 16)

203. Intermediate Financial Reporting (4)
Lecture—4 hours. Prerequisite: course 201 or Management 200A. Restricted to students enrolled in the Master of Professional Accountancy degree program. Focuses on the preparation of complex financial statements. Topics include accounting recognition, measurement, and disclosure, as well as the theoretical foundations of and motivations for financial reporting choices. Not open for credit to students who have taken any Management 200A.—*W. (W.)*

(change in existing course—eff. fall 15)

205. Advanced Financial Reporting (4)
Lecture—4 hours. Prerequisite: course 203. Restricted to graduate students in Graduate School of Management. Advanced treatment of recognition, measurement, and disclosure including pensions, accounting for income taxes, mergers and acquisitions, consolidations, special-purpose entities, and foreign subsidiaries. Includes accounting for governmental and nonprofit entities, as well as advanced treatment of international accounting standards.—*S. (S.)*

(change in existing course—eff. fall 15)

211. Tax Reporting and Analysis (4)
Lecture—4 hours. Restricted to Master of Professional Accountancy graduate students. Introduction to the taxation of business entities and their related transactions, with an emphasis on the details of tax law and tax reporting requirements. Topics include individual, partnership, and corporate taxation, as well as tax theory. Not open for credit to students who have completed any Management 264.—*F. (F.)*

(change in existing course—eff. fall 15)

213. Intermediate Tax Reporting and Analysis (4)
Lecture—4 hours. Prerequisite: course 211; any Management 264. Restricted to graduate students in the Graduate School of Management. Detailed analysis of federal taxation of individuals. Topics include the timing of income recognition, deductions and credits for tax purposes, as well as the basics of property transactions.—*W. (W.)*
(change in existing course—eff. fall 15)

215. Advanced Tax Reporting and Analysis (4)
Lecture—4 hours. Prerequisite: course 213. Restricted to graduate students in Graduate School of Management. Advanced treatment of complex tax transactions and entities. Topics include aspects of federal taxation of entities and the applicable impact upon individual taxpayers. Coverage includes basis analysis as applicable to pass through entities and an introduction to professional responsibilities.—*S. (S.)*
(change in existing course—eff. fall 15)

217. Taxation of Individuals, Property, and Estates (4)
Lecture—4 hours. Prerequisite: course 213. Restricted to graduate students in Graduate School of Management. In-depth analysis of individual income tax issues and property transactions including non-taxable exchanges, compensation, gifts, and transfer taxes. Expanded analysis of multistate tax issues. Emphasis is on the interrelationships of complex individual transactions as well as planning techniques.—*S. (S.)*
(change in existing course—eff. fall 15)

219. Taxation of Business Entities (4)
Lecture—4 hours. Prerequisite: course 213. Restricted to graduate students in Graduate School of Management. Analysis of detailed business entity tax issues including basis calculations, alternative minimum taxation, multistate and multinational taxation, stock transactions, and mergers and acquisitions. Tax planning for entities and relationships between business entities and their owners. Offered irregularly.—*S. (S.)*
(change in existing course—eff. fall 15)

231. Analysis and Use of Accounting Reports (4)
Lecture—4 hours. Prerequisite: course 203. Restricted to students enrolled in the Master of Professional Accountancy degree program. Evaluation of complex financial accounting reports by managers and persons outside the firm, such as investors, creditors, and financial analysts. Topics include cash flow vs. income measurement, ratio and valuation analysis, and the effects of international accounting standards. Not open for credit to students who have completed any Management 272.—*S. (S.)*
(change in existing course—eff. fall 15)

241. Auditing and the Accounting Profession (4)
Lecture—4 hours. Prerequisite: course 201; any Management 200A. Restricted to Graduate School of Management students. Introduction to the audit environment, professional standards, the accounting profession, and the professional responsibilities of accountants. Integrate audit topics across the areas of financial, cost, tax and systems accounting. (S/U grading only.)—*F. (F.)*
(change in existing course—eff. fall 15)

243. Auditing and Attestation Services (4)
Lecture—4 hours. Prerequisite: course 241. Restricted to graduate students in Graduate School of Management. Advanced treatment of the audit process and environment. Topics include audit planning and performance, evidence, internal controls, professional standards, and audit reports. Reviews, compilations and attestation services are examined, as are governmental agency audits.—*S. (S.)*
(change in existing course—eff. fall 15)

251. Managerial Accounting and Controls (4)
Lecture—4 hours. Prerequisite: course 201; any Management 200A. Restricted to graduate students in the Graduate School of Management. Analysis of management accounting systems including cost accounting, performance measurement, and compensation and reward systems. Focuses on the production of information useful for managerial decision-making, as well as the design of these systems. Not open for credit to students who have completed any Management 271.—*W. (W.)*
(change in existing course—eff. fall 15)

253. Accounting Information and Control Systems (4)
Lecture—4 hours. Prerequisite: course 201 or any Management 200A. Restricted to graduate students in Graduate School of Management. Analysis of information systems used for accounting, record-keeping, and control. Topics include the regulatory requirements of accounting control systems as well as their implementation and auditing considerations. Not open for credit to students who have taken any Management 271.—*S. (S.)*
(change in existing course—eff. fall 15)

261. Communications for Professional Accountants (4)
Lecture—4 hours. Prerequisite: course 201 or any Management 200A. Restricted to graduate students in the Graduate School of Management. Overview of written and oral professional communications with an emphasis on structuring and documenting audits and reports, understanding audiences (investors, creditors, regulators, and other stakeholders), and consideration of ethical and regulatory responsibilities. Not open for credit to students who have taken any Management 268.—*W. (W.)*
(change in existing course—eff. fall 15)

271. Accounting Ethics (4)
Lecture—4 hours. Prerequisite: course 201; any Management 200A. Restricted to Graduate School of Management students. Analysis of accountants' professional responsibilities and ethics. Topics include the behavioral foundations of ethics in a business environment, how those elements affect accountants' integrity, objectivity, and independence. Professional standards related to accountants' conduct are also covered.—*F. (F.)*
(change in existing course—eff. winter 16)

Psychology

New and changed courses in Psychology (PSC)

Lower Division

41. Research Methods in Psychology (4)
Lecture—3 hours; extensive writing. Prerequisite: course 1 or the equivalent; completion of Statistics 13 or 102 strongly recommended. Introduction to experimental design, interviews, questionnaires, field and observational methods, reliability, and statistical inference. GE credit: QL.—*F, W, S. (F, W, S.)* Cross, E. Post
(change in existing course—eff. winter 15)

41S. Research Methods in Psychology (4)
Lecture/laboratory—10 hours; web virtual lecture—10 hours. Prerequisite: course 1 or equivalent. Class size limited to 100 students. Introduction to experimental design, interviews, questionnaires, observational research, qualitative approaches, case studies, content analysis, sampling, descriptive statistics, and statistical inference. Not open for credit to students who have taken course 41. Offered irregularly.
(change in existing course—eff. winter 15)

90X. Lower Division Seminar (1-2)
Seminar—1-2 hours. Prerequisite: lower division standing; consent of instructor. Limited enrollment. Examination of a special topic in Psychology through shared readings, discussions, written assignments, or special activities such as fieldwork or laboratory work. May not be repeated for credit. Offered irregularly.
(change in existing course—eff. winter 15)

Upper Division

100Y. Introduction to Cognitive Psychology (4)
Web virtual lecture—4 hours; discussion—1 hour; lecture—1 hour. Prerequisite: courses 1 and 41. Introduction to human information processing, mental representation and transformation, imagery, attention, memory, language processing, concept formation, problem solving, and computer simulation. Not open for credit to students who have completed former course 136 or current course 100.—*W, S. (W, S.)* Luck
(change in existing course—eff. winter 15)

101. Introduction to Biological Psychology (4)
Lecture—4 hours. Prerequisite: courses 1, 41. Pass One open to majors. Survey and integration of the relationships between behavior and biological processes, including physiology, genes, development, ecology, and evolution. Two units of credit for those students who have completed Neurobiology, Physiology and Behavior 100.—*F, W, S. (F, W, S.)* Coss, Krubitzer, Schank, Stolzenberg, Trainor
(change in existing course—eff. spring 15)

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. Limited enrollment. 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. Offered irregularly. GE credit: QL.—Herek
(change in existing course—eff. fall 15)

120. Agent-Based Modeling (4)
Lecture/laboratory—4 hours. Prerequisite: course 100 or 101. Class size limited to 24 students. 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. GE credit: QL.—*F. (F.)* Schank
(change in existing course—eff. winter 15)

126. Health Psychology (4)
Lecture—4 hours. Prerequisite: course 1, 41, 101. Pass One open to Psychology majors only. Psychological factors influencing health and illness. Topics include stress and coping, personality and health, symptom perception and reporting, heart disease, cancer, compliance, and health maintenance and promotion. Not open for credit to students who have completed former course 160.—*W, S. (W, S.)* Emmons
(change in existing course—eff. fall 15)

127. Animal Cognition (4)
(cancelled course—eff. winter 16)

130. Human Learning and Memory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 1, 41, either 100 or 135, and either Statistics 13 or 102; or consent of instructor. Consideration of major theories of human learning and memory with critical examination of relevant experimental data.—*F, W, S. (F, W, S.)* Ranganath, Yonelinas

(change in existing course—eff. winter 15)

131. Perception (4)
Lecture—3 hours; independent library work. Prerequisite: courses 1, 41 and 100 or 135. Cognitive organizations related to measurable physical energy changes mediated through sensory channels. Perception of objects, space, motion, events.—*W. (W.)* Geng

(change in existing course—eff. spring 15)

132. Language and Cognition (4)
Lecture—3 hours; term paper. Prerequisite: courses 1, 41, and either 100 or 135; or consent of instructor. Introduction to the cognitive processes involved in language comprehension and production. Topics include the biological foundations of language, speech perception, word recognition, syntax, reading ability, and pragmatics. GE credit: WE.—*F, W, S. (F, W, S.)* Long, Swaab, Traxler

(change in existing course—eff. winter 15)

136. Psychology of Music (4)
Lecture/discussion—3 hours; term paper. Prerequisite: courses 1, 41, and either 100 or 135 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. GE credit: WE.—*S. (S.)* Janata

(change in existing course—eff. winter 15)

140. Developmental Psychology (4)
Lecture—4 hours. Prerequisite: courses 1, 41. Pass One open to Psychology majors. Ontogenetic account of human behavior through adolescence with emphasis on motor skills, mental abilities, motivation, and social interaction. Two units of credit allowed to students who have completed Human Development 100A or 100B. Not open for credit to students who have completed course 112. (Former course 112.)—*F, W, S. (F, W, S.)* Cross, Ghetti, Gibbs, Goodman, Graf Estes, Lagattuta, Oakes

(change in existing course—eff. winter 15)

153. Psychology and Law (4)
Prerequisite: courses 1, 41. Prerequisite: courses 1, 41. Pass One open to Psychology majors. Current theoretical and empirical issues in the study of psychology and law. Topics include eyewitness testimony, child abuse, jury decision making, juvenile delinquency and criminology, prediction of violence, insanity defense, and memory for traumatic events. Not open for credit to students who have completed course 115. (Former course 115.) Offered in alternate years.—*S.* Goodman

(change in existing course—eff. winter 15)

155. Environmental Awareness (4)
(cancelled course—eff. winter 16)

157. Stereotyping, Prejudice, and Stigma (4)
Lecture/discussion—4 hours. Prerequisite: courses 1 and 41. 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. GE credit: DD—*W. (W.)* Sherman

(change in existing course—eff. fall 14)

158. Sexual Orientation and Prejudice (4)
Lecture/discussion—4 hours. Prerequisite: courses 1, 41. Pass One open to Psychology majors. Current scientific knowledge about sexual orientation and prejudice based on sexual orientation. Emphasis on learning the skills necessary for a critical understanding of science and public policy issues relevant to sexuality. GE credit: SocSci, Div, Wrt | ACGH, DD, SS, WE.—*W. (W.)* Herek

(change in existing course—eff. winter 15)

159. Gender and Human Reproduction (4)
Lecture—4 hours. Prerequisite: course 1, 41. Pass One open to Psychology majors. Psychology of reproduction. Reproductive events over the course of an individual's life, including sexual development, mate choice, relationships, and reproduction. Biological and social psychological explanations at the levels of mechanism and evolutionary function. Not open for credit to students who have completed former course 149. (Formally course 149.)—*S. (S.)* Scheib

(change in existing course—eff. winter 15)

190X. Upper Division Seminar (1-2)
Seminar—1-2 hours. Prerequisite: upper division standing and consent of instructor. Limited enrollment. In-depth examination at an upper division level of a special topic in Psychology. Emphasis on student participation in learning. May not be repeated for credit. Offered irregularly.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

192. Fieldwork in Psychology (1-6)
Fieldwork—1-6 hours. Prerequisite: upper division standing in psychology and consent of instructor. Limited enrollment. Supervised internship off and on campus, in community and institutional settings. Maximum of four units may be used towards satisfaction of upper division major requirement. May be repeated one time for credit. (P/NP grading only.)

(change in existing course—eff. winter 15)

194HA. Special Study for Honors Students (3)
Independent study—9 hours. Prerequisite: senior standing in Psychology and qualifications for admission into college honors program, and consent of instructor; at least one course from 180A, 180B, 180C or 199 strongly recommended. Directed research. Supervised reading, research and writing leading to submission of a Senior Honors thesis under the direction of faculty sponsor. (Deferred grading only, pending completion of sequence.) GE credit: WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (3)
Independent study—9 hours. Prerequisite: senior standing in Psychology and qualifications for admission into college honors program, and consent of instructor; at least one course from 180A, 180B, 180C or 199 strongly recommended. Directed research. Supervised reading, research and writing leading to submission of a Senior Honors thesis under the direction of faculty sponsor. (Deferred grading only, pending completion of sequence.) GE credit: WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. summer 15)

Graduate

204A. Statistical Analysis of Psychological Experiments (5)
Lecture—4 hours; laboratory—2 hours. Prerequisite: Statistics 102 or equivalent; graduate standing in Psychology or consent of instructor. Probability theory, sampling distributions, statistical inference, and hypothesis testing using standard parametric and correlational approaches. Analysis of variance, factorial and repeated measures, and tests of trends. Not open for credit to students who have completed course 206.—*F. (F.)* Ferrer, Widaman

(change in existing course—eff. spring 15)

204B. Causal Modeling of Correlational Data (5)
Lecture—4 hours; laboratory—2 hours. Prerequisite: course 204A or the equivalent and graduate standing in Psychology or consent of instructor. Examination of how to make causal inferences from correlational data in the behavioral sciences. Emphasis is on testing rival causal models using correlations among observed variables. Beginning with multiple regression analysis, discussion advances to path analysis and related techniques. Not open for credit to students who have completed course 207A.—*W. (W.)* Simonton, Widaman

(change in existing course—eff. spring 15)

204D. Advanced Statistical Inference from Psychological Experiments (5)
Lecture—4 hours; laboratory—2 hours. Prerequisite: course 204A or the equivalent; graduate standing in Psychology or consent of instructor. Advanced topics in statistical inference, which may include probability theory, sampling distributions, statistical inference and hypothesis testing, nonparametric statistics, Bayesian approaches, and advanced issues in analysis of variance. Not open for credit to students who have completed course 205.—*S. (S.)* Blozis

(change in existing course—eff. spring 15)

205B. Factor Analysis (4)
Lecture—3 hours; term paper. Prerequisite: graduate standing, course 204A and 204B or equivalents or consent of instructor. Theory and methods of factor analysis, including exploratory factor analysis, confirmatory factor analysis, and principal component analysis. Offered in alternate years.—*W.* Widaman

(change in existing course—eff. winter 15)

205G. Applied Longitudinal Data Analysis (4)
Lecture—3 hours; term paper. Prerequisite: course 204A and graduate standing in Psychology or consent of instructor. Modeling and understanding of intraindividual change and interindividual differences in change. Reviews conventional methods and introduces contemporary techniques for modeling intraindividual change. Offered in alternate years.—*F.* Ferrer, Grimm

(new course—eff. fall 14)

208A. Fundamentals of Human Electrophysiology (4)
Lecture/discussion—1.5 hours; laboratory—3 hours; extensive problem solving—1.5 hours.; project—3 hours. Prerequisite: consent of instructor. Restricted to 15 students. In-depth introduction and hands-on experience with the event-related potential (ERP) method in the study of attention, executive control, memory, language and social cognitive neuroscience.—*W. (W.)* Luck, Swaab

(change in existing course—eff. winter 15)

221. Academic Writing in Psychology (4)
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Class size limited to 10 students. Strategies for developing and honing academic writing skills and writing productivity, with a particular focus on how to write a clear and compelling empirical journal article in psychology. May be repeated four times for credit with consent of instructor if student chooses to focus on a substantially different writing project. Offered irregularly.—*F.* Ledgerwood

(change in existing course—eff. winter 15)

Professional

390A. The Teaching of Psychology (6)
Discussion—6 hours; lecture—6 hours; practice—6 hours. Prerequisite: advanced graduate standing in psychology or a closely related discipline and consent of instructor. Methods and problems of teaching psychology at the undergraduate and graduate levels; curriculum design and evaluation. Practical experience in the preparation and presentation of material. (S/U grading only; deferred grading only, pending completion of sequence.)—*W. (W.)* Simonton

(change in existing course—eff. summer 15)

390B. The Teaching of Psychology (6)
Discussion—6 hours; lecture—4 hours; practice—2 hours. Prerequisite: advanced graduate standing in psychology or a closely related discipline and consent of instructor. Methods and problems of teaching psychology at the undergraduate and graduate levels; curriculum design and evaluation. Practical experience in the preparation and presentation of material. (S/U grading only; deferred grading only, pending completion of sequence.)—*S. (S.)* Simonton

(change in existing course—eff. summer 15)

Religious Studies

New and changed courses in Religious Studies (RST)

Lower Division

1E. Fundamentalism (4)
Lecture—3 hours; discussion—1 hour. Introduction to comparative religion, focusing on the idea of fundamentalism in different religious traditions. Not available to those who have taken course 3E. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, OL, VL, WE.—*F, W, S, Su. (F, W, S, Su.)* Watenpaugh

(change in existing course—eff. winter 15)

1H. Sex, Marriage, and Divorce in Medieval and Modern Society (4)
Lecture—3 hours; discussion—1 hour. Methods used in the study of religion, focusing on a particular theme in a number of religious traditions. Offered in alternate years. GE credit: ArtHum | AH, OL, WC, WE.

(change in existing course—eff. winter 15)

1J. Music, Voice, and the Word (4)
Lecture—3 hours; discussion—1 hour. Exploration of relation between religion and musical traditions in various cultures. Investigation of ways music, vocal performance and sound production reflect and shape modern religious sensibilities. Special attention to gender, ethnicity, race, class, nationalism, secularism and mass media. Offered in alternate years. GE credit: ArtHum | AH, WC.—*S.* Miller

(new course—eff. spring 15)

10A. Contemporary Ethical Issues (2)
Discussion—1 hour; extensive writing. Prerequisite: Concurrent enrollment in course 10 required; GE topical breadth and diversity credit only with concurrent enrollment in course 10. Restricted to students enrolled 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 | AH, WE.—*W. (W.)* Coudert, Janowitz

(change in existing course—eff. winter 15)

90. Human Rights (4)
(cancelled course—eff. winter 16)

Upper Division

102. Christian Origins (4)
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Development of Christianity from the end of the first century through the major controversies of the fifth century. Emphasis on the relationship between the new religious movement and the Roman Empire, and issues of early Christian identity and diversity. GE credit: ArtHum, Div, Wrt | AH, WC, WE.

(change in existing course—eff. spring 16)

103. Medieval and Byzantine Christianity (4)
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Christianity in Europe and the Near East from the year 600 to 1450. Focus on the development of Catholic and Orthodox traditions in ritual, art, and thought, with attention to interactions between regional groups, and Christian interaction with Islam. GE credit: ArtHum, Div, Wrt |AH, WC, WE.

(change in existing course—eff. spring 16)

110. Life, Meaning and Identity (4)
Lecture/discussion—3 hours; term paper. Prerequisite: upper division standing. Study of religious lives, the quest for meaning and for personal identity; how religions frame the problems of life; how cultural and personal crises affect youthful identity; the nature and structure of dreams, myths, and ideals. GE credit: AH, WE.—Elmore, Janowitz

(change in existing course—eff. spring 16)

111. Persuasion and Conviction in Religious Tradition (4)
Lecture/discussion—4 hours; term paper. Selected topics in religious argument. Familiarizes students with the discourse structures of religious persuasion and enables them to perform analysis of such texts. Covers argument styles and structures used in ethics, theology, and preaching. GE credit: ArtHum | ACGH, AH, OL, WC, WE.—*F, W, S, Su. (F, W, S, Su.)* Miller, O'Keefe, Syed

(new course—eff. spring 15)

115. Mysticism (4)
Lecture—3 hours; term paper. Prerequisite: one lower division Religious Studies course. Historical and descriptive analysis of selected key figures in mystical traditions and readings of representative mystical texts. Analytic term paper. GE credit: ArtHum, Div, Wrt | AH, OL, VL, WC, WE.

(change in existing course—eff. spring 16)

124. Topics in Judaism (4)
Lecture—3 hours; term paper. Prerequisite: course 21, 23. Examination of selected aspects of Jewish life, religion, or literature. Potential topics include: Jewish Perspectives on Jesus; The Golem: History and Legend; Sexuality and Gender in Late Antique Judaism and Early Christianity. May be repeated for credit when topic differs.

(change in existing course—eff. spring 16)

125. Dead Sea Scrolls, Apocrypha, and Pseudepigrapha (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 21 or consent of instructor. Survey of the Dead Sea Scrolls, apocryphal and pseudepigraphical writings of Judaism and Christianity and their historical, social, and religious importance. GE credit: ArtHum, Wrt | AH, WC, WE.—Janowitz

(change in existing course—eff. spring 16)

138. Human Rights, Gender, and Sexuality (4)
Lecture/discussion—3 hours; term paper. Gender and sexuality in the context of human rights. Topics include women's participation in the public sphere, the right to change gender, the right for family privacy, and the right to marriage. (Same course as Human Rights 138.) GE credit: ArtHum | AH, WC, WE.—*F, W, S, Su. (F, W, S, Su.)* O'Keefe

(new course—eff. fall 15)

140. Christian Theology (4)
Lecture/discussion—3 hours; term paper. Prerequisite: consent of instructor. Historical and systematic introduction to Christian doctrine, with attention to divergent traditions and the problem of orthodoxy and heresy. GE credit: ArtHum | AH, WC, WE.

(change in existing course—eff. spring 16)

141A. New Testament Literature: Synoptic Gospels (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Life and thought of the early Church as reflected by the Synoptic Tradition—Matthew, Mark, Luke and Acts. Offered every third year to alternate with 141B, 141C. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. spring 16)

141B. New Testament Literature: John (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Life and thought of the early Church as reflected by the Johannine Tradition; the Gospel and letters of John. Offered every third year to alternate with courses 141A and 141C. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. spring 16)

141C. New Testament Literature: Paul (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Life and thought of the early Church as reflected by the Pauline tradition—the letters of Paul. Offered every third year to alternate with 141A, 141B. GE credit: ArtHum, Wrt | AH, WC, WE.

(change in existing course—eff. spring 16)

143. New Testament Apocrypha (4)
Lecture—3 hours; term paper. Prerequisite: consent of instructor. Extra-canonical Christian writings and their reception, from antiquity to the present. Emphasis on the importance of New Testament figures both as literary characters and as authors within different Christian traditions. GE credit: ArtHum, Div, Wrt | AH, WC, WE.

(change in existing course—eff. spring 16)

154. The Hindu Temple (4)
Lecture—3 hours; term paper. Comparative history of architecture and symbolism of the Hindu Temple in India, Southeast Asia and the United States. Attention to the temple as expression of religious knowledge, political authority, and cultural heritage through the lens of colonialism and postcolonialism. Offered in alternate years. (Same course as Art History 154.) GE credit: ArtHum or SocSci | AH or SS, VL, WC, WE.—*(F.)* Venkatesan

(new course—eff. fall 15)

158. The Ramayana (4)
Lecture—3 hours; term paper. Exploration of the Indian epic, Ramayana, through the lens of literature, performance, and visual art. Emphasis on the text's diversity and its contemporary global relevance. Topics include Ramayanas in Southeast Asia, and in various South Asian diaspora communities. Offered in alternate years. (Same course as Comparative Literature 156.) GE credit: ArtHum, Div, Wrt | AH, WC, WE.—*(W.)* Venkatesan

(new course—eff. spring 15)

161. Modern Islam (4)
Lecture/discussion—3 hours; term paper. 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 | AH, WC, WE.—Miller, Watenpaugh

(change in existing course—eff. spring 16)

163. The Social Life of Islam (4)
Lecture—3 hours; term paper. Prerequisite: course 60 or History 6 recommended. Introduction to culture and social life in Muslim societies. Focus on the plurality of traditions in Muslim faith, reason, and everyday practice. Special attention to Muslim rituals, ethical values, verbal genres, family life, sexuality and veiling, and youth culture. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, OL, WC, WE.—*W.* Miller

(change in existing course—eff. spring 15)

166. Religion and Media in Arab World (4)
Lecture—4 hours. Exploration of the role and experience of media technologies in the Arab world. Study of digital and electronic media as well as alternative media practices. Investigation of new trends in political activism and identity formation. Offered in alternate years. (Same course as Middle East/South Asian Studies 131C.) GE credit: SocSci | OL, SS, VL, WC, WE.—Miller

(new course—eff. fall 14)

175A. Chinese Intellectual Traditions: Daoist Traditions (4)
Lecture/discussion—4 hours. Prerequisite: 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. (Same course as Chinese 100A) GE credit: ArtHum, Div, Wrt | AH, WC.—Halperin

(change in existing course—eff. fall 16)

194HA. Special Study for Honors Students (1-5)
Independent study. Prerequisite: consent of instructor. Open only to majors of senior standing who qualify for honors program. Guided research, under the direction of a faculty member approved by the Program Director, leading to a senior honors thesis on a religious studies topic. (P/NP grading only.)

(change in existing course—eff. summer 15)

194HB. Special Study for Honors Students (1-5)
Independent study. Prerequisite: consent of instructor. Open only to majors of senior standing who qualify for honors program. Guided research, under the direction of a faculty member approved by the Program Director, leading to a senior honors thesis on a religious studies topic. (P/NP grading only.)

(change in existing course—eff. summer 15)

Russian

New and changed courses in Russian (RUS)

Lower Division

3. Elementary Russian (5)
Discussion—5 hours; laboratory—1 hour. Prerequisite: course 2. Continuation of grammar and language skills developed in course 2. GE credit: ArtHum | AH, OL, WC.—*S. (S.)*

(change in existing course—eff. spring 15)

4. Intermediate Russian (4)
Laboratory/discussion—4 hours. Prerequisite: course 3. Grammar review and conversational practice in Russian. GE credit: ArtHum | AH, OL, WC.—*F. (F.)*

(change in existing course—eff. fall 16)

5. Intermediate Russian (4)
Discussion—4 hours; laboratory—1 hour. Prerequisite: course 4. Grammar review. Introduction to literature in its sociopolitical context. Conversational practice. GE credit: ArtHum | AH, OL, WC.—*W. (W.)*

(change in existing course—eff. spring 15)

6. Intermediate Russian (4)
Discussion—4 hours; laboratory—1 hour. Prerequisite: course 5. Grammar review. Intermediate conversation and continued reading of literature. Social and cultural practices in contemporary Russia; introduction to Russian history. GE credit: ArtHum | AH, OL, WC.—*S. (S.)*

(change in existing course—eff. spring 15)

Upper Division

105. Advanced Russian Conversation (4)
Discussion—3 hours; practice—1 hour. Prerequisite: course 6. Intensive conversational practice and discussion based on current events and contemporary texts. Offered in alternate years. GE credit: ArtHum | AH, OL, WC.—*F.* Druzhnikov

(change in existing course—eff. winter 15)

122. 19th-Century Russian Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 101C when the course offered in Russian; no prerequisite when offered in English. Not open to students who have taken course 121 and 127. Study of Russian literature (prose fiction, drama, poetry) from the period between 1800 and the end of the 19th century. May include authors like Pushkin, Lermontov, Gogol, Turgenev, Dostoevsky, Tolstoy, Chekhov. Offered alternately in English or Russian. GE credit: ArtHum, Wrt | AH, OL, VL, WC, WE.—*F, W, S. (F, W, S.)* Stuchebrukhov

(change in existing course—eff. spring 15)

124. Twentieth-Century Russian Literature (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 101C when offered in Russian; no prerequisite when offered in English. Study of Russian literature (prose, drama, poetry) from the period between 1900 and the end of the 20th century. Authors like Y. Olesha, M. Bulgakov, D. Kharms, and L. Petrushevskaia. Taught in Russian. Not open for credit to students who have taken courses 123 or 128. GE credit: ArtHum | AH, OL, VL, WC, WE.—*F, W, S. (F, W, S.)* Kaminer

(change in existing course—eff. fall 15)

130. Contemporary Russian Culture (4)
Lecture—3 hours; term paper. Prerequisite: consent of instructor. Current trends in Russian culture and the relationship between artists and the government. Topics include recent changes in the cultural scene, postmodernist trends in literature, visual art, film, and theater. Offered in alternate years. GE credit: ArtHum | AH, OL, WC, WE.—*S. (S.)*

(change in existing course—eff. spring 16)

133. Post-Soviet Literature (4)
Lecture/discussion—3 hours; term paper. Major authors and trends in Russian literature in post-1991 period. Discussion of impact of economic, social, and cultural turmoil of post-Soviet period on literary marketplace. Analysis of development of literary postmodernism in Russia. GE credit: ArtHum, Wrt | AH, WC, WE.—*F. (F.)* Kaminer

(change in existing course—eff. spring 16)

139. Pushkin (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 101C or consent of instructor. Three major periods of Pushkin's poetical works: his early Lyceum verse; his poetry of the early 1820s; and the mature period. Further study of Pushkin's prose fiction, drama, and journalism. GE credit: ArtHum, Div | AH, OL, WC, WE.—*F. (F.)*

(change in existing course—eff. fall 15)

141. Tolstoy (in English) (4)
Lecture—3 hours; term paper. Study of Leo Tolstoy's literary evolution and moral quest. Readings include his Confession, a major novel such as War and Peace or Anna Karenina, and representative shorter fiction. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, OL, WE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 15)

143. Chekhov (in English) (4)
Lecture/discussion—3 hours; extensive writing. Examination of Chekhov's short stories and major plays, such as The Seagull, Uncle Vanya, The Three Sisters, The Cherry Orchard, and Ivanov, in the broader cultural context of European and Russian fin de siecle. GE credit: ArtHum, Div, Wrt | AH, OL, WC, WE.—Stuchebrukhov

(change in existing course—eff. fall 16)

150. Russian Culture (4)
Discussion—3 hours; term paper. Knowledge of Russian not required. Study of Russian culture in nineteenth and twentieth centuries. Brief introduction of the beginnings up to nineteenth century. Russian art, music, philosophy, church, traditions, and daily life. GE credit: ArtHum, Div, Wrt | AH, WC, WE.

(change in existing course—eff. spring 16)

Science and Society

New and changed courses in Science and Society (SAS)

Lower Division

1. Critical Inquiry into Contemporary Issues (4)
Lecture/discussion—3 hours; discussion—1 hour. Open to first year and new transfer students only. Contemporary issues, including global population trends, economic and environmental changes, cultural diversity and biodiversity, nutrition and food safety, fiber and textiles, changing consumer cultures. Inquiry processes emphasize ethics, multiple disciplines, and multiple perspectives. GE credit: SciEng or SocSci, Div, Wrt | SE or SS, WE.—*F. (F.)* Caswell-Chen

(change in existing course—eff. winter 15)

3. Science, Technology and Society (4)
Lecture—4 hours. Impact of developments in science and technology on the individual in society and how economics, politics, culture and values affect technological development. Not open for credit to students who have completed former course Applied Behavioral Sciences 18. Offered irregularly. GE credit: SciEng or SocSci, Wrt | SE or SS.

(change in existing course—eff. winter 15)

5. Pathways to Discovery: Science and Society (3)
Lecture/discussion—3 hours. Highlights a current issue and/or controversy found in contemporary society and looks at how this problem impacts and is affected by the physical, social and biological sciences. Course varies with topic offered. May be repeated two times for credit. GE credit: SciEng or SocSci, Wrt | SE or SS.

(change in existing course—eff. fall 14)

41. Understanding Performance: Appreciation of Modern Theatre, Dance, Film and Performance Art for the Humanities and Sciences (4)
Lecture/discussion—3 hours; laboratory/discussion—1 hour. Relevance of theatre and performance to modern culture, science and society. Approaches to theatre/dance/media/performance art, integrated into Mondavi Centre for the Arts and Theatre

and Dance Department programs. (Same course as Dramatic Art 5.) GE credit: ArtHum, Div | AH, DD, OL, VL, WC, WE.—*F, W, S. (F, W, S.)*

(new course—eff. winter 15)

70A. Genetic Engineering in Medicine, Agriculture, and Law (5)

Lecture—5 hours. Not open to students who have taken Biological Sciences 1A, Biological Sciences 2A or equivalent, or course 20; concurrent enrollment in Plant Biology 98 required. Historical and scientific study of the impact of genetic engineering in medicine, agriculture, and law, including examination of social, ethical, and legal issues raised. Offered in a distance-learning format. GE credit: SciEng or SocSci | SE or SS, SL.—*W. (W.)* Harada

(change in existing course—eff. winter 15)

90F. Food Distribution in a Hungry World (2)

Seminar—2 hours. Class size limited to 15 students. The biological, technological, environmental, and socioeconomic factors related to food distribution systems at local, regional, national, and international levels. The potential for increasing world food supply by reducing losses between harvest and consumption.—*F. (F.)*

(change in existing course—eff. winter 15)

90X. Lower Division Seminar (1-4)

Seminar—1-4 hours. Prerequisite: lower division standing; consent of instructor. Limited enrollment. Examination of a special topic in Science and Society through shared readings, discussions, written assignments, or special activities such as fieldwork, laboratory work, etc. May be repeated for credit.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Upper Division

120. Science and Contemporary Societal Issues (3)

Lecture/discussion—3 hours. Prerequisite: upper division standing. Study of a contemporary societal issue/problem emphasizing critical thinking with information drawn from several disciplines. Multiple instructors illustrate the necessity of an interdisciplinary and cooperative approach in solving important issues. Topic will vary. May be repeated one time for credit. Offered irregularly. GE credit: SciEng or SocSci, Wrt | SE or SS.—*S. (S.)*

(change in existing course—eff. fall 14)

130. Contemporary Leadership (4)

Lecture—3 hours; seminar—1 hour. Prerequisite: consent of instructor. Class size limited to 40 students. Leadership, including issues, skills, and practices as they relate to individuals, organizations, diverse social settings and communities. Written and verbal communications, personality styles for collaborative work, and ethics. GE credit: OL.—*W, S. (W, S.)* King

(change in existing course—eff. winter 15)

190X. Science & Society Seminar (1-4)

Seminar—1-4 hours. Prerequisite: Upper division standing; consent of instructor. Class size limited to 20 students. In-depth examination at an upper division level of a special topic in Science and Society. Emphasis upon student participation in learning. Emphasis upon student participation in learning. May be repeated for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

198. Directed Group Study (1-5)

Prerequisite: upper division standing; consent of instructor. Restricted to Sustainable Agriculture and Food Systems major or with consent of instructor. Group study on focused topics in Sustainable Agriculture and Food Systems. Varies according to instructor. Course plan is adapted to student need and interest in conjunction with the expertise of the instructor. May be repeated for credit. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

199. Special Study in Science and Society (1-5)

Independent study—3-15 hours. Prerequisite: upper division standing; consent of instructor. Under faculty supervision, advanced students pursue a special or individualized course of study related to Sustainable Agriculture and Food Systems. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

Science and Technology Studies

New and changed courses in Science and Technology Studies (STS)

Lower Division

40A. Media History 1, Gutenberg to Oppenheimer (4)

Lecture—3 hours; discussion—1 hour; film viewing—2 hours; extensive writing. History of Media to 1945, with particular focus on mechanically reproduced mass media technologies including the printing press, the newspaper, photography, cinema, radio and early computing technology. Analysis of inter-related cultural and political topics. (Same course as Cinema and Technocultural Studies 40A.) GE credit: ArtHum or SocSci | AH or SS, OL, VL, WE.—*F. (F.)*

(new course—eff. winter 15)

40B. Media History 2 1945-Present (4)

Lecture—3 hours; discussion—1 hour; film viewing—2 hours; extensive writing. Prerequisite: course 40A. History of media from 1945 to present, with particular focus on the development of the computer, digital network and internet technologies in the context of other media infrastructures like radio, television and satellite networks. Analysis of inter-related cultural/political topics. (Same course as Cinema & Technocultural Studies 040B.) GE credit: ArtHum or SocSci | AH or SS, OL, VL, WE.—*F. (F.)*

(change in existing course—eff. winter 15)

51. Ancient Medicine (4)

Lecture—3 hours; discussion–1 hour. Medicine in ancient Greece and Rome; physiological conceptions of the body within scientific and social frameworks; exploration of sanitation technology and health in antiquity; medical treatment of the female body; medicine and the economy. (Same course as Classics 51.) Offered in alternate years. GE credit: AH, WC, WE.—Webster

(new course—eff. winter 16)

Upper Division

109. Visualization in Science (4)

Lecture—3 hours; extensive writing or discussion—1 hour. course 1 or 20 or Anthropology 2 recommended. 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. (Same course as Anthropology 109.) Offered in alternate years. GE credit: SocSci, Wrt | SS, VL, WE.—Dumit

(change in existing course—eff. fall 16)

121. Special Topics in Medical Anthropology (4)

Lecture/discussion—4 hours. Prerequisite: Anthropology 2 recommended. Introduction to critical medical anthropology. Topics include anthropological analysis of bio-medicine, psychiatry, systems of knowledge and healing, the body, emotions, and clinical encounters in a cross-cultural perspective. (Same course as Anthropology 121.) GE credit: SocSci, Div, Wrt | SS, WC, WE.—Giordano

(change in existing course—eff. fall 16)

129. Health and Medicine in a Global Context (4)

Lecture/discussion—4 hours; term paper. Prerequisite: Anthropology 2 recommended. Recent works in medical anthropology and the science studies of medicine dealing with global health issues such as AIDS, pandemics, clinical trials, cultural differences in illnesses, diabetes, organ trafficking, medical technology and delivery, illness narratives, and others. (Same course as Anthropology 129.) GE credit: SocSci, Div, Wrt | SS.—Dumit

(change in existing course—eff. fall 16)

172. Video Games and Culture (4)

Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 1 or Technocultural Studies 1 or English 3 or equivalent. Critical approaches to the study of video games, focusing on formal, historical, and cultural modes of analysis. History of software and hardware in North American and global contexts. Relations of games to society, politics, economics, literature, media, and the arts. (Same course as Cinema and Technocultural Studies 172 and English 172.) GE credit: ArtHum or SocSci | ACGH, AH or SS, VL.

(change in existing course—eff. spring 15)

173. Science Fiction (4)

Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or English 3 or equivalent. 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, Wrt | AH, WE.

(change in existing course—eff. winter 15)

176. Sociology of Knowledge, Science, and Scientific Knowledge (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: Sociology 1, 2, or 3 recommended. Social, cultural, and historical dimensions of knowledge, especially scientific knowledge. Problems, methods, and theory in sociology of scientific knowledge. Laboratory and historical case studies. Scientific and technical knowledge in institutional and organizational contexts. (Same course as Sociology 176.) GE credit: SocSci | SS.—Carroll

(change in existing course—eff. fall 16)

Graduate

200. Theories and Methods in Science & Technology Studies (4)

Seminar—3 hours; term paper. Theories and methods of Science & Technology Studies as a field of critical and empirical scholarship, and examination of various contexts in which STS has emerged worldwide. May be repeated one time for credit with consent of instructor.

(new course—eff. fall 14)

Sociology

New and changed courses in Sociology (SOC)

Lower Division

2. Self and Society (4)
Lecture—3 hours; discussion—1 hour. Exploration of how self and identity are formed and transformed by socialization and social interaction in relation to roles, groups, institutions, power, and social change. Consideration of how people make decisions, fall in love, and come to blows. GE credit: SocSci, Wrt | ACGH, DD, SS.
(change in existing course—eff. winter 15)

12Y. Data Visualization in the Social Sciences (4)
Lecture—2 hours; laboratory—1.5 hours; web virtual lecture—1.5 hours. Introduction to quantitative data across the social sciences (Communications, Political Science, Psychology, Sociology, and other disciplines). Transforming data, describing data, producing graphs, visual reasoning, and interpretations. (Same course as Communications 12Y, Sociology 12Y, Political Science 12Y.) GE credit: QL, VL.—*F, W, S. (F, W, S.)* Cross
(new course—eff. spring 16)

90X. Lower Division Seminar (1-2)
Seminar—1-2 hours. Prerequisite: lower division standing; consent of instructor. Limited enrollment. Examination of a special topic in sociology through shared readings, discussions, written assignments, or special activities such as fieldwork, laboratory work, etc. May not be repeated for credit. GE credit: SocSci | SS.
(change in existing course—eff. winter 15)

Upper Division

100. Origins of Modern Sociological Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. 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: SocSci | SS.
(change in existing course—eff. fall 16)

102. Society and Culture of California (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. California's distinctive society and culture; sociological analyses of topical issues concerning diversity, environment, cities. Offered irregularly. GE credit: SocSci | ACGH, DD, SS.
(change in existing course—eff. fall 16)

103. Evaluation Research Methods (4)
Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1 or 2 or 3 recommended; course 46A and 46B recommended. Surveys applications of research methods to the evaluation of social programs, primarily emphasizing methodological issues, e.g., research design and data collection; uses of evaluation research are also discussed and placed in theoretical context. Participation in an evaluation project. Offered irregularly. GE credit: SocSci | SL, SS.
(change in existing course—eff. fall 16)

106. Intermediate Social Statistics (5)
Lecture—4 hours; discussion—1 hour. Prerequisite: course 46B or consent of instructor. Intermediate level course in statistical analysis of social data, emphasizing the logic and use of statistical measures, procedures, and mathematical models especially relevant to sociological analysis. GE credit: SocSci | QL, SL, SS.
(change in existing course—eff. fall 16)

118. Political Sociology (4)
Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Relation of social cleavages and social cohesion to the functioning of political institutions; the social bases of local and national power structures; social sources of political movement, analysis of concepts of alienation, revolution, ideology, ruling class, and elite. GE credit: SocSci | SS.
(change in existing course—eff. fall 16)

120. Deviance (4)
Lecture—3 hours; term paper or discussion. Prerequisite: course 1, 2, or 3 recommended. Social structural sources, institutional practices and microprocesses associated with illegality, evil, disease, immorality, disability, racial and class differences, citizenship, and the body. Special emphasis on expert knowledge and the production and management of social difference. GE credit: SocSci, Wrt | SS.
(change in existing course—eff. fall 16)

122. Sociology of Adolescence (4)
Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Chronological age and social status; analysis of social processes bearing upon the socialization of children and adolescents. The emergence of youth cultures. Generational succession as a cultural problem. GE credit: SocSci | SS.
(change in existing course—eff. fall 16)

124. Education and Inequality in the U.S. (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Functions of schooling in contemporary U.S. society. Racial, ethnic, social class, and gender inequalities in student outcomes. Consideration of classic and current controversies in the sociology of education and education policy. GE credit: SocSci | SS.
(change in existing course—eff. fall 16)

125. Sociology of Culture (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. Sociological approaches to study of historical and contemporary culture and mass media, and their structuring in relation to social actors, institutions, stratification, power, the production of culture, audiences, and the significance of culture in processes of change. GE credit: SocSci | SS.
(change in existing course—eff. fall 16)

126. Social Interaction (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Everyday interaction in natural settings; ethnographic approaches to the understanding of social meanings, situations, personal identity and human relationships. Particular attention to the work of Erving Goffman and to principles of field observation and qualitative analysis. GE credit: SocSci, Wrt | SS.
(change in existing course—eff. fall 16)

127. Sociology of Death (4)
(cancelled course—eff. winter 16)

128. Interracial Interpersonal Dynamics (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Analysis of the influences of cultural differences and racial stratification on interpersonal interaction in instrumental settings (e.g., work, education, political action) and intimate settings (e.g., friendship, love, marriage, family). Minority/majority relationships. Offered irregularly. GE credit: SocSci, Div, Wrt | SS.
(change in existing course—eff. fall 16)

129. Sociology of Black Experience in America (4)
Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Survey of historical and contemporary theoretical sociological perspectives on the Black experience in United States. Emphasis on comparisons of Black sociological perspectives and mainstream perspectives of specific sociologists. GE credit: SocSci, Div | ACGH, DD, SS.
(change in existing course—eff. fall 16)

130. Race Relations (4)
Lecture—3 hours; term paper or discussion—1 hour. Functions of the social definitions of race and racial groups. Analysis of racial conflict, oppression, and other forms of ethnic stratification. Models of ethnic interaction and social change. Emphasis on racial relationships within the U.S. GE credit: SocSci, Div | ACGH, DD, SS.
(change in existing course—eff. fall 16)

131. The Family (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Contemporary family life in historical and cross-cultural perspective. How different family forms arose, their significance today and prospects for further family change. Attention to power relations within and beyond the family and to the social implications of family transformation. GE credit: SocSci, Div, Wrt | ACGH, DD, SS.
(change in existing course—eff. fall 16)

132. The Sociology of Gender (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Analysis of biological, psychological, cultural and structural conditions underlying the status and roles of men and women in contemporary society, drawing on a historical and comparative perspective. GE credit: SocSci, Div | ACGH, DD, SS.
(change in existing course—eff. fall 16)

133. Sexual Stratification and Politics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended; consent of instructor. Analysis of origins, dynamics, and social implications of sexual stratification. Examination of classical and contemporary theorists such as Engels, Freud, J.S. Mill, de Beauvoir, Juliet Mitchell, D. Dinnerstein. Attention to selected issues in social movements for and against sexual equality. Offered irregularly. GE credit: SocSci, Div | SS.
(change in existing course—eff. fall 16)

134. Sociology of Racial Ethnic Families (4)
Lecture—3 hours; discussion—1 hour or term paper. Prerequisite: course 1, 2, or 3 recommended. Asian American, Black, Chicano, and Native American family life in comparative historical perspective. Family structure and gender roles are considered in relation to socio-historical dynamics. Offered irregularly. GE credit: SocSci, Div, Wrt | ACGH, DD, SS.
(change in existing course—eff. fall 16)

135. Social Relationships (4)
Lecture—3 hours; discussion—1 hour or term paper. Prerequisite: course 1, 2, or 3 recommended. Social and cultural factors influencing friendships and intimate relationships. Topics include relationship development, relationship maintenance, and relationship loss. GE credit: Div, SocSci, Wrt | SS.
(change in existing course—eff. fall 16)

137. African American Society and Culture 1790-1990 (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Restricted to upper division standing. Political and

social transformations of African American communities between 1790 and 1990, as seen through film, literature, and music. Topics include: Black consciousness, Afro-Slave culture, The Harlem Renaissance, and contemporary Hip Hop. Offered irregularly. GE credit: SocSci | ACGH, DD, SS.

(change in existing course—eff. fall 16)

138. Economic Sociology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Overview of the rapidly growing field of economic sociology. Focus on variations in the ways that markets are organized. The relationship between individual and collective rationality will also be emphasized. GE credit: SocSci | ACGH, SS, WC.

(change in existing course—eff. fall 16)

139. Corporations and Society (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Study of the history and power of the modern corporation; corporate organization; politics, the state, and the corporation; labor unions and the labor process; competition, regulation and international markets; the multinational and conglomerate corporation; and mass markets and consumerism. GE credit: SocSci | ACGH, SS.

(change in existing course—eff. fall 16)

140. Social Stratification (4)

Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Systems of social ranking, theories of stratification; power, prestige, culture, and styles of life of various social classes; social mobility and its consequences for social structure. GE credit: SocSci | ACGH, DD, SS.

(change in existing course—eff. fall 16)

141. Industrialization and Social Change (4)

Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Selected technological and social factors. Preconditions of economic development and industrialization. Social, political, and cultural issues at various levels of economic development. Major historical differences and major current trends. Emphasis either on highly industrialized countries or on less developed countries. Offered irregularly. GE credit: SocSci, Wrt | SS.

(change in existing course—eff. fall 16)

143A. Urban Society (4)

Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Theories of city origins. Analysis of the historic process of urbanization and of varying city types. Comparison of American and European experience of metropolitanization, counterurbanization, and neighborhood change. Consideration of competing theories of urban growth and change and competing visions of the urban future. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

143B. Sociology of City Life (4)

Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Critical dissection of the "loss of community" issue. Analysis of the organization of primary ties in the city, of the culture of urban public life and of the learning of city skills. GE credit: SocSci, Wrt | SS.

(change in existing course—eff. fall 16)

144. Agriculture and Society (4)

(cancelled course—eff. winter 16)

145A. Sociology of Third World Development (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Introduction to theories and contemporary issues in the sociology of development. Topics such as urbanization, rural/agrarian change, class, status groups, international division of labor, sectoral shifts, international capital, informal economy, gender, and political processes are analyzed within a comparative-historical framework. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC.

(change in existing course—eff. fall 16)

145B. Gender and Rural Development in the Third World (4)

Seminar—4 hours. Prerequisite: course 1, 2, or 3 recommended. Political-economic analysis of women and work during the process of socioeconomic change in the world with particular attention to the family/household context. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC.

(change in existing course—eff. fall 16)

146. Sociology of Religion (4)

Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Relationship between social structures and religions. The social setting of the major world religions. Religious innovators and institutionalization (churches, sects, cults). Secularization in the modern world and the rise of secular ideologies. Offered irregularly. GE credit: SocSci, Div, Wrt | SS.

(change in existing course—eff. fall 16)

147. Sociological Perspectives on East Asia (4)

Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Sociological theories and concepts applied toward understanding East Asian society. Emphasis on the political structure, stratification, and economy in China and Japan. Analysis of historical and contemporary similarities and differences. Offered irregularly. GE credit: SocSci | SS, WC.

(change in existing course—eff. fall 16)

148. Collective Behavior (4)

Lecture—3 hours; discussion—1 hour; term paper or discussion. Prerequisite: course 1, 2, or 3 recommended. Study of behavior of human crowds and masses in extraordinary circumstances, including crowd panics, mass scares, collective protests, riots, revolutionary situations, ecstatic and revivalist gatherings, crazes, fads, and fashions. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

149. Religion and American Society (4)

Lecture—3 hours; project. Prerequisite: course 1, 2, or 3 recommended. Historical, contemporary survey of religious traditions and organizations and their relation to U.S. social and cultural patterns. Civil religion, religious pluralism, minority and deviant communities, religious migration, U.S. religion as a social institution, and religion, politics, and social stratification. Offered irregularly. GE credit: SocSci, Div, Wrt | ACGH, DD, SS.

(change in existing course—eff. fall 16)

150. Criminology (4)

Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Sociological analysis of criminal behavior in relation to social structure and the criminalization process. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

151. The Criminal Justice System (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Sociological analysis of the different components of the criminal justice system including the emergence and interpretation of criminal laws, the contemporary roles and functions of the police, criminal courts and correctional institutions. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

152. Juvenile Delinquency (4)

Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Study of juvenile delinquency in relation to the family, peer groups, community, and institutional structures. Consideration of processing of the delinquent by formal agencies of control. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

153. The Sociology of Childhood (4)

Lecture—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. 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. Offered irregularly. GE credit: SocSci | ACGH, DD, SS, WC.

(change in existing course—eff. fall 16)

154. Health and Illness (4)

Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Theoretical tools for understanding the social determinants of health and health care, including such topics as health policy, social sources of illness, social construction of illness, medicalization, social disparities in health, and the illness experience. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

155. Sociology of Law (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Law considered as social control; relation of legal institutions to society as affecting judicial decision making and administration of justice. Lawyers as an occupational group. Legal reform. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

156. Social Movements (4)

Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Analysis of several aspects of social movements: mobilization, forms of organization, ideology, recruitment, leadership, strategies and tactics, development, effects. Frequent use of sound and film materials. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

157. Social Conflict (4)

Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Analysis of the causes, dynamics, and regulation of social conflict within and between various kinds of social groupings with particular reference to nonviolent methods of waging and regulating conflict. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

158. Women's Social Movements in Latin America (4)

Lecture—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. Contemporary women's social movements in Latin America, focusing on Honduras, El Salvador, Brazil, and Nicaragua. Examination of exploitation and oppression in Latin America. Offered irregularly. GE credit: SocSci | DD, SS, WC.

(change in existing course—eff. fall 16)

159. Work, Employment, and Careers in the 21st Century (4)

Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Historical and contemporary overview of employment, work, and occupations in American society. Study of authority and power relations, labor markets, control systems, stratification, and corporate structures, and

how these factors shape work in diverse or organizational and employment setting. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

160. Sociology of the Environment (4)
Lecture—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. Production, consumption, and urban expansion. Basic social logics surrounding current problems of resource scarcity (environmental extractions) and excess wastes (environmental additions). Ways that society can change and re-organize itself to become more environmentally conscious and hence ecologically sustainable. GE credit: SocSci | ACGH, DD, SS, WC.—Beamish

(change in existing course—eff. fall 16)

161. The Civil Justice System (4)
Lecture—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. Empirical studies of the different aspects of the civil justice system in the United States and Global Society including the litigation, juries, civil rights, and international laws relating to trade, the environment, and human rights. Offered irregularly.

(change in existing course—eff. fall 16)

170. Population (4)
Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Introduction to the study of human population, including theories and statistical measures; social causes and consequences of population trends; changes in population structure; geographical distribution, migration, socio-psychological factors affecting fertility. GE credit: SocSci | QL, SS.

(change in existing course—eff. fall 16)

171. Sociology of Violence and Inequality (4)
Lecture/discussion—4 hours. Prerequisite: course 1, 2, or 3 recommended. How systems of social inequality organize the practice of violence. Definitions of violence and issues affecting the social capacity for violence. Analysis and comparison of different forms of violence associated with race, class, gender relations and social organization. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

172. Ideology of Class, Race and Gender (4)
Lecture—4 hours. Prerequisite: course 1, 2, or 3 recommended. Examination of popular belief systems that accompany relations between social classes, whites and blacks, and men and women in the United States. How do dominant groups attempt to justify each relationship, and is there ideological conflict or consensus between groups. Offered irregularly. GE credit: SocSci, Div, Wrt | ACGH, DD, SS.

(change in existing course—eff. fall 16)

173. Sociology Through Literature (4)
Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Introduction to analysis of literature as sociological data. Reading of numerous works on American and other societies by authors such as Steinbeck, Lewis, Dreiser, Schulberg, Orwell, etc. Offered irregularly. GE credit: SocSci | QL, SS.

(change in existing course—eff. fall 16)

174. American Jewish Identities and Communities (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Sociology of Jewish life, analyzing challenges to Jewish identity and community in the diaspora. Diversity within the Jewish community, Americanization, women, new immigrants, post-Holocaust Jewish identity, and LGBT Jews. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

175. Mass Communication (4)
Lecture—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. Examines the relationship between the media and social structures. History of media–state relations. Media as reflector and shaper of values. Emphasis on current European and Marxist and pluralist theories rather than on content analysis. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

176. Sociology of Knowledge, Science, and Scientific Knowledge (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Social, cultural, and historical dimensions of knowledge, especially scientific knowledge. Problems, methods, and theory in sociology of scientific knowledge. Laboratory and historical case studies. Scientific and technical knowledge in institutional and organizational contexts. (Same course as Science and Technology Studies 176.) Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

180A. Complex Organizations (4)
Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended. Develops a sociological approach to organizations theory. Designed to introduce sociological concepts, address the alternative psychological and economic models, and involve students in the practice of organizational analysis. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

180B. Complex Organizations (4)
Lecture—3 hours; discussion—1 hour; term paper; project. Prerequisite: course 1, 2, or 3 recommended; consent of instructor. Builds on concepts and skills developed in course 180A. Deals with the issues of organizational decision making, design, and survival. Emphasis on relations between organizations and the effects of those relations in both the public and private sectors. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

181. Social Change Organizations (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Analysis of organizations with social change and improvement goals and programs, emphasizing voluntary associations and grassroots citizen groups. Topics treated include formation, decision making and leadership, strategies and tactics, factionalism and coalitions, effectiveness. Offered irregularly. GE credit: SocSci, Wrt | SS.

(change in existing course—eff. fall 16)

182. Utopian Communal Groups and Movements (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Formations, structures, and social life of historical and contemporary countercultural, utopian, dystopian, intentional, and religious communal settlements and movements, including comparison with other small settlement forms such as monasteries, villages, neighborhoods, encampments, and communities. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

183. Comparative Organizations (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 1, 2 or 3 recommended; course 180A recommended. Examination of the economic, cultural, and political organization of major industrial and developing nations. Discussion of patterns and practices, alternative theoretical models of explanation, and case studies of organizations. Societies may include Japan, Germany, Egypt, China, and the U.S. Offered irregularly. GE credit: SocSci | ACGH, SS, WC.

(change in existing course—eff. fall 16)

185. Social Policy (4)
Lecture—3 hours; term paper or discussion—1 hour; project. Prerequisite: course 1, 2, or 3 recommended. Examination of social policies that affect the well-being of individuals, families and groups, including such policies as old-age pensions, health insurance, and aid to the poor. Students may not take both course 185 and 185Y for credit. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

185Y. Social Policy (Hybrid Version) (4)
Web virtual lecture—1.5 hours; lecture—1.5 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Examination of social policies that affect the well-being of individuals, families and groups, including such policies as old-age pensions, health insurance, and aid to the poor. Students may not take both courses 185 and 185Y for credit. Offered irregularly. GE credit: SocSci | SS, WE.

(change in existing course—eff. fall 16)

188. Markets, Culture and Inequality in China (4)
Lecture—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. Economic and political systems and patterns of social interaction and inequality in China. State and corporate structures and practices, market and consumer behaviors, social mobility and stratification, protest and resistance. Offered irregularly. GE credit: SocSci | SS, WC.—*F.*

(change in existing course—eff. fall 16)

189. Social Science Writing (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 1, 2, or 3 recommended. Improved analytic writing and methods for reporting social science research to a wider public. Sociological analysis of the conditions of good and bad writing. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

190X. Seminar in Sociological Analysis (4)
Seminar—3 hours; term paper. Prerequisite: upper division standing; course 100 (former course 165A). Limited enrollment. In-depth examination at an upper division level of a special topic in Sociology. Emphasis on student participation in learning. May not be repeated for credit. Offered irregularly.

(change in existing course—eff. winter 15)

191. Workshop in Contemporary Sociological Theory (4)
Lecture—2 hours; workshop—1 hour; term paper. Prerequisite: course 100 (former 165A); senior standing. Workshop in contemporary sociological theory that allows students to explore the uses of theory in empirical inquiry on problems of interest to students. Contemporary theory considered in relation to classical and modern influences, concept formation, theory construction, and explanation. Not open for credit to students who have received credit for course 165B. Offered irregularly. GE credit: SocSci | SS.

(change in existing course—eff. winter 15)

192. Internship and Research Practicum (2-6)
Internship—6-18 hours. Prerequisite: course 46A; upper division standing, approval of proposed internship and consent of instructor. Supervised internship and study in an agency, organization, or institution; application of sociological concepts to the work experience. Maximum of four units may be

counted toward the major. May be repeated for credit with consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

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

Prerequisite: consent of instructor. Open to Sociology majors of senior standing who qualify for the Honors program. Independent study of a sociological problem involving the writing of an Honors thesis. May be repeated up to eight units for credit. (P/NP grading only; deferred grading only, pending completion of sequence) GE credit: WE.—*F. W. (F, W.)*

(change in existing course—eff. winter 15)

194HA. Special Studies for Honors Students (4)

Independent study—12 hours. Prerequisite: senior qualifying for honors. Directed reading, research and writing, culminating in the completion of a senior honors thesis or project under direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE.—*F. (F.)*

(change in existing course—eff. summer 15)

194HB. Special Studies for Honors Students (4)

Independent study—12 hours. Prerequisite: senior qualifying for honors. Directed reading, research and writing, culminating in the completion of a senior honors thesis or project under direction of a faculty adviser. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | SE.—*W. (W.)*

(change in existing course—eff. summer 15)

195. Special Topics in Sociological Analysis (4)

Seminar—3 hours; term paper. Prerequisite: course 1, 2, or 3 recommended. In-depth examination of topics in sociology. Emphasis on student research and writing. May be repeated for credit when topic differs. GE credit: SocSci | SS.

(change in existing course—eff. fall 16)

Graduate

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.

(change in existing course—eff. winter 15)

207A. Methods of Quantitative Research (4)

Lecture—3 hours; term paper. Prerequisite: course 106 or the equivalent. Principles of study design, examination of measurement, survey research methods and multivariate analysis. Course will stress actual practice of techniques. Students will carry out quantitative data analysis using packaged computer programs. May be repeated eight times for credit with instructor approval.—*F. (F.)*

(change in existing course—eff. fall 15)

242A. Methodologies of Sociohistorical Inquires (4)

Seminar—3 hours; term paper. Prerequisite: consent of instructor not required for graduate students in the Social Sciences Division or the Humanities, Arts, and Cultural Studies Division; required for undergraduates and students from other divisions or colleges. Introduction to comparative and case methodological approaches to sociohistorical inquiry, theoretical and practical issues, and substantive research agendas ranging from study of large-scale social transformations to close microhistories, including research agendas being developed by students in the course.—*F. (F.)*

(change in existing course—eff. fall 15)

288. Integrative Research Practicum (4)

Seminar—6 hours; extensive writing; term paper. Prerequisite: courses 207A, 242A, 292A; consent of instructor. Continuing training in field, quantitative, and/or comparative-historical methods. Emphasis on students' research projects and applications of principles related to research design, concept and theory construction causality and interpretation, and data and measurement. Completion of research paper is required.—*S. (S.)* Grindstaff, Hall, Lo, Shaumann, Shu, Wolf

(new course—eff. fall 15)

292A. Field Research (4)

Seminar—3 hours; fieldwork. Prerequisite: graduate standing in Sociology or consent of instructor. Introduction to the logic, methods, and practices of field research, with particular emphasis on the ethnographic tradition of participant observation. Interviewing and other qualitative techniques will also be covered. Students will develop original research projects based on their own fieldwork.—*F. (F.)* Grindstaff, Wolf

(change in existing course—eff. fall 15)

Soil Science

New and changed courses in Soil Science (SSC)

Lower Division

10. Soils in Our Environment (3)

Lecture—3 hours; independent study. Class size limited to 90 students. Soils in our global ecosystem; soils as natural bodies formed by interactive environmental processes; soil response to use and management; sustainable use of soil resources; role of soils in agricultural and environmental issues; role of soils in our daily lives. GE credit: SciEng | QL, SE, SL.—*F. (F.)* Dahlgren

(change in existing course—eff. winter 15)

Upper Division

105. Field Studies of Soils in California Ecosystems (5)

Prerequisite: courses 100 and 120, or equivalent recommended. Class size limited to a minimum of 10 and a maximum of 24 students. Field-based studies of soils in California ecosystems, away from campus, throughout California. Emphasis on description and classification of soils; relationships among soils, vegetation, geology, and climate; physical, chemical, and biological processes in soils on the landscape; and the role of soils in land use. May be repeated one time for credit. GE credit: SciEng | QL, SE, SL, VL, WE.—*Su. (Su.)* Amundson, Dahlgren, O'Geen, Southard

(change in existing course—eff. winter 15)

112. Soil Ecology (3)

(cancelled course—eff. winter 14)

118. Soils in Land Use and the Environment (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or consent of instructor. Soils are considered as elements in land use planning and environmental quality. Topics include: soil survey reports, remote sensing, land capability classification, soil erosion/conservation, waste disposal on soils and soil reclamation. One one-day field trip. GE credit: SciEng | SE, SL.—*S. (S.)* O'Geen

(change in existing course—eff. spring 15)

Graduate

202. Topics in Advanced Soil Chemistry (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: undergraduate course in soil chemistry, water chemistry or consent of the instructor. Restricted to 18 students. Reviews of current research in soil chemistry. Topics include double layer theory; clay mineral and oxide surface chemistry; adsorption on soil surfaces; speciation and modeling of solution ions; solubility and mineral stability diagrams. May be repeated one time for credit if topic differs.—*W. (W.)* Parikh

(change in existing course—eff. winter 16)

205. Field Studies of Soils in California Ecosystems (5)

Fieldwork—50 hours; discussion—15 hours; lecture—5 hours. Prerequisite: courses 100 and 120 or equivalent recommended. Class size limited to 24 students. Field-based soil studies in California ecosystems. Description and classification of soils; relationships among soils, vegetation, geology, and climate; physical, chemical, and biological processes; their role in land use. Similar to course 105; requires additional work for graduate credit. May be repeated one time for credit if geographic locale changes. Offered irregularly.—*Su. (Su.)* Amundson, Dahlgren, O'Geen, Southard

(change in existing course—eff. winter 15)

208. Soil-Plant Interrelationships (3)

Lecture—3 hours. Prerequisite: course 100, Plant Biology 111B or consent of instructor. Plant needs, occurrence and reactions of water and mineral nutrients in soils; root systems and their growth in soils; mass flow and diffusion mechanisms in nutrient acquisition; models relating nutrient uptake to soil and plant characteristics; nutrient assimilation and crop quality. Offered in alternate years.—*(W.)* Richards

(change in existing course—eff. spring 15)

209. Physiology and Ecology of Mycorrhizal Symbioses (3)

(cancelled course—eff. winter 14)

216. Physical Geochemistry (3)

(cancelled course—eff. winter 14)

218. Soil Erosion and Conservation (3)

(cancelled course—eff. winter 14)

Spanish

New and changed courses in Spanish (SPA)

Lower Division

1. Elementary Spanish (5)

Lecture/discussion—5 hours. Introduction to Spanish grammar and development of all language skills in a cultural context with special emphasis on communication. Not open for credit for students who have completed equivalent course 1S. Students who have successfully completed Spanish 2 or 3 in the 10th or higher grade of 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. GE credit: ArtHum | AH, WC.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

1A. Accelerated Intensive Elementary Spanish (15)

Lecture/discussion—15 hours. Introduction to Spanish grammar and development of all language skills in a cultural context with emphasis on communication. Special 12-week accelerated, intensive summer session course combining the work of courses 1, 2

and 3. Not open to students who have completed equivalent courses 1, 1S, 2, 2S, 2V, 2Y, 3, 3S, 3V or 3Y. GE credit: ArtHum | WC.—*Su. (Su.)*

(change in existing course—eff. fall 16)

1S. Elementary Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Introduction to Spanish grammar and development of all language skills in a cultural context with special emphasis on communication. Offered in a Spanish speaking country under the supervision of a UC Davis faculty/lecturer. Not open for credit to students who have completed course 1. GE credit: WC.—*F, S. (F, S.)*

(change in existing course—eff. spring 16)

2. Elementary Spanish (5)
Lecture/discussion—5 hours. Prerequisite: course 1 or 1S or the equivalent. Continuation of courses 1 and 1S in the areas of grammar and basic language skills. Not open for credit for students who have completed equivalent course 2S, 2V or 2Y. GE credit: ArtHum | AH, WC.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

2S. Elementary Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Prerequisite: course 1 or 1S. Continuation of Spanish 1 in the areas of grammar and basic language skills. Offered in a Spanish speaking country under the supervision of UC Davis faculty/lecturer. Not open for credit to students who have completed course 2. GE credit: WC.—, *S. (F, S.)*

(change in existing course—eff. spring 16)

2V. Elementary Spanish (5)

Web virtual lecture—3 hours; web electronic discussion—2 hours. Prerequisite: course 1 or 1S; or the equivalent. Continuation of course 1, 1S, or previous high school experience in the areas of grammar and basic language skills. Online format combining synchronous chatting with technologically based materials. Not open for credit to students who have taken equivalent course 2, 2S, 2Y, or higher. GE credit: ArtHum | AH, WC.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 17)

2Y. Elementary Spanish (5)

Lecture/discussion—3 hours; web electronic discussion—2 hours. Prerequisite: course 1 or 1S. Continuation of course 1 or 1S in the areas of grammar and basic language skills. Hybrid format combining classroom instruction with technologically based materials. Not open for credit to students who have taken equivalent course 2, 2S, or 2V. GE credit: ArtHum | AH, WC.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 16)

3. Elementary Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Prerequisite: course 2, 2S, 2V or 2Y. Completion of grammar sequence and continuing practice of all language skills using cultural texts. Not open for credit to students who have completed course 3S. GE credit: WC.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 16)

3S. Elementary Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Prerequisite: course 2, 2S, 2V, or 2Y. Completion of grammar sequence and continuing practice of all language skills using cultural texts. Offered in a Spanish speaking country under the supervision of UC Davis faculty. Not open for credit to students who have completed course 3. GE credit: WC.—*F, S. (F, S.)*

(change in existing course—eff. spring 16)

3V. Elementary Spanish (5)
Web virtual lecture—3 hours; web electronic discussion—2 hours. Prerequisite: course 2, 2S, 2V, or 2Y. Continuation of course 2, 2S, 2V or 2Y. Online format combining synchronous chatting with technologically based materials. Not open to students who have taken equivalent course 3, 3S, 3Y, or higher. GE credit: ArtHum | AH, WC.—*W, Su. (W, Su.)* Blake

(change in existing course—eff. winter 16)

3Y. Elementary Spanish (5)
Lecture/discussion—3 hours; web electronic discussion—2 hours. Prerequisite: course 2, 2S, 2V or 2Y. Completion of grammar sequence and continuing practice of all language skills using cultural texts. Hybrid format combining classroom instruction with technologically based materials. Not open to students who have taken equivalent course 3, 3S, or 3V. GE credit: ArtHum | AH, WC.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 16)

8. Elementary Spanish Conversation (2)
Discussion—3 hours. Prerequisite: course 3; course 21 (concurrently) recommended. Not open to native speakers or upper division students. Designed to develop oral communication skills. Emphasis on increasing vocabulary, improving listening comprehension, pronunciation, accuracy and grammar control. Practice of everyday situations. GE credit: OL, WC.—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

21. Intermediate Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Prerequisite: course 3 or 3S. Review and develop the grammar, vocabulary and composition acquired in the first year through exercises and reading of modern texts. Students transferring from other institutions are recommended to start the second year program at this point. Not open for credit to students who have completed course 21S. GE credit: WC.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

21S. Intermediate Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Prerequisite: course 3, 3S, 3V or 3Y. Review and develop the grammar, vocabulary and composition acquired in the first year through exercises and reading of modern texts. Students transferring from other institutions are recommended to start the second year program at this point. Not open for credit to students who have completed course 21. GE credit: WC.—*F. (F.)*

(change in existing course—eff. spring 16)

21V. Intermediate Spanish (5)
Web Virtual Lecture—3 hours; web electronic discussion—2 hours. Prerequisite: course 3, 3Y, 3V or the equivalent from previous high school language experience. Continuation of course 3, 3V, 3Y, 3S, or previous high school experience in the areas of grammar and intermediate language skills. Online format combining synchronous chatting with technologically based materials. Not open for credit to students who have taken equivalent course 21, 21Y or 21S. GE credit: AH, OI, WC, WE.

(change in existing course—eff. spring 16)

21Y. Intermediate Spanish (5)
Lecture/discussion—3 hours; web electronic discussion—2 hours. Prerequisite: course 3, 3S, 3V or 3Y. Continuation of courses 3 or 3V in the areas of grammar and basic language skills. Hybrid format combining classroom instruction with technologically based materials where learning takes place both face-to-face and online. Not open to students who have taken course 21 or 21S. GE credit: WC.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

22. Intermediate Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Prerequisite: course 21 or 21S or 21V or 21Y. Continuation of course 21 and 21S. Focus on more difficult grammar concepts and further practice on composition. Development of all language skills through exercises and reading of modern texts. Not open for credit to students who have completed course 22S. GE credit: WC.—*F, W, S. (F, W, S.)*

(change in existing course—eff. spring 16)

22S. Intermediate Spanish (5)
Lecture/discussion—5 hours; laboratory—1 hour. Prerequisite: course 021, 021S, 021V or 021Y. Continuation of course 21 and 21S. Focus on more difficult grammar concepts and further practice on composition. Development of all language skills through exercises and reading of modern texts. Offered in a Spanish speaking country under the supervision of UC Davis faculty. Not open for credit to students who have completed course 22. GE credit: WC.—*F. (F.)*

(change in existing course—eff. spring 16)

22V. Intermediate Spanish (5)
Lecture/discussion—3 hours; web electronic discussion—2 hours. Prerequisite: course 21, 21Y, 21S, 21V or equivalent from previous high school language experience. Continuation of course 21, 21S, or 21V in the areas of grammar and basic language skills. Online format combining synchronous chatting with technologically-based materials. Not open to students who have taken course 22 or 22S. Offered irregularly. GE credit: WC.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. spring 16)

23. Spanish Composition I (4)
Lecture—3 hours; extensive writing. Prerequisite: course 22, 22S, 22V or 22Y. Development of writing skills by way of reading, discussion, and analysis of authentic materials, literary texts, and videos. Selective review of grammar. Composition, journals, individual and group projects. Not open for credit to students who have completed 23S. GE credit: ArtHum | AH, WC, WE.—*F, W, S, Su. (F, W, S, Su.)* Colombi

(change in existing course—eff. winter 16)

23S. Spanish Composition I (4)
Lecture—3 hours; extensive writing. Prerequisite: course 22, 22S, 22V or 22Y. Development of writing skills by way of reading, discussion, and analysis of authentic materials, literary texts, and videos. Selective review of grammar. Composition, journals, individual and group projects. Course is taught in a Spanish speaking country. Not open for credit to students who have completed equivalent course 23. GE credit: ArtHum | AH, WC, WE.—*F. (F.)* Colombi

(change in existing course—eff. winter 16)

24. Spanish Composition II (4)
Lecture—3 hours; extensive writing. Prerequisite: course 23 or 23S. Development of advanced level writing skills, with emphasis on how to write argumentative prose, essays, and research papers. Introduction to the analysis of literary genres. Compositions, journals, individual and group projects. Not open for credit for students who have completed equivalent course 24S. GE credit: ArtHum | AH, WC, WE.—*F, W, S, Su. (F, W, S, Su.)* Colombi

(change in existing course—eff. winter 16)

24S. Spanish Composition II (4)
Lecture—3 hours; extensive writing. Prerequisite: course 23 or 23S. Development of advanced level writing skills, with emphasis on how to write argumentative prose, essays, and research papers. Introduction to the analysis of literary genres. Compositions, journals, individual and group projects. Not open for credit to students who have completed equivalent course 24. GE credit: ArtHum | AH, WC, WE.—*F. (F.)* Colombi

(change in existing course—eff. winter 16)

31. Intermediate Spanish for Native Speakers I (5)
Lecture/discussion—3 hours; tutorial—1 hour; extensive writing. Prerequisite: course 3 or the equivalent or consent of instructor. First course of a three-quarter series designed to provide bilingual students whose native language is Spanish with the linguistic and learning skills required for successfully completing upper division courses in Spanish. Intensive review of grammar and composition. GE credit: ArtHum | AH, OL, WC, WE.—*F. (F.)*
(change in existing course—eff. winter 16)

32. Intermediate Spanish for Native Speakers II (5)
Lecture/discussion—3 hours; tutorial—1 hour; extensive writing. Prerequisite: course 31; consent of instructor. Continuation of Spanish 31, intensive review of grammar and composition. Development of all language skills through reading of modern texts, presentation/discussion of major ideas, vocabulary expansion, and writing essays on topics discussed. Designed for students whose native language is Spanish. GE credit: ArtHum | AH, OL, WC, WE.—*W. (W.)*
(change in existing course—eff. winter 16)

33. Intermediate Spanish for Native Speakers III (5)
Lecture/discussion—3 hours; tutorial—1 hour; extensive writing. Prerequisite: course 32; consent of instructor. Development of writing skills, with emphasis on experimenting with various writing styles: analytical, argumentative, and creative. Analytical review of literary genres. Written essays will be assigned. Students will develop a research paper. Designed for students whose native language is Spanish. GE credit: ArtHum | AH, OL, WC, WE.—*S. (S.)*
(change in existing course—eff. winter 16)

Upper Division

111N. The Structure of Spanish: Sounds and Words (3)
Lecture—3 hours. Prerequisite: course 24 or 33, or consent of instructor; Linguistics 1 recommended. Linguistic description of the sound patterns of Spanish and how those sounds can be used to form larger units, such as morphemes and words. Theoretical and practical comparisons with English and with other Romance languages. (Former course 132.) GE credit: SocSci | SS.—*F, W, S. (F, W, S.)* Bradley
(change in existing course—eff. fall 16)

112N. The Structure of Spanish: Words and Phrases (3)
Lecture—3 hours. Prerequisite: course 111N or consent of instructor. A study of Spanish word and phrase structure, with special emphasis on the constituent structure of noun and verb phrases. Theoretical and practical comparisons with English and with other Romance languages. (Former course 131.) GE credit: ScoSci | SS.—Blake, Colombi
(change in existing course—eff. fall 16)

113. Spanish Pronunciation (4)
Lecture—3 hours; term paper. Prerequisite: course 24 or 33, or consent of instructor; Linguistics 1 recommended. The sound structure of modern Spanish; theoretical analysis of selected problems in pronunciation. Strongly recommended for prospective teachers of Spanish. GE credit: ScoSci | SS.—*F, W, S. (F, W, S.)* Bradley
(change in existing course—eff. fall 16)

114N. Contrastive Analysis of English and Spanish (4)
Lecture—3 hours; extensive writing. Prerequisite: course 24 or 33, or consent of instructor; course 111N and course 112N recommended. Contrastive analysis of English and Spanish, error analysis, introduction to structuralist and transformational linguistics. Individual and group conferences. (Former course 137.) GE credit: ScoSci | SS.—Colombi
(change in existing course—eff. fall 16)

115. History of the Spanish Language (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 24 or 33, or consent of instructor; Linguistics 1 recommended. The Spanish language from its roots in spoken Latin to modernity. Emphasis on the close relationship between historical events and language change, and the role that literature plays in language standardization. Not open for credit to students who have completed course 115S. GE credit: ArtHum or ScoSci | AH or SS.—Blake
(change in existing course—eff. fall 16)

115S. History of the Spanish Language (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 24 or 33, or consent of instructor; Linguistics 1 recommended. The Spanish language from its roots in spoken Latin to modernity. Emphasis on the close relationship between historical events and language change, and the role that literature plays in language standardization. Offered in a Spanish-speaking country under the supervision of a UC Davis faculty/lecturer. Not open for credit to students who have completed course 115. GE credit: ArtHum or ScoSci | AH or SS.
(change in existing course—eff. fall 16)

116. Applied Spanish Linguistics (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 24 or 33, or consent of instructor; Linguistics 1 recommended. Exploration of the major theoretical and practical issues concerning learning Spanish as a second language. For students interested in teaching Spanish as a career. Not open to students who have taken course 116S. GE credit: ScoSci | SS.—Blake, Colombi
(change in existing course—eff. fall 16)

116S. Applied Spanish Linguistics (4)
Lecture—3 hours; extensive writing or discussion—1 hour. Prerequisite: course 24 or 33, or consent of instructor; Linguistics 1 recommended. Exploration of the major theoretical and practical issues concerning learning Spanish as a second language. For students interested in teaching Spanish as a career. Offered in a Spanish speaking country, in Spanish, under the supervision of UC Davis faculty. Not open to students who have taken course 116. GE credit: ScoSci | SS.—*F. (F.)* Colombi
(change in existing course—eff. fall 16)

117. Teaching Spanish as a Native Tongue in the U.S.: Praxis and Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 24 or 33, or consent of instructor; Linguistics 1 recommended. Designed for students interested in teaching Spanish to native speakers. Focus on cultural diversity of the Spanish speaking population in the United States; applied language teaching methodologies in the context of teaching Spanish to native speakers at different levels. GE credit: OL.—Colombi
(change in existing course—eff. fall 16)

118. Topics in Spanish Linguistics (4)
Lecture—3 hours; term paper. Prerequisite: course 111N or consent of instructor. A study of specialized topics in Spanish linguistics, for example: language and use; text and context; language and society; bilingualism; Spanish dialectology; syntax and semantics. May be repeated one time for credit when topic differs. GE credit: ScoSci | SS.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

123. Creative Writing in Spanish (4)
Discussion—4 hours. Prerequisite: course 24 or 33 or consent of instructor. Intensive writing of poetry or fiction in Spanish or in a bilingual (Spanish/English) format. Students will write both in prescribed forms and in experimental forms of their own choosing. Offered in alternate years. GE credit: WE.—*(S.)* Alarcón
(change in existing course—eff. spring 15)

132. Golden Age Drama and Performance (4)
Lecture—1.5 hours; performance instruction—1.5 hours. Prerequisite: course 100, 100S, 141, 141S, 170 or 170S. Limited enrollment. 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. Offered in alternate years. GE credit: ArtHum | AH, OL, VL, WC.—II, III. Martín
(change in existing course—eff. winter 15)

147. Anglos, Latinos and the Spanish Black Legend: The Origins and Educational Implications of Anti-Hispanic Prejudice (4)
Lecture—3 hours; field work; term paper. Examination of Anti-Hispanic prejudice in the United States focusing on the "Black Legend," a 16th Century anti-Spanish myth underpinning the doctrine of "Manifest Destiny." Exploration of the Legend's presence in contemporary American society through interviews and analysis of school textbooks. (Same course as Education 147.) GE credit: ArtHum, Div, Wrt | ACGH, AH, DD, WE.—González
(change in existing course—eff. fall 16)

159. Special Topics in Latin American Literature and Culture (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: any one of the following: course 100, 100S, 141, 141S, 170 or 170S. Special topics in the study of Latin American literature and culture. May be repeated one time for credit when topic or subject differs; students may take any SPA 159 course two times total in combination. GE credit: ArtHum | AH, WC.—*F, W, S. (F, W, S.)* Bejel, Bernucci, Egan, Irwin, Peluffo, Lazarra
(change in existing course—eff. winter 15)

159S. Special Topics in Latin American Literature and Culture (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: any one of the following: course 100, 100S, 141, 141S, 170 or 170S. Special topics in the study of Latin American literature and culture. Offered in a Spanish speaking country under the supervision of UC Davis faculty. May be repeated one time for credit when topic or subject differs; students may take any SPA 159 course two times total in combination. GE credit: ArtHum | AH, WC.—*F, S. (F, S.)* Lazzara, Peluffo
(change in existing course—eff. winter 15)

159Y. Special Topics in Latin American Literature and Culture (4)
Web virtual lecture—3 hours; lecture/discussion—1 hour. Prerequisite: course 100, 100S, 141, 141S, 170 or 170S. Special topics in the study of Latin American literature and culture. Hybrid format combining classroom instruction with technologically based materials. May be repeated one time for credit when topic or subject differs; students may take any Spanish 159 course two times total in combination. GE credit: ArtHum | AH, WC.—*F, W, S, Su. (F, W, S, Su.)* Bejel, Bernucci, Egan, Irwin, Peluffo, Lazarra
(new course—eff. spring 16)

171S. Music from Latin America (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: consent of instructor. Examination of music from Latin America. Characteristic music (i.e. tango, bossa nova, salsa, musica motena, musica andina) as well as its implications in other musical genres. Taught in Spanish and in a Spanish speaking country under

the supervision of UC Davis faculty. Not open to students who have taken course 171 or Music 127. GE credit: ArtHum | AH, WC.—*W. (W.)*

(change in existing course—eff. winter 15)

178A. Spanish for the Professions (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: course 24, 24S or 33. For students with an advanced level of Spanish interested in the use of Spanish in the health care, legal and law enforcement and marketing and business professions. Field trips documenting the use of Spanish in the public context. GE credit: ArtHum or SocSci | AH or SS, DD, OL, WE. —*F, W, S. (F, W, S.)* Colombi

(new course—eff. fall 14)

179. Science and Politics of the Human Body in the Spanish-Speaking World (4)
Lecture—3 hours; term paper or discussion—1 hour. Interaction between the interpretations of scientific ideas, philosophical issues, and politics concerning the human body in the Spanish- speaking world through different historical periods. Not open to students who have taken equivalent course 179Y. GE credit: ArtHum or SciEng or SocSci | AH or SE or SS.—*F, W, S. (F, W, S.)* Bejel, Slater

(new course—eff. fall 15)

179Y. Science and Politics of the Human Body in the Spanish-Speaking World (4)
Web virtual lecture—2 hours; discussion—2 hours. Interaction between the interpretations of scientific ideas, philosophical issues, and politics concerning the human body in the Spanish-speaking world through different historical periods. Not open to students who have taken equivalent course 179. GE credit: ArtHum or SciEng or SocSci | AH or SE or SS.—*F, W, S. (F, W, S.)* Bejel, Slater

(new course—eff. fall 15)

180. Senior Seminar in Spanish Linguistics (4)
Seminar—3 hours; term paper. Prerequisite: senior standing; a major in Spanish or consent of instructor. Limited enrollment. Group study of a special topic drawn from Spanish linguistics. May be repeated one time for credit. GE credit: ArtHum or SocSci | AH or SS, OL, WE.—*F. (F.)* Blake, Bradley, Colombi

(change in existing course—eff. winter 15)

181. Senior Seminar in Spanish Literature/ Culture (4)
Seminar—3 hours; term paper—1 hour. Prerequisite: senior standing; a major in Spanish or consent of instructor. Limited enrollment. Group study of a special topic drawn from Spanish literary or cultural studies. Independent research project. May be repeated one time for credit if content differs. GE credit: ArtHum | AH, OL, WE.—*W. (W.)* Altisent, González, Martin, Martínez-Carazo

(change in existing course—eff. winter 15)

182. Senior Seminar in Latin American Literature/Culture (4)
Seminar—3 hours; term paper—1 hour. Prerequisite: senior standing; a major in Spanish or consent of instructor. Limited enrollment. Group study of a special topic drawn from Latin American literary or cultural studies. Independent research project. May be repeated one time for credit if content differs. GE credit: ArtHum | AH, OL, WC, WE.—*S. (S.)* Bejel, Egan, Irwin, Lazzara, Peluffo

(change in existing course—eff. winter 15)

192I. Internship in Spanish (1-12)
Independent study—3-36 hours. Prerequisite: course 23; junior standing; major in Spanish, Chicano Studies, or a related field; consent of instructor. Internships in fields where Spanish language skills can be used and perfected (teaching, counseling, translating-interpreting).May be repeated up to 8 units for credit. Units will not count toward the Spanish major. (P/NP grading only.)

(change in existing course—eff. spring 15)

Graduate

211. Hispanic Dialectology (4)
Seminar—3 hours; term paper. Prerequisite: course 220 or consent of instructor. Descriptive and historical study of the distinctive features of Peninsular and American Spanish dialects. (Former course 221.)—*S. (S.)*

(change in existing course—eff. spring 15)

220. Catalan Language and Culture (4)
Lecture/discussion—3 hours; laboratory—1 hour. Prerequisite: good command of Spanish, Portuguese, French or Italian and graduate level of studies in any of these languages; consent of instructor. Open to advanced undergraduate students, with notions of Catalan, can be admitted with consent of instructor; designed for graduate students. Foundation for the acquisition of Catalan oral, reading and elementary writing level skills for students of Spanish (Iberianists or Hispanists), with the capacity to interpret educated written language. Emphasis on weekly review of grammar and all language skills. Offered irregularly.—*F.* Altisent

(change in existing course—eff. winter 15)

Professional

300. The Teaching of Spanish (3)
Lecture—3 hours. Prerequisite: senior or graduate standing; a major or minor in Spanish.—*S. (S.)*

(change in existing course—eff. winter 15)

Statistics

New and changed courses in Statistics (STA)

Lower Division

13. Elementary Statistics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: two years of high school algebra or Mathematics D. Descriptive statistics; basic probability concepts; binomial, normal, Student's t, and chi-square distributions. Hypothesis testing and confidence intervals for one and two means and proportions. Regression. Not open for credit to students who have completed course 13V or higher. GE credit: SciEng | QL, SE.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

13Y. Elementary Statistics (4)
Lecture—1.5 hours; web virtual lecture—5 hours. Prerequisite: two years of high school algebra or Mathematics D. Descriptive statistics; basic probability concepts; binomial, normal, Student's t, and chi-square distributions. Hypothesis testing and confidence intervals for one and two means and proportions. Regression. Not open for credit for students who have completed course 13, or higher. GE credit: SciEng | QL, SE.—*F. (F.)*

(change in existing course—eff. fall 16)

32. Introductory Statistical Analysis Through Computers (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: Mathematics 16B or 17C or 21B; ability to program in a high-level programming language. Probability concepts: Events and sample spaces; random variables; mass, density and distribution functions; parametric families; parameter estimation and confidence intervals; hypothesis testing; Central Limit Theorem. Recommended as alternative to course 13 for students with a background in calculus and programming. Only two units of credit allowed to students who have taken course 13, or 102; not open for credit to students who have taken course 100. GE credit: SciEng | QL, SE.—*W, S. (W, S.)*

(change in existing course—eff. fall 16)

Upper Division

100. Applied Statistics for Biological Sciences (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: Mathematics 16B or 17C or 21B. Descriptive statistics, probability, sampling distributions, estimation, hypothesis testing, contingency tables, ANOVA, regression; implementation of statistical methods using computer package. Only two units credit allowed to students who have taken course courses 13, 32 or 103; not open for credit to students who have taken course 102. GE credit: SciEng | QL, SE.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

101. Advanced Applied Statistics for the Biological Sciences (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: course 100. Basic experimental designs, two-factor ANOVA without interactions, repeated measures ANOVA, ANCOVA, random effects vs. fixed effects, multiple regression, basic model building, resampling methods, multiple comparisons, multivariate methods, generalized linear models, Monte Carlo simulations. GE credit: SciEng | SE, QL.—*S. (S.)*

(new course—eff. fall 14)

102. Introduction to Probability Modeling and Statistical Inference (4)
(cancelled course—eff. winter 16)

103. Applied Statistics for Business and Economics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 13, 32, or 100; and Mathematics 16B or 17C or 21B. Descriptive statistics; probability; random variables; expectation; binomial, normal, Poisson, other univariate distributions; joint distributions; sampling distributions, central limit theorem; properties of estimators; linear combinations of random variables; testing and estimation; Minitab computing package. Two units credit given to students who have completed course 100. GE credit: SciEng | QL, SE.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

104. Applied Statistical Methods: Nonparametric Statistics (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: course 13, 32, or 100. Sign and Wilcoxon tests, Walsh averages. Two-sample procedures. Inferences concerning scale. Kruskal-Wallis test. Measures of association. Chi square and Kolmogorov-Smirnov tests. Offered in alternate years. GE credit: SciEng | QL, SE.—*W. (W.)*

(change in existing course—eff. fall 16)

106. Applied Statistical Methods: Analysis of Variance (4)
Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course 13 or 32 or 100. Basics of experimental design. One-way and two-way fixed effects analysis of variance models. Randomized complete and incomplete block design. Multiple comparisons procedures. One-way random effects model. GE credit: SciEng | SE.—*F, W, Su. (F, W, Su.)*

(change in existing course—eff. fall 16)

108. Applied Statistical Methods: Regression Analysis (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 13, 32, or 100. Simple linear regression, variable selection techniques, stepwise regression, analysis of covariance, influence measures, computing packages. GE credit: SciEng | QL, SE, SL.—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. fall 16)

120. Probability and Random Variables for Engineers (4)
(cancelled course—eff. winter 16)

130A. Mathematical Statistics: Brief Course (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 16B or 17C or 21B. Basic probability, densities and distributions, mean, variance, covariance, Chebyshev's inequality, some special distributions, sampling distributions, central limit theorem and law of large numbers, point estimation, some methods of estimation, interval estimation, confidence intervals for certain quantities, computing sample sizes. Only 2 units of credit allowed to students who have taken course 131A. GE credit: SciEng | QL, SE.—*F. (F.)*
(change in existing course—eff. fall 16)

130B. Mathematical Statistics: Brief Course (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 130A or 131A or Mathematics 135A. Transformed random variables, large sample properties of estimates. Basic ideas of hypotheses testing, likelihood ratio tests, goodness-of-fit tests. General linear model, least squares estimates, Gauss-Markov theorem. Analysis of variance, F-test. Regression and correlation, multiple regression. Selected topics. GE credit: SciEng | QL, SE.—*W. (W.)*
(change in existing course—eff. fall 16)

131A. Introduction to Probability Theory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21B, 21C and 22A. 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. GE credit: SciEng | QL, SE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

131B. Introduction to Mathematical Statistics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 131A or consent of the instructor. Sampling, methods of estimation, sampling distributions, confidence intervals, testing hypotheses, linear regression, analysis of variance, elements of large sample theory and nonparametric inference. GE credit: SciEng | QL, SE.—*W, S. (W, S.)*
(change in existing course—eff. fall 16)

131C. Introduction to Mathematical Statistics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 131B or consent of the instructor. Sampling, methods of estimation, sampling distributions, confidence intervals, testing hypotheses, linear regression, analysis of variance, elements of large sample theory and nonparametric inference. GE credit: SciEng | SE, QL.—*S. (S.)*
(change in existing course—eff. fall 16)

133. Mathematical Statistics for Economists (4)
(cancelled course—eff. winter 16)

135. Multivariate Data Analysis (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 130B or 131B; and Mathematics 22A or 67. Multivariate normal distribution; Mahalanobis distance; sampling distributions of the mean vector and covariance matrix; Hotelling's T^2; simultaneous inference; one-way MANOVA; discriminant analysis; principal components; canonical correlation; factor analysis. Intensive use of computer analyses and real data sets. GE credit: SciEng | QL, SE.—*S. (S.)*
(change in existing course—eff. fall 16)

137. Applied Time Series Analysis (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: course 108. Time series relationships; univariate time series models: trend, seasonality, correlated errors; regression with correlated errors; autoregressive models; autoregressive moving average models; spectral analysis: cyclical behavior and periodicity, measures of periodicity, periodogram; linear filtering; prediction of time series; transfer function models. GE credit: SciEng | QL, SE.—*W. (W.)*
(change in existing course—eff. fall 16)

141A. Fundamentals of Statistical Data Science (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 10 or course 13 or course 32 or course 100. Introduction to computing for data analysis and visualization, and simulation, using a high-level language (e.g., R). Computational reasoning, computationally intensive statistical methods, reading tabular and non-standard data. open for credit to students who have taken course 141 or course 242.—*F. (F.)*
(new course—eff. spring 16)

141B. Data & Web Technologies for Data Analysis (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 141A or Engineering: Computer Science 145. Essentials of using relational databases and SQL. Processing data in blocks. Scraping Web pages and using Web services/APIs. Basics of text mining. Interactive data visualization with Web technologies. Computational data workflow and best practices. Statistical methods.—*W. (W.)*
(new course—eff. spring 16)

141C. Big Data & High Performance Statistical Computing (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 141A or Engineering: Computer Science 40. High-performance computing in high-level data analysis languages; different computational approaches and paradigms for efficient analysis of big data; interfaces to compiled languages; R and Python programming languages; high-level parallel computing; MapReduce; parallel algorithms and reasoning.—*S. (S.)*
(new course—eff. spring 16)

142. Reliability (4)
(cancelled course—eff. winter 16)

144. Sampling Theory of Surveys (4)
Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course 130B or 131B; or courses 106 and 108. Simple random, stratified random, cluster, and systematic sampling plans; mean, proportion, total, ratio, and regression estimators for these plans; sample survey design, absolute and relative error, sample size selection, strata construction; sampling and nonsampling sources of error. Offered in alternate years. GE credit: SciEng | QL, SE.—*F. (F.)*
(change in existing course—eff. fall 16)

145. Bayesian Statistical Inference (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: courses 130B or 131B. Subjective probability, Bayes Theorem, conjugate priors, non-informative priors, estimation, testing, prediction, empirical Bayes methods, properties of Bayesian procedures, comparisons with classical procedures, approximation techniques, Gibbs sampling, hierarchical Bayesian analysis, applications, computer implemented data analysis. Offered in alternate years. GE credit: SciEng | QL, SE.—*W. (W.)*
(change in existing course—eff. fall 16)

160. Practice in Statistical Data Science (4)
Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course 106; course 108; course 130B or course 131B; course 141 or course 141A. Principles and practice of interdisciplinary, collaborative data analysis; complete case study review and team data analysis project. GE credit: SciEng | QL, SE.—*S. (S.)*
(new course—eff. spring 16)

190X. Seminar (1-2)
Seminar—1-2 hours. Prerequisite: course 13, 32, 100, or 103. In-depth examination of a special topic in a small group setting.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 16)

Graduate

200A. Introduction to Probability Theory (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Mathematics 21A, 21B, 21C, and 22A; consent of instructor. 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. No credit to students who have taken course 131A. GE credit: SciEng | QL, SE.—*F, W, S. (F, W, S.)*
(new course—eff. spring 16)

200B. Introduction to Mathematical Statistics I (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200A or the consent of the instructor. Sampling, methods of estimation, bias-variance decomposition, sampling distributions, Fisher information, confidence intervals, and some elements of hypothesis testing. No credit to students who have taken course 131B. GE credit: SciEng | SE.—*W, S. (W, S.)*
(new course—eff. spring 16)

200C. Introduction to Mathematical Statistics II (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 200B or consent of the instructor. Testing theory, tools and applications from probability theory, Linear model theory, ANOVA, goodness-of-fit. GE credit: No credit to students who have taken course 131C. SciEng | SE.—*S. (S.)*
(new course—eff. spring 16)

205. Statistical Methods for Research with SAS (4)
Lecture—3 hours; laboratory—1 hour. Prerequisite: introductory upper division statistics course and some knowledge of vectors and matrices; courses course 100, or 102, or 103 suggested or the equivalent. Focus on linear statistical models widely used in scientific research. Emphasis on concepts, methods and data analysis using SAS. Topics include simple and multiple linear regression, polynomial regression, diagnostics, model selection, variable transformation, factorial designs and ANCOVA.—*S. (S.)*
(change in existing course—eff. spring 15)

225. Clinical Trials (4)
Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course/Biostatistics 223 or consent of instructor. Basic statistical principles of clinical designs, including bias, randomization, blocking, and masking. Practical applications of widely-used designs, including dose-finding, comparative and cluster randomization designs. Advanced statistical procedures for analysis of data collected in clinical trials. (Same course as Biostatistics 225.) Offered in alternate years.—*S.*
(change in existing course—eff. spring 15)

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.—*(W.)*
(change in existing course—eff. spring 15)

231A. Mathematical Statistics I (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: courses 131A-C, Mathematics 25 and Mathematics 125A or equivalent. First part of three-quarter sequence on mathematical statistics. Emphasizes foundations. Topics include basic concepts in asymptotic theory, decision theory, and an overview of methods of point estimation.—*F. (F.)*
(change in existing course—eff. spring 15)

235A. Probability Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: Mathematics 125B and 135A or course 131A 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.)—*F. (F.)*
(change in existing course—eff. spring 15)

235B. Probability Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: Mathematics 235A/course 235A 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 235B.)—*W. (W.)*
(change in existing course—eff. spring 15)

235C. Probability Theory (4)
Lecture—3 hours; term paper or discussion—1 hour. Prerequisite: 235A—course/Mathematics 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 235C.)—*S. (S.)*
(change in existing course—eff. spring 15)

237A. Time Series Analysis (4)
Lecture—3 hours; term paper. Prerequisite: course 131B or the equivalent. Advanced topics in time series analysis and applications. Models for experimental data, measures of dependence, large-sample theory, statistical estimation and inference. Univariate and multivariate spectral analysis, regression, ARIMA models, state-space models, Kalman filtering. Offered in alternate years.—(I.)
(change in existing course—eff. spring 15)

237B. Time Series Analysis (4)
Lecture—3 hours; term paper. Prerequisite: course 131B or the equivalent. Advanced topics in time series analysis and applications. Models for experimental data, measures of dependence, large-sample theory, statistical estimation and inference. Univariate and multivariate spectral analysis, regression, ARIMA models, state-space models, Kalman filtering. Offered in alternate years.—*(W.)*
(change in existing course—eff. spring 15)

240A. Nonparametric Inference (4)
Lecture—3 hours; term paper. Prerequisite: course 231C; courses 235A-235B-235C recommended. Comprehensive treatment of nonparametric statistical inference, including the most basic materials from classical nonparametrics, robustness, nonparametric estimation of a distribution function from incomplete data, curve estimation, and theory of resampling methodology. Offered in alternate years. —*(W.)*
(change in existing course—eff. summer 15)

240B. Nonparametric Inference (4)
Lecture—3 hours; term paper. Prerequisite: course 231C; courses 235A-235B-235C recommended. Comprehensive treatment of nonparametric statistical inference, including the most basic materials from classical nonparametrics, robustness, nonparametric estimation of a distribution function from incomplete data, curve estimation, and theory of resampling methodology. Offered in alternate years.—*(S.)*
(change in existing course—eff. summer 15)

251. Topics in Statistical Methods and Models (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 231B or equivalent. Topics may include Bayesian analysis, nonparametric and semiparametric regression, sequential analysis, bootstrap, statistical methods in high dimensions, reliability, spatial processes, inference for stochastic process, stochastic methods in finance, empirical processes, change-point problems, asymptotics for parametric, nonparametric and semiparametric models, nonlinear time series, robustness. May be repeated if the topics differ; only with consent of the graduate advisor. Offered irregularly.—*F, W, S. (F, W, S.)*
(change in existing course—eff. fall 14)

252. Advanced Topics in Biostatistics (4)
Lecture—3 hours; discussion/laboratory—1 hour. Prerequisite: course/Biostatistics 222 and course/Biostatistics 223. Biostatistical methods and models selected from the following: genetics, bioinformatics and genomics; longitudinal or functional data; clinical trials and experimental design; analysis of environmental data; dose-response, nutrition and toxicology; survival analysis; observational studies and epidemiology; computer-intensive or Bayesian methods in biostatistics. May be repeated for credit with consent of adviser when topic differs. (Same course as Biostatistics 252.) Offered in alternate years.—III.
(change in existing course—eff. spring 15)

260. Statistical Practice and Data Analysis (3)
Lecture/discussion—3 hours. Prerequisite: working knowledge of advanced statistical software and completion of at least one of course 207 or 232B or the equivalent. Open to students enrolled in the graduate program in Statistics or Biostatistics, as the class also serves to provide professional service to clients and collaborators who work with the students. Principles and practice of interdisciplinary collaboration in statistics, statistical consulting, ethical aspects, and basics of data analysis and study design. Emphasis on practical consulting and collaboration of statisticians with clients and scientists under instructor supervision. May be repeated one time for credit.—*F, W, S. (F, W, S.)*
(new course—eff. fall 14)

Professional

401. Methods in Statistical Consulting (3)
Lecture—3 hours; discussion—1 hour. Students must be enrolled in the graduate program in Statistics or Biostatistics. Introduction to consulting, in-class consulting as a group, statistical consulting with clients, and in-class discussion of consulting problems. Clients are drawn from a pool of University clients. May be repeated for credit with consent of graduate adviser. Offered irregularly. (S/U grading only.)—*F, W, S. (F, W, S.)*
(change in existing course—eff. winter 15)

Study of Religion (A Graduate Group)

New and changed courses in Study of Religion (REL)

Graduate

231B. Theories of Language (4)
Seminar—3 hours; term paper. Prerequisite: graduate standing. Restricted to graduate students. Focuses on historical theories of language that precede and accompany post-structuralist theory. Intended to introduce graduate students to the context of modern theory formation. May cover structuralism, integrationalism, and grammaticalization. Offered irregularly.—*F, W, S. (F, W, S.)* O'Keefe
(new course—eff. spring 15)

Sustainable Agriculture and Food Systems

New and changed courses in Sustainable Agriculture and Food Systems (SAF)

Lower Division

90X. SA&FS Portfolio (1-4)
Workshop—3-12 hours. Prerequisite: consent of instructor. Restricted to Sustainable Agriculture and Food Systems majors with lower-division standing or consent of instructor. SA&FS Portfolios are designed to complement interdisciplinary, academic coursework by supporting student development of each of the SA&FS Student Learning Outcomes: Systems Thinking, Experimentation & Inquiry, Understanding Values, Interpersonal Communication, Strategic Management, Civic Engagement and Personal Development. May be repeated for credit. Offered irregularly. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*
(new course—eff. spring 15)

Upper Division

192. Internship (1-12)
Internship—3-36 hours. Prerequisite: upper-division standing; consent of instructor. Restricted to Sustainable Agriculture and Food Systems majors or nonmajors by consent of instructor. Upper-division internship for students enrolled in the Sustainable Agriculture and Food Systems program of study. May be repeated up to 12 units for credit. (P/NP grading only.)—*F, W, S. (F, W, S.)* Galt, Horwath, Tomich, Van Horn
(change in existing course—eff. winter 15)

Technocultural Studies

New and changed courses in Technocultural Studies (TCS)

Lower Division

2. Critiques of Media (4)
(cancelled course—eff. winter 15)

4. Parallels in Art and Science (4)
(cancelled course—eff. fall 14)

6. Technoculture and the Popular Imagination (4)
(cancelled course—eff. fall 14)

7A. Technocultural Workshop; Digital Imaging (1)
Seminar—1 hour. Workshops in technocultural digital skills; Digital Imaging. Offered irregularly. GE credit: VL.—*F, Su. (F. Su.)*
(change in existing course—eff. summer 15)

7B. Technocultural Workshop; Digital Video (1)
Seminar—1 hour. Workshops in technocultural digital skills; Digital Video. Offered irregularly. GE credit: VL.—*F, Su. (F. Su.)*
(change in existing course—eff. summer 15)

7C. Technocultural Workshop; Digital Sound (1)
Seminar—1 hour. Workshops in technocultural digital skills; Digital Sound. Offered irregularly. GE credit: VL.—*F, Su. (F. Su.)*
(change in existing course—eff. summer 15)

7D. Technocultural Workshop; Web Design (1)
Seminar—1 hour. Workshops in technocultural digital skills; Web Design. GE credit: VL.
(change in existing course—eff. summer 15)

7E. Technocultural Workshop; Topics in Digital Production (1)
Seminar—1 hour. Workshops in technocultural digital skills; Topics in Digital Production. May be repeated for credit. Offered irregularly. GE credit: VL.—I*F, Su. (F. Su.)*
(change in existing course—eff. summer 15)

Upper Division

104. Documentary Production (4)
Lecture/discussion—3 hours; project. Prerequisite: course 7B or equivalent proficiency, course 155. Traditional and new forms of documentary, with focus on technocultural issues. Skills and strategies for producing work in various media. Progression through all stages of production, from conception through post-production to critique. GE credit: VL.—Drew, Wyman
(change in existing course—eff. winter 15)

158. Technology and the Modern American Body (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 1 and either American Studies 1A or 5. The history and analysis of the relationships between human bodies and technologies in modern society. Dominant and eccentric examples of how human bodies and technologies influence one another and reveal underlying cultural assumptions. (Same course as American Studies 158.) GE credit: ArtHum | ACGH, AH, WE.—de la Pena
(change in existing course—eff. spring 15)

170A. Advanced Technocultural Workshop (1)
Seminar—1 hour. Prerequisite: course 7A or the equivalent. Workshop in advanced technocultural digital skills: Digital Imaging. GE credit: VL.
(change in existing course—eff. winter 15)

170B. Advanced Technocultural Workshop (1)
Seminar—1 hour. Prerequisite: course 7B. Workshop in advanced technocultural digital skills: Digital Video. GE credit: VL.
(change in existing course—eff. winter 15)

170C. Advanced Technocultural Workshop (1)
Seminar—1 hour. Prerequisite: course 7C. Workshop in advanced technocultural digital skills: Digital Sound. GE credit: VL.
(change in existing course—eff. winter 15)

170D. Advanced Technocultural Workshop (1)
Seminar—1 hour. Prerequisite: course 7D. Workshop in advanced technocultural digital skills: Web Design. GE credit: VL.
(change in existing course—eff. winter 15)

170E. Advanced Technocultural Workshop (1)
Seminar—1 hour. Prerequisite: consent of instructor. Workshop in advanced technocultural digital skills: Topics in Digital Production. GE credit: VL.
(change in existing course—eff. winter 15)

174. Acting for Camera (4)
Lecture/laboratory—6 hours. Prerequisite: consent of instructor. Analysis and practice of acting skills required for camera work and digital media. May be repeated eight times for credit when instructor differs. (Same course as Dramatic Art 174.)—*S. (S.)* Anderson, Merlin
(change in existing course—eff. spring 15)

Textiles and Clothing

New and changed courses in Textiles and Clothing (TXC)

Upper Division

180A. Introduction to Research in Textiles (2)
Laboratory—6 hours. Prerequisite: senior standing with textile-related major, and consent of instructor. Senior thesis on independent problems. Research begun in course 180A will be continued and completed in course 180B. (Deferred grading only, pending completion of sequence.) GE credit: SocSci | SS, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

180B. Introduction to Research in Textiles (2)
Laboratory—6 hours. Prerequisite: senior standing with textile-related major, and consent of instructor. Senior thesis on independent problems. Research begun in course 180A will be continued and completed in course 180B. (Deferred grading only, pending completion of sequence.) GE credit: SocSci | SS, WE.—*F, W, S. (F, W, S.)*
(change in existing course—eff. summer 15)

Transportation Technology and Policy

New and changed courses in Transportation Technology and Policy (TTP)

Graduate

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. Fundamentals of Transportation Technology is a course designed to prepare students in the basics of thermodynamics, fluid mechanics and heat transfer as they relate to transportation. Not open for credit to students who have completed course 289. (Former course 289.)—*W. (W.)*
(change in existing course—eff. winter 15)

UC Davis Washington Center

New and changed courses in UC Davis Washington Center (WAS)

Upper Division

187. Gun Violence (4)
Lecture/discussion—4 hours. Restricted to students attending UC Washington Center program. Gun violence, viewed from the perspectives of criminology and public health. Topics include personal and societal contributing factors and critical assessment of potential solutions. Offered in alternate years.
(change in existing course—eff. winter 15)

192. Internship in the UC Davis Washington Program (8)
Internship—32 hours. Prerequisite: junior or senior standing, admission in the UC Davis Washington Program, and course 193 concurrently. Internship in Washington, DC with associated, supervised research project. (P/NP grading only.)—*F, W, S. (F, W, S.)*
(new course—eff. fall 14)

193. Washington Center Research Seminar (4)
Lecture/discussion—1 hour; independent study—3 hours; tutorial—0.5 hour. Prerequisite: course 192 concurrently. Core academic component of Washington Program. Topics coordinated with internships. Research draws on resources uniquely available in Washington, DC. Supervised preparation of extensive paper. (Same course as Political Science 193W.) GE credit: SocSci, Wrt | OL, SS, WE.—*F, W, S, Su. (F, W, S, Su.)*
(change in existing course—eff. fall 14)

University Writing Program

New and changed courses in University Writing Program (UWP)

Lower Division

12. Writing and Visual Rhetoric (4)
Lecture/discussion—3 hours; discussion—1 hour. Introduction to writing needs, conventions, and genres in design contexts. Emphasis on applying critical reading, analysis, and writing skills to designed products, such as graphics, visual communications, and clothes, and designed spaces, such as exhibitions and interior architecture. GE credit: ArtHum | AH, VL, WE.—*F, W, S. (F, W, S.)*
(new course—eff. fall 14)

Upper Division

104FY. Writing in the Professions: Health (4)
Lecture/discussion—1.5 hours; web electronic discussion—1.5 hours; extensive writing. Prerequisite: course 1 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 to students who have taken course 104F. GE credit: ArtHum | AH, WE.—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. winter 15)

104J. Writing in the Professions: Writing for Social Justice (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 1 or the equivalent; upper-division standing. Advanced instruction in writing for Social Justice, using an interdisciplinary approach combining feminist, critical race, ethnic, cultural, and transnational studies; practice in techniques of research and styles of communication for diverse audiences. Suitable for activists in community organizing, nonprofits, politics. GE credit: ArtHum | AH, WE.—*W. (W.)*

(new course—eff. winter 15)

106. English Grammar (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 1 or English 3 or Linguistics 1 or consent of instructor. Survey of present-day English grammar as informed by contemporary linguistic theories. The major syntactic structures of English; their variation across dialects, styles, and registers; their development; and their usefulness in describing the conventions of English. (Same course as English 106 and Linguistics 106.) GE credit: ArtHum | AH.

(change in existing course—eff. spring 15)

110. Specialized Genres in Professional Writing (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: satisfaction of the upper-division writing requirement. Restricted to upper-division students who have satisfied the upper-division writing requirement. Counts toward the writing minor. Instruction in the elements and practices of professional writing in specialized genres. May be repeated two times for credit when topic differs. Offered irregularly. GE credit: ArtHum, Wrt | AH, WE.

(change in existing course—eff. winter 15)

120. Rhetorical Approaches to Scientific and Technological Issues (4)
Lecture/discussion—3 hours; extensive writing. Restricted to upper-division standing. Application of rhetorical theories to scientific issues. Topics include: Rhetorical dimensions of scientific knowledge-making; scientific voice; rhetorical figures in science; incommensurability and demarcation; epistemology, definition, and classification; science wars; models of scientific literacy and accommodation, and implications for risk communication. Offered in alternate years. GE credit: ArtHum or SciEng | AH or SE, WE.—*W.*

(new course—eff. winter 15)

21. Introduction to Academic Reading and Writing for Multilingual Students (4)
Lecture/discussion—4 hours. Pass One placed in the course via the English Language Placement Examination (ELPE) offered by the UWP; students receiving scores below 70 are placed in course 21, the first course in the sequence. Reading and writing paragraphs and short multi-paragraph texts for academic purposes. Suitable for students whose primary home language was not English.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

22. Intermediate Academic Reading and Writing for Multilingual Students (4)
Lecture/discussion—4 hours. Prerequisite: Pass One passed course 21 with C- or better OR a score of 70-79 on the English Language Placement Examination (ELPE) offered by the UWP. Reading and writing short multi-paragraph texts for academic purposes. Suitable for students whose primary home language was not English.—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

23. Advanced Academic Reading and Writing for Multilingual Students (4)
Lecture/discussion—4 hours. Prerequisite: course 22. Pass One passed course 22 with a C- or better OR a score of 80-89 on the English Language Placement Examination (ELPE) offered by the UWP. Reading and writing source/research-based texts for academic purposes. Suitable for students whose primary home language was not English. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 16)

27. Persuasive Writing for Multilingual Students (4)
Lecture/discussion—4 hours. Prerequisite: course 1 or equivalent. Not open to students with C- (P) or better in courses 101, 102, and 104; class size limited to 18 students. Instruction in analyzing style of persuasive texts, using appropriate vocabulary, and applying English grammatical structures for argumentative purposes. Suitable for multilingual students desiring additional instruction in the linguistic and rhetorical features of persuasive English writing for academic purposes. GE credit: WE.—*F, W, S, Su. (F, W, S, Su.)*

(new course—eff. spring 16)

190. Capstone Portfolio Seminar (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: course 100. Open to majors who have completed 135 units. Capstone course for majors. Synthesis and application of rhetorical concepts learned in the major. Development of professional digital and print portfolio for graduate school and career applications. GE credit: WC.—*S. (S.)*

(new course—eff. winter 16)

192. Internship in Writing (1-12)
Internship—3-36 hours. Prerequisite: course 1 or English 3 or the equivalent; consent of instructor. Internships in fields where students can practice their skills. May be repeated up to 12 units for credit. (P/NP grading only.) GE credit: AH.

(change in existing course—eff. winter 15)

Graduate

220. Rhetorical Approaches to Genre Study (4)
Lecture/discussion—3 hours; extensive writing. Prerequisite: graduate standing or consent of instructor. Using genre theory and methods of analysis to understand and prepare to do research on different types of writing in varying academic and professional contexts. Emphasis on problems in organizational, professional, and/or interdisciplinary communication. Offered in alternate years.—*F. W. (F, W.)* Andersen, Ferris, Perrault, Thaiss, Whithaus

(new course—eff. fall 15)

253. Writing Program Administration (4)
Lecture/discussion—3 hours; extensive writing. Theories, models, and procedures of writing programs, primarily in higher education. Developmental, first-year, and advanced writing programs, writing centers, writing-across-the-curriculum programs, writing minors and majors, and graduate programs in rhetoric and composition. Offered in alternate years.—Ferris, Thaiss, Whithaus

(new course—eff. fall 14)

Veterinary Medicine: Anatomy, Physiology and Cell Biology

New and changed courses in Anatomy, Physiology and Cell Biology (APC)

Upper Division

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.)—*F. W. (F, W.)* Genetos

(change in existing course—eff. fall 15)

Professional

286. Basics of Microscopy and Cellular Imaging (2)
Lecture—1 hour; laboratory—2 hours. Prerequisite: graduate standing; consent of instructor. Class size limited to 20 students.Practical applications of basic microscope techniques used to image cells and tissues with the goal of using these techniques to generate publication quality images. Principles of light, epifluorescent, confocal and electron microscopy, their applications and limitations. Offered in alternate years.—*S.* Van Winkle

(change in existing course—eff. fall 14)

Veterinary Medicine: Molecular Biosciences

New and changed courses in Veterinary Medicine: Molecular Biosciences (VMB)

Lower Division

92. Internship (1-12)
Internship—3-36 hours. Prerequisite: lower division standing; consent of instructor. Work experience off and on campus in all subject areas offered in the Department of Molecular Biosciences. Internships supervised by a member of the faculty. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

Upper Division

192. Internship (1-12)
Internship—3-36 hours. Prerequisite: completion of 84 units; consent of instructor. Work experience off and on campus in all subject areas offered in the Department of Molecular Biosciences. Internships supervised by a member of the faculty. May be repeated for credit. (P/NP grading only.)—*F, W, S, Su. (F, W, S, Su.)*

(change in existing course—eff. winter 15)

Graduate

290. Seminar (1)
Seminar—1 hour. Prerequisite: graduate standing; consent of instructor Topics in nutrition, pharmacology/toxicology, and biochemistry. May be repeated for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Professional

397T. Tutoring in Molecular Biosciences (1-5)
Discussion—1-5 hours. Prerequisite: graduate or professional standing; consent of instructor. Experience in professional curriculum for graduate or professional students, not teaching assistants, under direct supervision of instructor. May be repeated up to 5 units of credit (S/U grading only.)—*F, W, S. (F, W, S.)*.
(change in existing course—eff. winter 15)

Veterinary Medicine: Pathology, Microbiology, and Immunology

New and changed courses in Veterinary Medicine: Pathology, Microbiology, and Immunology (PMI)

Upper Division

127. Medical Bacteria and Fungi (5)
Lecture—3 hours; laboratory—6 hours. Prerequisite: any Microbiology course with lab; Immunology strongly recommended. Introduction to the bacterial and mycotic pathogens of man and animals, with emphasis on pathogenic mechanisms and ecologic aspects of infectious disease.—*S. (S.)* LeFebvre
(change in existing course—eff. spring 15)

129Y. One Health: Human, Animal & Environment Interfaces (3)
Lecture/discussion—3 hours; web electronic discussion. Class size limited to upper division undergraduate students in good standing with the school and who fulfill the course prerequisites below; enrollment limited to 100 students/term. Introduction to fundamentals, challenges, and opportunities in One Health using local and global health case studies. Animal, human, and environmental health problems, along with tools and transdisciplinary approaches, will be introduced to foster innovative thinking that addresses complex issues. GE credit: SciEng or SocSci | OL, SE or SS, SL.—*S. (S.)* Miller, Papageorgiou
(change in existing course—eff. winter 15)

Graduate

221. Topics in Virus Research (1)
Discussion—1 hour. Prerequisite: graduate student standing (Ph.D. or M.S.). Restricted to 10 students. Discussion-based seminar covering graduate student virology research. Informal presentations and discussion of technical problems in research design and experimentation are encouraged. Current stage of the research project is not important. May be repeated four times for credit. (S/U grading only.)—*F. (F.)* Murphy
(change in existing course—eff. winter 15)

270. Advanced Immunology (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: Introductory course in immunology. Restricted to graduate student status in the Comparative Pathology Graduate Group; all other students require consent of instructor. Current concepts of immunology with an emphasis on interactions between the host, the environment and the pathogen. These interactions will include those that are protective and successful for the host as well as those that are deleterious—*W. (W.)* Stott
(change in existing course—eff. winter 15)

Veterinary Medicine: Population Health and Reproduction

New and changed courses in Veterinary Medicine: Population Health and Reproduction (PHR)

Graduate

241. Advanced Topics in Canine Genetics and Genomics (2)
Discussion—2 hours. Prerequisite: Genetics 201A, 201C (or equivalents, with consent of instructor). Limited enrollment. 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. Offered in alternate years.—*(S.)* Bannasch
(change in existing course—eff. winter 15)

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. Class size limited to 20 students; graduate students, 2nd or 3rd year veterinary students; advanced undergraduate students with consent of instructor. Introduction to the field of applied ecological genetics to include applications in conservation ecology, population genetics, population biology, wildlife health and disease ecology. (Same course as Ecology 242.)—*F. (F.)* Ernest
(change in existing course—eff. fall 14)

243. Advanced Topics in Conservation Genetics (2)
Discussion—18 sessions; lecture—2 sessions. Prerequisite: undergraduate genetics and ecology or consent of instructor. Restricted to 16 students. In-depth study of topics related to the application of genetic tools to wildlife conservation. Topics will vary annually, but may include use of non-invasive methods of genetic assessment and monitoring of wildlife populations. Students will lead discussions on assigned readings. May be repeated for credit when topic differs. (S/U grading only.)—*F. (F.)* Sacks
(change in existing course—eff. winter 15)

251. Food and Water Borne Safety (2)
(cancelled course—eff. fall 14)

277. Mathematical Models in Epidemiology (3)
Lecture/discussion—2 hours; laboratory—2 hours. Prerequisite: Preventive Veterinary Medicine 403 and Medicine & Epidemiology 405; consent of instructor; although not required, students are encouraged to refresh their knowledge of high school calculus and differential equations. Class size limited to 30 students. Theory of epidemics and mathematical modeling concepts for infectious diseases to include discrete and continuous time models, their use to explore disease dynamics and investigate prevention and control strategies for human and veterinary infectious diseases. (Same course as Epidemiology 277.)—*S. (S.)* Aly
(change in existing course—eff. fall 15)

290. Seminar (1)
Seminar—1 hour. Presentation and discussion of advanced and current topics in population health and reproduction. (S/U grading only.)—*F, W, S. (F, W, S.)*
(new course—eff. winter 16)

Veterinary Medicine: Preventive Veterinary Medicine

New and changed courses in Veterinary Medicine: Preventive Veterinary Medicine (MPM)

Graduate

200. Introduction to Information Management for Epidemiologists (1)
Laboratory—1 hour. Restricted to students in the Master of Preventive Veterinary Medicine program. Introduction to practical application of epidemiological methods to solve problems involving population health data. Emphasis on using worksheet/database software tools for organizing, analyzing, reporting, and interpreting data. Ten, three-hour sessions.—*Su. (Su.)* Lehenbauer
(new course—eff. summer 16)

201. Emerging Issues at the Interface of Animal, Human, and Ecosystem Health (2.5)
Lecture—1 hour; discussion—1.5 hours. Class size limited to 35 students. Introduce one health topics emphasizing relationships between environmental, animal and human health. Topics include ecosystem change and impacts on animals and humans, cross-species disease transmission and approaches for addressing critical data gaps to inform ecosystem health and disease prevention.—*F. (F.)* Johnson
(new course—eff. fall 16)

202. Medical Statistics I (4)
Lecture—15 sessions; laboratory—10 sessions. Prerequisite: MPVM or MPH standing, or consent of the instructor. Restricted to 80 students. Basic statistics in clinical, laboratory and population medicine: descriptive statistics; probability; binomial, Poisson, normal, t-, F-, and Chi-square distributions; sampling distributions; parameter estimation; hypothesis testing; elementary nonparametric methods, simple linear regression and correlation; life table construction and analysis.—*Su. (Su.)* Farver
(new course—eff. summer 15)

203. Medical Statistics II (4)
Lecture—3 hours; laboratory—2 hours. Prerequisite: course 202 (or equivalent) or consent of instructor. Continuation of course 202. Analysis of variance in biomedical sciences; nonparametric methods; multiple regression; unconditional logistic regression; biomedical applications of statistical methods. Microcomputer applications in population medicine to reinforce principles that are taught in lecture. Required for students in the Preventive Veterinary Program Graduate Group (PVM) and the Masters of Public Health Program (MPH). Farver, Thomas
(new course—eff. fall 15)

204. Medical Statistcs III (4)
Lecture—3 hours; laboratory—2 hours. Continuation of course 203. Selecting the best regression equation, conditional logistic regression, Poisson regression, survival analysis, analysis of time dependent variation and trends. Microcomputer applications in population medicine to reinforce principles that are taught in lecture.—*W. (W.)*
(new course—eff. fall 16)

206. Epidemiologic Study Design (4)
Lecture—30 sessions; discussion—9 sessions; laboratory—2 sessions. Prerequisite: course 205 or consent of instructor. Builds on concepts presented in course 205. Concepts of epidemiologic study design–clinical trials, observational cohort studies, case control studies–introduced in course 205A are

covered in more depth, using a problem-based format. Discussion of published epidemiologic studies. (Same course as Epidemiology 206.)

(new course—eff. winter 15)

207. Applied Epidemiologic Problem Solving (1)

Laboratory/discussion—2 hours. Integration of epidemiologic and statistical methodology in a problem-solving approach to contemporary animal population health issues. Data validation and manipulation.—*W. (W.)* Martinez-Lopez

(new course—eff. fall 14)

Viticulture and Enology

New and changed courses in Viticulture and Enology (VEN)

Upper Division

123L. Analysis of Musts & Wines Laboratory (2)

Lab—3 hours; independent study—3 hours. Prerequisite: Chemistry 2C and 8B, or equivalent, Agricultural Management and Rangeland Resources 21, and course 123 (course 123 may be taken concurrently). Restricted to upper division and graduate students in Viticulture & Enology; others by approval of instructor. Fundamental principles of analytical chemistry as they relate to specific methods used in winemaking. Laboratory exercises demonstrating various chemical, physical and biochemical methods. Data will be analyzed and results interpreted in weekly lab reports; includes student-designed independent project and written report. GE credit: SciEng, Wrt | QL, SE, VL, WE.—*F. (F.)* Waterhouse

(change in existing course—eff. winter 15)

126L. Wine Stability Laboratory (2)

Laboratory—3 hours; independent study—3 hours. Prerequisite: course 126 (may be taken concurrently); consent of instructor. Restricted to upper division fermentation science, viticulture and enology majors, or graduate students in food science, agricultural and environmental chemistry, microbiology or by consent of instructor. Practical application of principles of equilibria and rates of physical and chemical reactions to wine stability. GE credit: SciEng | SE, WE.—*W. (W.)* Boulton

(change in existing course—eff. winter 15)

190X. Winemaking Seminar (1)

Seminar—1 hour; discussion—1 hour. Prerequisite: course 3. Open to Viticulture and Enology majors and graduate students. Outside speakers on a specific winemaking topic chosen for the quarter. Discussion with the speaker hosted by the faculty member(s) in charge. May be repeated three times for credit. (P/NP grading only.) GE credit: SE.—*S. (S.)*

(change in existing course—eff. winter 15)

198. Directed Group Study (1-5)

Prerequisite: consent of instructor. (P/NP grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. winter 15)

Graduate

216. Sustainable Vineyard Development (5)

Lecture/discussion—3 hours; fieldwork—3 hours; term paper. Prerequisite: course 101A, 101B, 101C, and one of courses 115 and 118 or consent of instructor; course 110, Soil Science 100, Atmospheric Science 133 and Agricultural and Resource Economics 140 recommended. Application of plant, meteorological, soil, water, GIS, and economic sciences to sustainable vineyard development. Preparation of a comprehensive study to determine the viticultural and economic feasibility of a given site for raisin, table, or wine grape production.—*F. (F.)* Smart

(change in existing course—eff. spring 15)

224. Advances in the Science of Winemaking (3)

Lecture—3 hours. Prerequisite: course 125, 126 and graduate standing or consent of instructor. Selected topics in the science and technology of winemaking. Topics drawn from current research of participating faculty. Critical analysis of the technical content of published material.—*S. (S.)*

(change in existing course—eff. spring 15)

292. Advanced Internship (1-15)

Internship—3-45 hours. Prerequisite: courses 123, 123L, 124, 124L, 125, 125L, 126, 126L, 128, 128L; consent of instructor. Restricted to Viticulture & Enology Graduate Group graduate students. Work experience related to Fermentation Science (Enology) or Plant Science (Viticulture) majors. Internships must be approved and supervised by a graduate group faculty member or students major professor, but are arranged by the student. May be repeated 15 units for credit. (S/U grading only.)—*F, W, S. (F, W, S.)*

(change in existing course—eff. fall 10)

Wildlife, Fish, and Conservation Biology

New and changed courses in Wildlife, Fish, and Conservation Biology (WFC)

Lower Division

51. Introduction to Conservation Biology (3)

Lecture—3 hours. Introduction to conservation biology including both biological and social issues related to the loss of species and habitats. Intended for students with no background in biological sciences. GE credit: SciEng, Wrt | SE, SL.—*S. (S.)* Caro

(new course—eff. spring 16)

Upper Division

101. Field Research in Wildlife Ecology (2)

Lecture/discussion—2 hours. Prerequisite: Consent of instructor and one upper division course in each of ecology, statistics, and ornithology, mammalogy, or herpetology. Field research in ecology of wild vertebrates in terrestrial environments; formulation of testable hypotheses, study design, introduction to research methodology, oral and written presentation of results. Offered in alternate years. GE credit: SciEng | Wrt | SE, VL, WE.—*F.* Eadie, Kelt, Todd, Van Vuren

(change in existing course—eff. winter 15)

101L. Field Research in Wildlife Ecology: Laboratory (4)

Lecture/discussion—2 hours; field work—15 hours. Prerequisite: consent of instructor, course 101 (may be taken concurrently), and one upper division course in each of ecology, statistics, and ornithology, mammalogy, or herpetology. Limited enrollment. Field research in ecology of wild vertebrates in terrestrial environments; testing ecological hypotheses through field research, application of research methodology, supervised independent research projects. Held between Labor Day and fall quarter. Offered in alternate years.—*F.* Eadie, Kelt, Todd, Van Vuren

(change in existing course—eff. winter 15)

110L. Laboratory in Biology and Conservation of Wild Mammals (3)

Laboratory—6 hours. Prerequisite: course 110 (may be taken concurrently); consent of instructor. Limited enrollment. Laboratory exercises in the morphology, systematics, species identification, anatomy, and adaptations of wild mammals to different habitats.—*S. (S.)* Kelt

(change in existing course—eff. winter 15)

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. Limited enrollment. 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.—*F. (F.)* Eadie

(change in existing course—eff. winter 15)

121. Physiology of Fishes (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: upper division courses in nutrition and physiology or consent of instructor. Comparative physiology, growth, reproduction, behavior, and energy relations of fishes. Offered irregularly. GE credit: SciEng, Wrt | SE, WE.

(change in existing course—eff. winter 15)

136. Ecology of Waterfowl and Game Birds (4)

Lecture—3 hours; laboratory—3 hours; fieldwork—1 hour. Prerequisite: course 111, 111L or the equivalent, or consent of instructor. Detailed examination of distribution, behavior, population dynamics, and management of waterfowl and upland game birds. Offered in alternate years.—*(W.)* Eadie

(change in existing course—eff. spring 15)

144. Marine Conservation Science (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course in introductory ecology. Class size limited to 30 students. Key differences between marine and terrestrial ecosystems, major stressors of marine ecosystems (e.g., fisheries, pollution, bioinvasions, climate change and habitat destruction) and their consequences. Laws and agencies responsible for addressing problems, and the policies used. Offered in alternate years.—*(F.)* Botsford

(new course—eff. fall 15)

150. Urban Wildlife Ecology (3)

Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, 2C, or the equivalent. Introduction to the behavior, ecology, and evolution of wild animals in urban environments. Effects of urbanization on disease, fitness, and dynamics of animal populations. Conservation and conflict management efforts in urban settings. Offered in alternate years.—*W.* Townsend

(change in existing course—eff. winter 15)

151. Wildlife Ecology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 2B or equivalent. Ecology of wild vertebrates, including habitat selection, spatial organization, demography, population dynamics, competition, predation, herbivory, energetics, and community dynamics, set in the context of human-caused degradation of environments in North America.—*F. (F.)* Van Vuren

(change in existing course—eff. fall 15)

153. Wildlife Ecotoxicology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: introductory courses in organic chemistry, ecology, and physiology, or consent of instructor; Environmental Toxicology 101 recommended. Various forms of environmental pollution in relation to fish and wildlife, the effects and mechanisms of pollutants, effects on individuals and systems, laboratory and field eco-

toxicology, examples/case histories, philosophical/management considerations. Offered irregularly. GE credit: SciEng, Wrt | SE, WE.

(change in existing course—eff. spring 15)

156. Plant Geography (4)
Lecture—3 hours; laboratory—3 hours; term paper. Field trips will be substituted for some in-lab activities. Prerequisite: Environmental Science and Policy 100 or Evolution and Ecology 101; Plant Biology 102 or 108 strongly recommended. Survey of the geographical distribution of vegetation types and habitats, with consideration of the environmental and historical factors that determine these patterns. Conservation and management approaches. Analytical field and lab techniques introduced. Offered irregularly. GE credit: SciEng, Wrt | SE, VL, WE.—*S.*

(change in existing course—eff. fall 14)

157. Coastal Ecosystems (4)
Lecture—3 hours; laboratory—3 hours; fieldwork—3 hours. Prerequisite: Environmental Studies 100 or Evolution and Ecology 101; course work in organismal biology, physical geography, and geology recommended. Overview of coastal ecosystems, physical and biological elements and processes, and coastal zone dynamics, including sandy, rocky and muddy shorelines, estuaries, dunes and coastal watersheds. Discussion of the role of historical factors and conservation, restoration, and management approaches. Offered irregularly. GE credit: SciEng | SE, VL.—*(S.)*

(change in existing course—eff. fall 15)

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 the equivalent. Introduction to the dynamics and control of infectious disease in wildlife, including zoonotic diseases and those threatening endangered species. Basic epidemiological models and their applications. Role of scientists in developing disease control policies. Offered irregularly.

(change in existing course—eff. winter 15)

160. Animal Coloration (3)
Lecture/discussion—3 hours. Prerequisite: Biological Sciences 2A, 2B, 2C. Evolutionary and ecological significance of coloration in mammals, birds, reptiles, amphibians, fish, cephalopods, crustaceans, spiders, insects, humans as well as color in fashion, plants and the military. Topics include history, protective coloration, warning coloration, mimicry, sexual dichromatism and color change. Offered in alternate years.—*(W.)* Caro

(new course—eff. winter 16)

Graduate

223. Conservation Biology and Animal Behavior (3)
Lecture—1.5 hours; discussion—1.5 hours. Prerequisite: Ecology 208 or Animal Behavior 221; consent of instructor. Influences of concepts of animal behavior (functional, evolutionary, developmental, mechanistic, and methodological issues) on conservation biology theory and practice. Offered in alternate years.—*(S.)* Caro

(change in existing course—eff. winter 15)

230. Advanced Physiological Ecology of Wildlife (4)
Lecture—3 hours; discussion—1 hour. Advanced principles of physiological ecology. Ecological, evolutionary and behavioral perspectives on physiological mechanisms used by animals to adapt to their environment in the context of climate change and other threats to biodiversity. Primary literature will form the basis of discussion.—*W. (W.)* Fangue

(new course—eff. winter 15)

262. Advanced Population Dynamics (3)
Lecture—3 hours. Prerequisite: graduate standing; advanced course in ecology (e.g., Evolution and Ecology 101), population dynamics (e.g., course 122), and one year of calculus; familiarity with matrix algebra and partial differential equations recommended. Logical basis for population models, evaluation of simple ecological models, current population models with age, size, and stage structure, theoretical basis for management and exemplary case histories. Emphasis on development and use of realistic population models in ecological research. (Same course as Ecology 262.) Offered irregularly.—*W. (W.)* Botsford

(new course—eff. spring 16)

Women's Studies

New and changed courses in Women's Studies (WMS)

Lower Division

80. Special Topics in Women's Studies (4)
Lecture/discussion—4 hours. Limited enrollment. In-depth examination of a women's studies topic related to the research interest of the instructor. May be repeated for credit when topic differs.—Constable, Ho, Kaiser, Nettles-Barcelón

(change in existing course—eff. winter 15)

20. Cultural Representations of Gender (4)
Lecture/discussion—4 hours. Interdisciplinary investigation of how specific cultures represent gender difference. Examine a variety of cultural forms and phenomena including film, television, literature, music, popular movements, and institutions. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, VL, WC, WE.

(change in existing course—eff. spring 16)

60. Feminist Critiques of Western Thought (4)
Lecture/discussion—4 hours. Critical introduction to major traditions of social thinking in the West from a feminist perspective. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. spring 16)

Upper Division

103. Introduction to Feminist Theory (4)
Lecture/discussion—4 hours. Prerequisite: course 50 recommended or consent of instructor. Introduction to the emergence of feminist theory and to key concepts in feminist theorizing. Examination of past and current debates over sexuality, race, identity politics, and the social construction of women's experience. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, WE.—*F. (F.)*

(change in existing course—eff. fall 16)

104. Feminist Approaches to Inquiry (4)
Lecture/discussion—4 hours. Prerequisite: course 50 recommended or consent of instructor. Feminist applications and transformations of traditional disciplinary practices; current issues and methodologies in feminist interdisciplinary work. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, WE.—*W. (W.)*

(change in existing course—eff. spring 16)

130. Feminism and the Politics of Family Change (4)
Lecture/discussion—4 hours. Examination of contemporary conflicts over family values and the changing family from a feminist perspective. Offered in alternate years. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, WE.—*W. (W.)*

(change in existing course—eff. spring 16)

137. Feminist Interpretations of Contemporary Western Thought (4)
Lecture/discussion—4 hours. Introduction to deciphering, demystifying, and interpreting poststructuralist, postmodern, and postcolonial thought from a feminist perspective: applications to gender, race, sexuality, and class. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. spring 16)

138. Critical Fashion Studies (4)
Lecture/discussion—4 hours. Feminist cultural studies of style-fashion-dress through transnational circuits, personal subjectivities. Fashion as means of gender oppression and liberation. Histories and discourses of masculinities and femininities. Clothing works on global assembly line. Use of dress in construction / regulation of identities. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, DD, VL, WC, WE.

(change in existing course—eff. fall 16)

139. Feminist Cultural Studies (4)
Lecture/discussion—4 hours. The histories, theories, and practices of feminist traditions within Cultural Studies. (Same as course American Studies 139.) Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, VL, WE.

(change in existing course—eff. fall 16)

140. Gender and Law (4)
Lecture/discussion—4 hours. Exploration of women's legal rights in historical and contemporary context, discussing a variety of legal issues and applicable feminist theories. Topics include constitutional equal protection, discrimination in employment and education, sexual orientation discrimination, and the regulation of abortion. Offered irregularly. GE credit: SocSci, Div | ACGH, DD, SS.

(change in existing course—eff. fall 16)

145. Women's Movements in Transnational Perspective (4)
Lecture/discussion—3 hours; term paper. Prerequisite: course 50 recommended. Class size limited to 90 students. Transnational perspectives on twentieth and twenty-first century women's movements in Western, colonial and post-colonial contexts, examining movement's forms and political orientations and relationships between women's movements and other forces for change. Offered in alternate years. GE credit: ArtHum or SocSci, Div | AH or SS, OL, WC, WE.

(change in existing course—eff. fall 16)

148. Science, Gender, and Social Justice (4)
Lecture/discussion—4 hours; term paper. Class size limited to 60 students. Critical reading and reflection on the history of Western science, scientific institutions and the changing role of science in relation to inequalities of class, race, gender and sexuality, and global struggles for equality and justice. Offered irregularly. GE credit: ArtHum or SocSci, Div | AH or SS, DD, WC, WE.

(change in existing course—eff. spring 16)

158. Contemporary Masculinities (4)
Lecture/discussion—4 hours. A multicultural study of contemporary trends in masculinity and the economic, social and political forces that have shaped them. Topics may include men's movements, ethnic nationalist masculinities, and images of masculinity in popular culture. Offered in alternate years. GE credit: ArtHum or SocSci, Div | ACGH, AH or SS, DD, WE.

160. Women, 'Race' and Sexuality in Postcolonial Cinema (4)
Lecture/discussion—3 hours; film viewing—3 hours. Class size limited to 90 students. Feminist analysis of race, sexuality and class in the representation of

women in commercial and/or independent films. Offered in alternate years. GE credit: ArtHum, Div, Wrt | AH, VL, WC, WE.

(change in existing course—eff. winter 16)

162. Feminist Film Theory and Criticism (4)
Lecture/discussion—3 hours; film-viewing—3 hours. Historical overview of and contemporary issues in feminist film theory, including representation, spectatorship, and cultural production. Film stars, women filmmakers, and the intersections of gender, race, sexuality, and class in films and their audiences. Offered in alternate years. GE credit: ArtHum, Div | ACGH, AH, DD, VL, WC, WE.

(change in existing course—eff. spring 16)

164. Topics in Gender and Cinematic Representation (4)
Lecture/discussion—3 hours; film-viewing—3 hours. Examination of a specific topic within the broad rubric of gender and cinema. Possible topics include Latinas in Hollywood; gender, nation, cinema; and gender and film genre. Topics vary. May be repeated two times for credit when topic differs. Offered in alternate years. GE credit: ArtHum, Div | AH, VL, WC, WE.

(change in existing course—eff. spring 16)

170. Queer Studies (4)
Lecture/discussion—4 hours. Prerequisite: course 70 recommended or consent of instructor. Study of queer sexualities, identities, theories, practices. Alternative sexualities as historical, social, and cultural constructions in intersections with race, gender, class, nationality. Interdisciplinary exploration of sexual liberation and the regulation of sexuality through history, theory and expressive cultural forms. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. fall 16)

175. Gender and Experience of Race (4)
Lecture/discussion—4 hours. Exploration of the co-construction of "race" and gender in comparative national historical contexts and contemporary lived experience. Study of intersections of race and gender in identities and how institutions, labor migration, social movements and consumption shape racialized gendered identities. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. fall 16)

178A. Women Writers and the Transnational Imaginary (4)
Lecture/discussion—4 hours. Prerequisite: consent of instructor. Writings by women from diverse regions and cultures, understood in their cultural, socio-economic, and historical contexts, with each course offering a focus on women's writing in specific geographic/national locations and their diasporas: The Arab World. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Constable

(change in existing course—eff. fall 16)

178B. Women Writers and the Transnational Imaginary (4)
Lecture/discussion—4 hours. Writings by women from diverse regions and cultures, understood in their cultural, socio-economic, and historical contexts, with each course offering a focus on women's writing in specific geographic/national locations and their diasporas: Asia. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Constable

(change in existing course—eff. fall 16)

178C. Women Writers and the Transnational Imaginary (4)
Lecture/discussion—4 hours. Writings by women from diverse regions and cultures, understood in their cultural, socio-economic, and historical contexts, with each course offering a focus on women's writing in specific geographic/national locations and their diasporas: The Caribbean. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Constable

(change in existing course—eff. fall 16)

178D. Women Writers and the Transnational Imaginary (4)
Lecture/discussion—4 hours. Writings by women from diverse regions and cultures, understood in their cultural, socio-economic, and historical contexts, with each course offering a focus on women's writing in specific geographic/national locations and their diasporas: Africa. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Constable

(change in existing course—eff. fall 16)

178E. Women Writers and the Transnational Imaginary (4)
Lecture/discussion—4 hours. Writings by women from diverse regions and cultures, understood in their cultural, socio-economic, and historical contexts, with each course offering a focus on women's writing in specific geographic/national locations and their diasporas: Diasporic Women Writers in Europe. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, WC, WE.—Constable

(change in existing course—eff. fall 16)

178F. Transnationalism and Writing by Women of Color (4)
Lecture/discussion—4 hours. Writings by women of color in a transnational framework, understood in their cultural, socio-economic, and historical contexts. The interrelation among gender, writing, nationalism, and transnationalism, with focus on women's writing in specific geographic/national locations and their diasporas: Topics on Women Writers of Color. Offered irregularly. GE credit: ArtHum, Div, Wrt | AH, WC, WE.

(change in existing course—eff. fall 16)

182. Globalization, Gender and Culture (4)
Lecture/discussion—4 hours. Critical gender analysis of globalization as a process of interconnected cultural, social and economic transformations inflected by gender, nation, class and race/ethnicity. Critical self-reflection and social observation skills. Offered in alternate years. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, OL, WC, WE.—*S. (S.)*

(change in existing course—eff. spring 16)

184. Gender in the Arab World (4)
Lecture/discussion—4 hours. Examination of the history, culture, and social/political/economic dynamics of gender relations and gendering in the Arab world. Offered irregularly. GE credit: SocSci, Div, Wrt | SS, WC, WE.

(change in existing course—eff. fall 16)

187. Gender and Social Policy (4)
Lecture/discussion—3 hours; term paper. Role of gender in the creation of social policies, especially with respect to issues brought into the policy arena by contemporary feminism. Offered in alternate years. GE credit: SocSci, Div | ACGH, DD, SS, WE.

(change in existing course—eff. fall 16)

189. Special Topics in Critical Gender Studies (4)
Lecture/discussion—4 hours. In-depth examination of a women's studies topic related to the research interests of the instructor. May be repeated one time for credit when topic differs. Offered irregularly. GE credit: ArtHum or SocSci | AH or SS, WE.

(change in existing course—eff. fall 16)

190. Senior Seminar (4)
Seminar—4 hours. Capstone course for senior Women's Studies majors, which focuses on current issues on feminism as they impact theory, public policy, and practice. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD.—*S. (S.)*

(change in existing course—eff. fall 16)

191. Capstone Seminar (4)
Seminar—4 hours. Revision, completion, and presentation of senior research or creative project. Creating a multimedia Web site for publishing research and creative projects. GE credit: ArtHum or SocSci, Wrt | ACGH, AH or SS, DD, WE.

(change in existing course—eff. fall 16)

193. Feminist Leadership Seminar (2)
Seminar—2 hours. Use feminist methods to critically reflect on the ethical, methodological and strategic aspects of an organization, project, campaign, movement or other social change initiative. May be repeated for credit. (P/NP grading only.) Offered irregularly. GE credit: ArtHum or SocSci | ACGH, AH or SS, DD, WE.

(change in existing course—eff. fall 16)

194HA. Senior Honors Project in Women's Studies (4-6)
Independent study—12 hours. Prerequisite: senior standing, Women's Studies major, and adviser's approval. In consultation with an adviser, students complete a substantial research paper or significant creative project on a Women's Studies topic. (Deferred grading only, pending completion of sequence.) GE credit: ArtHum or SocSci | AH or SS, WE.—Constable, Craig, Ho, Joseph, Kaiser, Mama, Nettles-Barcelón

(change in existing course—eff. summer 15)

194HB. Senior Honors Project in Women's Studies (4-6)
Independent study—12 hours. Prerequisite: senior standing, Women's Studies major, and adviser's approval. In consultation with an adviser, students complete a substantial research paper or significant creative project on a Women's Studies topic. (Deferred grading only, pending completion of sequence.) GE credit: ArtHum or SocSci | AH or SS, WE.—Constable, Craig, Ho, Joseph, Kaiser, Mama, Nettles-Barcelón

(change in existing course—eff. summer 15)

195. Thematic Seminar in Critical Gender and Women's Studies (4)
Seminar—4 hours. Group study of a topic, issue or area in feminist theory and research involving intensive reading and writing. May be repeated for credit. Offered irregularly. GE credit: ArtHum or SocSci, Div, Wrt | AH or SS, ACGH, DD, WE.

(change in existing course—eff. spring 16)

Graduate

201. Special Topics in Feminist Theory and Research (4)
Lecture/discussion—4 hours. Limited enrollment. Explores in depth a topic in feminist theory and research related to the research interests of the instructor. May be repeated for credit when topic differs.—*(S.)* Constable, Craig, Ho, Joseph, Kaiser, Mama, Nettles-Barcelón, Swain

(change in existing course—eff. winter 15)

Policies & Requirements Addendum

College Board Advanced Placement (AP) Examination Credit Chart

Change to the College Board Advanced Placement (AP) Examination Credit chart

In the AP Chart appearing on pages 35-38 of the 2014-2016 General Catalog, Political Sciences 1 and 2 course equivalencies have been eliminated effective with May 2015 Advanced Placement (AP) examinations, upon recommendation of faculty. With this elimination, the United States Government and Politics AP examination will no longer satisfy the American History and Institutions university requirement. See page 185-page 188.

Degrees Offered by UC Davis

Addition to the Degrees Offered by UC Davis listing

Cognitive Science
A.B., B.S. . . . . L&S

General Education Options/Courses

Addition to the New General Education Courses; Fall 2011 and On section

Arts & Humanities (AH)

English 163

World Cultures (WC)

English 163

Writing Experience (WE)

English 163

Incomplete Grades

Addition to the Incomplete Grades section of the Academic Information chapter

If the degree has not been conferred, and the work has not been completed before the end of the term three calendar years after the grade Incomplete has been assigned, and during which the student has not been in academic residence as defined in Regulation 610, the grade Incomplete shall remain on the student's record, unless the course is repeated. This time-limit for the completion of courses assigned the grade Incomplete shall apply to all and only those courses in which the grade Incomplete is assigned on or after September 1, 2010 per Academic Senate Regulation A540(c).

Minor Programs Offered by UC Davis

Addition to the Minor Programs Offered by UC Davis listing

Electrical Engineering . . . . . ENGR

Repeating Courses

Change to Graduate Student Repeat Regulation

Graduate students, with the consent of the appropriate graduate adviser and the dean of Graduate Studies, may repeat any course in which they received a *C*, *D*, *F* or *U*, up to a maximum of three courses for all courses repeated. Courses in which a grade of *C*, *D* or *F* has been earned may not be repeated on an *S/U* basis. Courses in which a grade of *U* as received may be repeated on an *S/U* basis.

Undergraduate Education

Change to Undergraduate Education, College of Engineering section

Transfer students. To be eligible for transfer into the College of Engineering, you must have at least ninety transferable quarter units (sixty semester units) from another institution. You must complete all lower division engineering major requirements with a minimum GPA of 3.100 in these required courses.

We give highest priority for transfer admission to California community college transfer applicants who have completed two transferable English composition courses and all of the required lower division engineering major requirements offered at the community college they attended.

We give lower priority for admission to community college applicants who are missing one or two of the required lower division engineering major requirements. Community college applicants will be denied admission if they are missing three or more of the required lower-division courses.

Priority is next given to junior-level transfers from other UC campuses and other four-year institutions in and out of state. These students must also have completed all of the required lower-division engineering major requirements.

Successful applicants are admitted to a specific major. You may be limited in your ability to change majors within the college after you are admitted.

College Board Advanced Placement (AP) Examination Credit

Examination [1]	Score	Credit Toward Degree; Quarter Units	UC Transfer	IGETC Area [3]	UC Davis Course Equivalencies	Duplicate Credit Allowance [4]	Continuing UC Davis Course	COLLEGE OF [5] Agricultural and Environmental Sciences	Biological Sciences	Engineering	Letters and Science	Comment *
Art History	5	8	UC-H	3A or 3B	Art History 1A, 1B, 1C	No	–	–	–	–	a	
Art History	4, 3	8	UC-H	3A or 3B	–	–	–	–	–	–	–	
Biology	5, 4, 3	8	UC-S	5B w/ lab	Biological Sciences 10	No	–	–	–	–	b	• Biological Sciences 2A is the first course taken by most students majoring in the life sciences.
Chemistry	5	8	UC-S	5A w/ lab	Chemistry 2A	Yes*	Consult w/ adviser	–	–	–	b	* Although Chemistry 2A may be taken for full credit, students are strongly encouraged to enroll in the 2AH, 2BH, 2CH sequence.
Chemistry	4, 3	8	UC-S	5A w/ lab	Chemistry 10	No	–	–	–	–	b	
Chinese Language and Culture	5, 4, 3	8	UC-H	3B and 6A	–	–	Consult w/ adviser	–	f	–	f	
Comparative Government and Politics	5, 4, 3	4	UC-B	4H	Political Science 2**	No	–	–	–	–	–	* Effective with May 2015 AP exam, course credit for Political Science 2 will no longer be awarded for AP exam scores of 3, 4 and 5.
Computer Science A	5, 4, 3	2*	–	–	–	–	–	–	–	–	b	* 4 transferable unit max. for both Computer Science exams.
Computer Science AB	5, 4	4*	–	–	Engineering Computer Science 30	No	Engineering Computer Science 40*	–	–	–	b	* 4 transferable unit max. for both Computer Science exams. • Credit for Computer Science and Engineering 30 may fulfill prerequisite for Computer Science and Engineering 40 w/ instructor consent.
Computer Science AB	3	4*	–	–	–	–	–	–	–	e	b	* 4 transferable unit max. for both Computer Science exams.
English - Language and Composition	5, 4	8*	UC-E	1A	English 3, University Writing Program 1	No	–	d	c	–	d	* 8 transferable unit max. for all English exams. • Satisfies university Entry Level Writing Requirement.
English - Language and Composition	3	8*	UC-E	1A	–	–	–	–	–	–	–	* 8 transferable unit max. for all English exams. • Satisfies university Entry Level Writing Requirement.
English - Literature and Composition	5, 4	8*	UC-E / H	1A or 3B	English 3, University Writing Program 1	No	–	d	c	–	d	* 8 transferable unit max. for all English exams. • Satisfies university Entry Level Writing Requirement.
English - Literature and Composition	3	8*	UC-E / H	1A or 3B	–	–	–	–	–	–	–	* 8 transferable unit max. for all English exams. • Satisfies university Entry Level Writing Requirement.
Environmental Science	5, 4, 3	4	UC-S	5A w/ lab	Environmental Science and Policy 10	No	–	–	–	–	b	
European History	5, 4, 3	8	UC-B / H	3B or 4F	History 4B, 4C	4A, 4B: Yes; 4C: No	–	–	–	–	–	
French Language	5	8*	UC-H	3B and 6A	French 22	No	French 23 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for French Language and French Language and Culture exams. Maximum credit awarded to the exam with the highest score.
French Language	4	8*	UC-H	3B and 6A	French 21	No	French 22	–	f	–	f	* 8 transferable unit max. for French Language and French Language and Culture exams. Maximum credit awarded to the exam with the highest score.
French Language	3	8*	UC-H	3B and 6A	French 3	No	French 21	–	f	–	f	* 8 transferable unit max. for French Language and French Language and Culture exams. Maximum credit awarded to the exam with the highest score.
French Language and Culture	5	8*	UC-H	3B and 6A	French 22	No	French 23 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for French Language and French Language and Culture exams. Maximum credit awarded to the exam with the highest score.
French Language and Culture	4	8*	UC-H	3B and 6A	French 21	No	French 22	–	f	–	f	* 8 transferable unit max. for French Language and French Language and Culture exams. Maximum credit awarded to the exam with the highest score.
French Language and Culture	3	8*	UC-H	3B and 6A	French 3	No	French 21	–	f	–	f	* 8 transferable unit max. for all French Language and French Language and Culture exams. Maximum credit awarded to the exam with the highest score.

College Board Advanced Placement (AP) Examination Credit

Examination [1]	Score	Credit toward Degree; Quarter Units	UC Transfer	IGETC Area [3]	UC Davis Course Equivalencies	Duplicate Credit Allowance [4]	Continuing UC Davis Course	COLLEGE OF [5] Agricultural and Environmental Sciences	Biological Sciences	Engineering	Letters and Science	Comment *
French Literature	5, 4, 3	8	UC-H	3B and 6A	Upper Division	No	French 100 or consult w/ adviser	–	f	–	f	
German Language	5	8*	UC-H	3B and 6A	German 21	No	German 22 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for German Language and German Language and Culture exams. Maximum credit awarded to the exam with the highest score.
German Language	4	8*	UC-H	3B and 6A	German 20	No	German 21 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for German Language and German Language and Culture exams. Maximum credit awarded to the exam with the highest score.
German Language	3	8*	UC-H	3B and 6A	German 3	No	German 20 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for German Language and German Language and Culture exams. Maximum credit awarded to the exam with the highest score.
German Language and Culture	5	8*	UC-H	3B and 6A	German 21	No	German 22 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for German Language and German Language and Culture exams. Maximum credit awarded to the exam with the highest score.
German Language and Culture	4	8*	UC-H	3B and 6A	German 20	No	German 21 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for German Language and German Language and Culture exams. Maximum credit awarded to the exam with the highest score.
German Language and Culture	3	8*	UC-H	3B and 6A	German 3	No	German 20 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for German Language and German Language and Culture exams. Maximum credit awarded to the exam with the highest score.
Human Geography	5, 4, 3	4	UC-B	4E	–	–	–	–	–	–	–	
Italian Language and Culture	5	8	UC-H	3B and 6A	Italian 5	No	Italian 9 or consult w/ adviser	–	f	–	f	
Italian Language and Culture	4	8	UC-H	3B and 6A	Italian 4	No	Italian 5 or consult w/ adviser	–	f	–	f	
Italian Language and Culture	3	8	UC-H	3B and 6A	Italian 3	No	Italian 4 or consult w/ adviser	–	f	–	f	
Japanese Language and Culture	5, 4, 3	8	UC-H	3B and 6A	–	–	Consult w/ adviser	–	f	–	f	
Latin	5, 4, 3	4*	UC-H	3B and 6A	Latin 2	No	Consult w/ Classics adviser	–	–	–	–	* 4 transferable unit max. for Latin and Latin (Vergil) exams. Maximum credit awarded to the exam with the highest score.
Latin (Vergil)	5, 4, 3	4*	UC-H	3B and 6A	Latin 2	No	Consult w/ Classics adviser	–	f	–	f	* 4 transferable unit max. for Latin and Latin (Vergil) exams. Maximum credit awarded to the exam with the highest score.
Latin Literature	5, 4, 3	4	UC-H	3B and 6A	–	–	Consult w/ Classics adviser	–	f	–	f	
Macroeconomics	5, 4, 3	4	UC-B	4B	Economics 1B	No	Economics 101	–	–	–	–	
Mathematics - Calculus AB	5, 4	4*	UC-M	2A	Mathematics 12, 16A, 17A or 21A	12: No; 16A, 17A, 21A: Yes	Mathematics 16B, 17B or 21B	–	–	–	b	* 8 transferable unit max. for all Mathematics-Calculus exams. • Credit for Mathematics 16A, 17A or 21A equivalents may fulfill prerequisite for Mathematics 16B, 17B or 21B. • If student elects to register in Mathematics 12, 16A, 17A or 21A, s/he is subject to the Mathematics Placement Requirement (MPR). For details, visit math.ucdavis.edu/undergrad/math_placement.
Mathematics - Calculus AB	3	4*	UC-M	2A	–	–	Mathematics 16A, 17A or 21A	–	–	–	b	* 8 transferable unit max. for all Mathematics-Calculus exams. • If student elects to register in Mathematics 12, 16A, 17A or 21A, s/he is subject to the Mathematics Placement Requirement (MPR). For details, visit math.ucdavis.edu/undergrad/math_placement.
Mathematics - Calculus BC^	5	8*	UC-M	2A	Mathematics 12, 16A-16B, 17A-17B or 21A-21B	12: No; 16A, 16B, 17A, 17B, 21A, 21B: Yes	Mathematics 16C, 17C or 21C	–	–	–	b	* 8 transferable unit max. for all Mathematics-Calculus exams. • Mathematics 16A, 16B, 17A, 17B, 21A or 21B equivalents may fulfill prerequisites for Mathematics 16B, 16C, 17B, 17C, 21B or 21C. • If student elects to register in Mathematics 12, 16A, 17A or 21A, s/he is subject to the Mathematics Placement Requirement (MPR). For details, visit math.ucdavis.edu/undergrad/math_placement.

Pre-Fall 2011 General Education (GE): ArtHum=Arts and Humanities; **SciEng**=Science and Engineering; **SocSci**=Social Sciences; **Div**=Domestic Diversity; **Wrt**=Writing Experience
Fall 2011 and on Revised General Education (GE): AH=Arts and Humanities; **SE**=Science and Engineering; **SS**=Social Sciences;
ACGH=American Cultures; **DD**=Domestic Diversity; **OL**=Oral Skills; **QL**=Quantitative; **SL**=Scientific; **VL**=Visual; **WC**=World Cultures; **WE**=Writing Experience
Quarter Offered: *F*=Fall, *W*=Winter, *S*=Spring, *Su*=Summer; 2015-2016 offering in parentheses

College Board Advanced Placement (AP) Examination Credit

Examination [1]	Score	Credit Toward Degree; Quarter Units	UC Transfer	IGETC Area [3]	UC Davis Course Equivalencies	Duplicate Credit Allowance [4]	Continuing UC Davis Course	COLLEGE OF [5]				Comment *
								Agricultural and Environmental Sciences	Biological Sciences	Engineering	Letters and Science	
Mathematics - Calculus BC^	4, 3	8*	UC-M	2A	Mathematics 12, 16A, 17A or 21A	12: No; 16A, 17A, 21A: Yes	Mathematics 16B, 17B or 21B	–	–	–	b	* 8 transferable unit max. for all Mathematics-Calculus exams. • Credit for Mathematics 16A, 17A or 21A equivalents may fulfill prerequisite for Mathematics 16B, 17B or 21B. • If student elects to register in Mathematics 12, 16A, 17A or 21A, s/he is subject to the Mathematics Placement Requirement (MPR). For details, visit math.ucdavis.edu/undergrad/math_placement.
Microeconomics	5, 4, 3	4	UC-B	4B	Economics 1A	No	Economics 100	–	–	–	–	
Music Theory	5, 4, 3	8	UC-H	–	Music 10	No	–	–	–	–	a	
Physics B	5,4	8*	UC-S	5A w/ lab	Physics 1A, 1B	No	–	–	–	–	b	* 8 transferable unit max. for all three Physics exams.
Physics B	3	8*	UC-S	5A w/ lab	–	–	–	–	–	–	b	* 8 transferable unit max. for all three Physics exams.
Physics C1—Mechanics	5,4	4*	UC-S	5A w/ lab	Physics 1A	No	–	–	–	–	b	* 8 transferable unit max. for all three Physics exams.
Physics C1—Mechanics	3	4*	UC-S	5A w/ lab	–	–	–	–	–	–	b	* 8 transferable unit max. for all three Physics exams.
Physics C||—Electricity/Magnetism	5, 4	4*	UC-S	5A w/ lab	–	–	–	–	–	–	b	* 8 transferable unit max. for all three Physics exams.
Physics C||—Electricity/Magnetism	3	4*	UC-S	5A w/ lab	–	–	–	–	–	–	b	* 8 transferable unit max. for all three Physics exams.
Psychology	5	4	UC-B	4I	Psychology 1	No	–	–	–	–	–	
Psychology	4, 3	4	UC-B	4I	–	–	–	–	–	–	–	
Spanish Language	5	8*	UC-H	3B and 6A	Spanish 23	No	Spanish 24 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Language and Spanish Language and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Language	4	8*	UC-H	3B and 6A	Spanish 22	No	Spanish 23 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Language and Spanish Language and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Language	3	8*	UC-H	3B and 6A	Spanish 21	No	Spanish 22 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Language and Spanish Language and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Language and Culture	5	8*	UC-H	3B and 6A	Spanish 23	No	Spanish 24 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Language and Spanish Language and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Language and Culture	4	8*	UC-H	3B and 6A	Spanish 22	No	Spanish 23 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Language and Spanish Language and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Language and Culture	3	8*	UC-H	3B and 6A	Spanish 21	No	Spanish 22 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Language and Spanish Language and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Literature	5, 4	8*	UC-H	3B and 6A	Spanish 24	No	Spanish 100 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Literature and Spanish Literature and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Literature	3	8*	UC-H	3B and 6A	Spanish 23	No	Spanish 24 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Literature and Spanish Literature and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Literature and Culture	5, 4	8*	UC-H	3B and 6A	Spanish 24	No	Spanish 100 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Literature and Spanish Literature and Culture exams. Maximum credit awarded to the exam with the highest score.
Spanish Literature and Culture	3	8*	UC-H	3B and 6A	Spanish 23	No	Spanish 24 or consult w/ adviser	–	f	–	f	* 8 transferable unit max. for Spanish Literature and Spanish Literature and Culture exams. Maximum credit awarded to the exam with the highest score.
Statistics	5, 4	4	UC-M	2A	Statistics 13	Yes	–	–	–	–	b	
Statistics	3	4	UC-M	2A	–	–	–	–	–	–	b	

College Board Advanced Placement (AP) Examination Credit

Examination [1]	Score	Credit Toward Degree; Quarter Units	UC Transfer	IGETC Area [3]	UC Davis Course Equivalencies	Duplicate Credit Allowance [4]	Continuing UC Davis Course	COLLEGE OF [5] Agricultural and Environmental Sciences	Biological Sciences	Engineering	Letters and Science	Comment *
Studio Art [Drawing Portfolio]	5, 4	8*	–	–	Art Studio 2	No	–	–	–	–	a	* 8 transferable unit max. for all three Studio Art exams. Campus articulation revised, effective with May 2012 AP exam.
Studio Art [Drawing Portfolio]	3	8*	–	–	–	–	–	–	–	–	a	* 8 transferable unit max. for all three Studio Art exams. Campus articulation revised, effective with May 2012 AP exam.
Studio Art [2-D Design Portfolio; 3-D Design Portfolio]	5,4, 3	8*	–	–	–	–	–	–	–	–	–	* 8 transferable unit max. for all three Studio Art exams. Campus articulation revised, effective with May 2012 AP exam.
United States Government and Politics	5, 4, 3	4	UC-B	4H	Political Science 1*	No	–	–	–	–	–	• Satisfies university American History and Institutions requirement. * Effective with the May 2015 AP exam, course credit for Political Science 1 will no longer be awarded and the university American History and Institutions requirement will no longer be satisfied.
United States History	5, 4, 3	8	UC-B / H	3B or 4F	History 17A, 17B	Yes	–	–	–	–	–	• Satisfies university American History and Institutions requirement.
World History	5, 4, 3	8	UC-B / H	3B or 4F	–	–	–	–	–	–	–	

Note: This is not a comprehensive list as new tests are possible. If your exam is not listed, it will be determined in consultation with an adviser.

* Students who take the Calculus BC exam and earn a sub-score of 3 or higher on the Calculus AB portion will receive credit for the Calculus AB exam, even if they do not receive a score of 3 or higher on the BC exam. The Calculus BC/AB sub-score satisfies IGETC Area 2A.

[1] Examination:
Last test administration for discontinued exams:
May 2009—Computer Science AB, French Literature, Italian, Latin Literature
May 2011—French Language, German Language
May 2012—Spanish Literature, Latin (Vergil)
May 2013—Spanish Language
May 2014—Physics B

[2] UC Transfer Admissions Eligibility Area:
- UCB=Behavioral and Social Sciences, UC-E=English, UC-H=Humanities, UC-M=Math, UC-S=Biological and Physical Sciences
- UCE: if English AP test score of 3, 4, 5 was achieved prior to completing any transferable English composition course(s), 8 quarter units of transfer credit are awarded for the AP exam, and one of two English Composition requirements (UCE) satisfied. UC Davis articulates (AP) English Language and Composition, and English Literature and Composition, with scores of 4 or 5 as UWP 1 and English 3; therefore we will not allow transfer credit for any duplicated English courses.
- See www.assist.org, Help Topics: UC Transfer Admissions Eligibility, for details related to UC transfer admission courses.

[3] IGETC Area:
- Each AP exam may be applied to one IGETC area as satisfying one course requirement, with the exception of Language other than English (LOTE).
- There is no equivalent AP exam for the Area 1B—Critical Thinking/Composition requirement.
- For details regarding IGETC certification, see your California community college adviser and www.assist.org, Help Topics: IGETC.
- Students entering UC Davis with partial IGETC certification should contact their dean's office.

[4] Duplicate Credit Allowance for Coursework/Exams:
The university does not generally award full credit for duplicate college coursework or exams, whether taken before or during enrollment at the university. Exceptions to this policy are indicated in this column. We encourage students who have AP credit to speak with an academic adviser in their major department, dean's office or Biology Academic Success Center to determine which courses will provide the greatest benefit.

[5] UC Davis College Area Requirements:
a. Partially satisfies Area (breadth) requirements for the A.B. degree.
b. 4 units of credit toward Natural Sciences Credit or Preparatory Course Work allowed for science majors for each Natural Sciences exam passed, except 8 units of credit allowed for Mathematics BC and Physics B exams.
c. Satisfies 4 lower-division units of the English Composition requirement.
d. Satisfies first course toward English Composition requirement.
e. Exam awards units toward the Unrestricted Electives requirement.
f. Language exams, except any Latin exam, satisfy the Foreign Language requirement.

UC Davis Pattern of General Education:
Courses for which AP credit has been granted may not be used as a substitute for courses required as part of the UC Davis GE Requirement; see Advanced Placement (AP) examinations o page 34 and page 42.

Agricultural Systems and Environment

Changes to the Agricultural Systems and Environment Minor Requirements

Minor Program Requirements:

UNITS

Agricultural Systems and Environment 18-20

Preparatory material: Course in statistics such as Statistics 13, 32, 100, Plant Sciences 120, Sociology 46B or equivalent. Course in plant science such as Plant Sciences 2, completion of Biological Sciences 2A and 2B and 2C also fulfills this requirement.

Select one of the two following tracks:

Sustainable Agriculture track

Plant Sciences 150 4
Soil Science 100 5
Plant Sciences 105 or 176 or Entomology 110 3-5
Minimum of six units from the following: Plant Sciences 110A, 110C, 110L, 112, 113, 114 170A, 170B 6

Range and Natural Resources track

Plant Sciences 130 3
Minimum of 15 units from the following: Plant Sciences 112, 131, 135, 150, 163, Environmental Science and Policy 123, 172, Wildlife, Fish and Conservation Biology 110, 151

Minor Advisers. T. Gradziel *(Plant Sciences)*

Advising Center is located in 1220A Plant and Environmental Sciences 530-752-1715.

Animal Science

Changes to the Animal Science Major Requirements

B.S. Major Requirements:

UNITS

Preparatory Subject Matter 53-57

Animal Science 1, 2, 41, 41L 12
Biological Sciences 2A, 2B, 2C 15
Chemistry 2A, 2B and 8A, 8B or 118A, 118B 16-18
Mathematics 16A, 16B or 17A, 17B or 21A, 21B 6-8
Plant Sciences 120 or Statistics 100 4
Note: Some professional and graduate schools may require additional preparatory subject matter. Please consult the advising center.

Depth Subject Matter 39-43

Biology: Biological Sciences 101; Animal Genetics 107; Animal Biology 102, 103; Neurobiology, Physiology, and Behavior 101 24
Integrative Animal Biology: Animal Science 123, 124, and Neurobiology, Physiology, and Behavior 121 and 121L 13
Laboratory; Select one from the following: Animal Genetics 111; Animal Science 106, 136, or 137; Microbiology 102L; Molecular and Cellular Biology 120L or 60L; Neurobiology, Physiology, and Behavior 101L or 104L; Pathology, Microbiology, and Immunology 126L 2-6

Area of Specialization 20-23

Choose one area of specialization below; the program of study must be approved in advance by your faculty adviser. Courses must be taken for a letter grade.

Animal Science with a Disciplinary Focus 20
Select 20 upper division units, with approval from your faculty adviser, to form a coherent series of courses in one of the following disciplines: animal behavior, biochemistry, genetics, nutrition, or physiology.

Aquatic Animals 20
Animal Science 18 and 131; Nutrition 124; and Animal Science 118 or 119. Select additional upper division units from any Animal Genetics or Animal Science course, or other courses approved by your faculty adviser. Students in this specialization must take Animal Science 136 and 137 to meet their Laboratory Depth Subject Matter requirement. Students in this specialization may elect to substitute any of Biological Sciences 104, Evolution and Ecology 112, or Wildlife, Fish, and Conservation Biology 120 and 121 for the 12-unit requirement under Integrative Animal Biology, with approval of your faculty adviser.

Avian Sciences 20
Avian Sciences 13, 100, 150; Nutrition 123, 123L.
Select additional upper division units from any Animal Genetics, Animal Science, or Avian Sciences courses or other courses approved by your adviser. Students in this specialization must substitute Avian Sciences 103, 121, and Neurobiology, Physiology, and Behavior 117 for the Animal Science 124 and Neurobiology, Physiology, and Behavior 121 and 121L requirement under Integrative Animal Biology.

Companion and Captive Animals 20
Animal Science 42, 142; Nutrition 115 or 122 or 123 and 123L; Animal Science 170. Select additional upper division units from any Animal Genetics, Animal Science or Avian Sciences course, or from Nutrition 115, 122, 123, 123L or other courses.

Equine Science 20
Animal Science 15, 115, 141 and one of Animal Science 125, 126 or 127.
Select additional upper division units from any Animal Genetics or Animal Science course, or from Nutrition 115, 122, 123, 123L or other courses approved by your faculty adviser.

Laboratory Animals 23
Animal Science 42, 103, 140, Nutrition 123, 123L, Animal Science 104 or Neurobiology, Physiology, and Behavior 102, and Anatomy, Physiology and Cell Biology 100 or Neurobiology, Physiology, and Behavior 123.

Livestock and Dairy 20
Select two of Animal Science 143, 144, 146; Animal Science 145 or 147; Nutrition 115.
Select additional upper division units from any Animal Genetics, Animal Science or Avian Sciences course, or from Nutrition 122, 123, 123L or other courses approved by your faculty adviser.

Poultry 20
Avian Sciences 11, 100, 150; Animal Science 143; Avian Sciences 149 or Food Science and Technology 121; Nutrition 123, 123L.
Select additional upper division units from any Animal Genetics, Animal Science, Avian Sciences, or other courses approved by your faculty adviser.
Students in this specialization must substitute Avian Sciences 103, 121, and Neurobiology, Physiology, and Behavior 117 for the Animal Science 124 and Neurobiology, Physiology, and Behavior 121 and 121L requirement under Integrative Animal Biology.

Total Units for the Major 112-125

Anthropology

Changes to the Anthropology Major & Minor Requirements

A.B. Major Requirements:

UNITS

Evolutionary Track:

Preparatory Subject Matter 19-21

Anthropology 1, 2, 3 12
Anthropology 15, 23, 24, 25, 28, 50, or 54 4-5
Anthropology 13, Sociology 46B, or Statistics 13, 32, 100 or 102 3-4

Depth Subject Matter 42-47

Two courses from: Anthropology 101, 102, 103, 105, 122A, 128A, 154A, 154B, 158, 178 7-9
Anthropology 153,157, or 159 3-5
Anthropology 151 or 152 4-5
One course from: Anthropology 170, 171, 172, 173, 176, 180, 184 or 185 4
One course from: sociocultural track in consultation with evolutionary track undergraduate adviser 4
Select 20 additional units from any upper division evolutionary track Anthropology courses (see list below) chosen in consultation with an evolutionary track undergraduate adviser 20

Total Units for the Major 61-68

Note: Evolutionary track courses at the upper division level are courses 101, 102, 103, 105, 122A, 128A, and 151 to 185

Sociocultural Track:

Preparatory Subject Matter 20-22

Anthropology 2 4
Two courses from: Anthropology 1, 3, or 4 8
Select one of the following two options:
(1) Two additional quarters of the foreign language used to meet the L&S language requirement 8-10
(2) Two additional lower division sociocultural track courses 8-10

Depth Subject Matter 42-46

Anthropology 100 4
Two upper division area-focus sociocultural track courses from the following: Anthropology 140A, 140B, 141C, 142, 143A, 144, 145, 146N, 148A, 149A, 149B 8
Select one of the following two options in consultation with, and only after prior written approval of, sociocultural track undergraduate adviser (see list below identifying upper division sociocultural; see list above identifying evolutionary track courses):
(1) Eight additional upper division anthropology courses (two courses may be in the evolutionary track; and up to six units can be Anthropology 192 internship units) 30-34
(2) Eight additional upper division courses that may combine six sociocultural track courses and either 8 units of Study Abroad credit or two related courses in a single academic discipline (including but not limited to: African American and African

Studies, American Studies, Art Studio, Art History, Asian American Studies, Chicana/o Studies, Communication, Community and Regional Development, Economics, East Asian Studies, History, Linguistics, Music, Native American Studies, Nature and Culture, Philosophy, Political Science, Psychology, Religious Studies, Sociology, Textiles and Clothing, Theatre and Dance, Women and Gender Studies) 30-34

Total Units for the Major 62-68

Note: Sociocultural track courses at the upper division level are those with numbers from 100 to 149B, with the exception of 101, 103, 105, 128A, and 141B. Area-focus sociocultural track courses are those that refer in their titles to one or more peoples or regions of the world.

B.S. Major Requirements:

UNITS

Preparatory Subject Matter 54-60

Anthropology 1, 2, 3 12
Biological Sciences 2A, 2B, 2C. 14
Chemistry 2A, 2B, and 8A, 8B, or 118A, 118B. 16-18
Mathematics 16A-16B-16C or 17A-17B-17C or 21A-21B-21C 9-12
Anthropology 13, Sociology 46B, Statistics 13, 32, 100, or 102 3-4

Depth Subject Matter 45

Anthropology 151 or 152 4-5
Anthropology 153, 157, or 159 3-5
Anthropology 154A or 154BN 5
Three additional courses in anthropology chosen in consultation with evolutionary track undergraduate adviser 8-12
Biological Sciences 101 4
Evolution and Ecology 100 4
Additional units from the list below to achieve a minimum of 45 upper division units 10-14
Anthropology 101, 102, 103, 105, 122A, 128A, 151, 152, 153, 154A 154BN, 156, 157, 157L, 158, 159, 180, 182, 185; Anatomy, Physiology and Cell Biology 100; Biological Sciences 102, 103; Cell Biology and Human Anatomy 101, 101L; Environmental Science and Policy 100; Evolution and Ecology 101, 102, 103, 104, 105, 138, 141, 147, 149, 175; Exercise Science 103, 115; Geology, 107, 107L, 108, 144, 146; History and Philosophy of Science 131; Molecular and Cellular Biology 120L, 121, 150, 150L, 160L, 161, 162, 163, 164; Neurobiology, Physiology, and Behavior 101, 101L, 102, 123, 124, 150, 152; Psychology 101, 113, 121, 122, 123, 124; Statistics 104, 106, 108, 130A, 130B; Wildlife, Fish, and Conservation Biology 141, 154

Total Units for the Major 99-105

Recommended

Anthropology 5, 15, 50; Geology 1; Psychology 1

Major Advisers. Consult Department office.

Minor Program Requirements:

UNITS

Anthropology 18-30

General emphasis 19-21

One course from: Anthropology 101, 102, 103, 105, 122A, 128A, 151, 152, 153, 154A, 155, 156, 157, 158, 159 3-5
One course from: Anthropology 170, 171, 172, 173, 176, 177, 180, 182, 183, 184, 185 4
One course from: Anthropology 140A through 149B, 178 or any other sociocultural track course that refers in its title to one or more peoples or regions of the world 4
Two courses from: Anthropology 100 through 139BN, excluding 101, 103, 105, 128A, and 141B 8

Archaeology emphasis 20-25

Anthropology 170 4
Two courses from: Anthropology 172, 173, 174 175, 176, 177, 178 8
Two courses from: Anthropology 156A, 156B, 171, 180, 181, 182, 183, 184, 185 8-13

Evolutionary emphasis 18-30

Any five upper division Evolutionary Anthropology courses chosen in consultation with an evolutionary track adviser.

Sociocultural emphasis 19-21

Anthropology 100 4
One upper division area-focus sociocultural track course 4
(area-focus sociocultural track courses are those that refer in their titles to one or more peoples or regions of the world)
Two courses from: Anthropology 102 through 139BN, excluding 103, 105, and 128A 8
One additional upper division Anthropology course chosen in consultation with sociocultural track undergraduate adviser 3-5

Minor Advisers. Consult Department office in 1282 Social Sciences & Humanities.

Arab Studies

New minor in Arab Studies

(College of Letters & Science)

The minor in Arab Studies covers an area of utmost historical, cultural, economic and geopolitical significance. Several key contemporary issues make the region as a whole a focus of interest for scholarly study. The Arab Studies minor is an interdisciplinary minor open to undergraduates in all four colleges.

Minor Program Requirements:

UNITS

India & South Asia Studies 20-24

Middle East/South Asia 100 4
Middle East/South Asia 180 4
Choose one from: History 193A or History 193B 4
Choose one from: Middle East/South Asia 181C or 182C 4
Additional Electives from Core Course list (below) 4-8
Core Course List:
Middle East/South Asia 111A, 121A/ARB 140, 122A, 150/Women's Studies 185, 181C, 182C; Anthropology 142; Arabic 1/1A, 2, 3, 21, 22, 23, 121, 122, 123, 198; Art History 155; Comparative Literature 53C, 155, 166; History 6, 102 R, 112 C, 115 F, 190A, 190B, 190C, 193A, 193B; Political Science135, 136; Religious Studies 60, 65C, 160, 161, 162, 163, 167; Women's Studies 178A, 184.

With prior consultation with an advisor, students can petition in advance the Program Committee to accept other elective courses toward the minor program if the content is 50% or more on the Arab World. Under no circumstances may more than one lower division course be offered in satisfaction of requirements for the minor.

With prior consultation with an advisor, students can petition the Program Committee to accept more than four units of Middle East/South Asia 181C and/or Middle East/South Asia 182C towards the minor program.

Art History

Changes to the Art History Major Requirements

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 20

Any four of the following courses: Art History 1A, 1B, 1C, 1D, 1DY, 1E, 5, and 25 16
Any lower division Art Studio course except Art 10 or 30 4

Depth Subject Matter 40

Four courses, one each in four of the following six areas. Two courses must be from areas a, b, c, and two courses must be from areas d, e, f. 16
(a) Ancient Mediterranean Art: Art History 172A, 172B, 173, 175
(b) East Asian Art: Art History 163A, 163B, 163C, 163D, 164
(c) Islamic Art: Art History 155, 156
(d) European Art before 1700: Art History 110, 120A, 176A, 176B, 176C, 178B, 178C, 179B
(e) Western Art 1700-1900: Art History 110, 168, 182, 183A, 183B, 183C, 188A, 188B 188C
(f) Art after 1900: Art History 110, 148, 163D, 183C, 184, 185, 186, 187, 189
Undergraduate Seminar Art History 190A-L 4
Electives 20
Five additional upper-division Art History courses to be chosen in consultation with the major adviser. Appropriate course substitutions may be made with the consent of the major adviser. Art History 401 and 402 may be counted among the elective units.

Total Units for the Major 60

Asian American Studies

Changes to the Asian American Studies Program

Program Office. 3102 Hart Hall
530-752-2069; *http://asa.ucdavis.edu*

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 32

Asian American Studies 1, 2, 3, and 4 16
At least two lower division courses from the following departments or programs:
At least two lower division courses from the following departments or programs: African American and African Studies (AAS), American Studies (AMS), Chicana/o Studies (CHI), Middle East and South Asia Studies (ME/SA), Native American Studies (NAS), Women and Gender Studies (WGS) (all lower division courses of at least 4 units are acceptable except those numbered 92, 97T, 98, and 99) 8
Methodology 8
At least two courses from any of the following methods courses:
African American and African Studies 101; American Studies 100; Anthropology 13; Art History 5, 100 Art Studio 10, 30; Chicana/o Studies 23; English 42, 110A, 110B; History 101; Human Development 120; Native American Studies 46;

Philosophy 5; Political Science 51; Psychology 41; Sociology 46A, 46B; Statistics 13; Women and Gender Studies 104.

Depth Subject Matter 36

Asian American Studies 192 Community Internship (required) 4

Major Emphasis

As part of the depth subject matter requirement, all Asian American Studies majors must develop a major emphasis by choosing either a disciplinary or thematic specialization in consultation with the Student Affairs Officer (SAO) and/or faculty advisors. The major emphasis must include six Asian American Studies upper-division courses and two upper-division elective courses from other departments or programs.

At least six upper-division Asian American Studies courses 24

Asian American Studies 100, 102, 112, 113, 114, 115, 116, 121, 130, 131, 132, 140, 141, 150, 150B, 150C, 150D, 150E, 150F, 155, 189A, 189B, 189C, 189D, 189E, 189F, 189G, 189H, 189I, 194/195, 198 (1-5 units), 199 (1-5 units).

Up to six units in Asian American Studies 198 and or Asian American Studies 199 can be used to satisfy the Asian American Studies upper division course requirements.

At least two upper-division elective courses from other departments or programs that relate to chosen emphasis 8

Two courses (of up to eight units) from Study Abroad can be substituted for major requirements upon approval from the SAO or faculty advisor.

Total Units for the Major 68

Major Adviser. Britt Sumida, Student Affairs Officer (SAO), 530-752-4447 or bnsumida@ucdavis.edu

Biochemistry and Molecular Biology

Changes to the Biochemistry and Molecular Biology Major

B.S. Major Requirements:

UNITS

Preparatory Subject Matter..... 50-57

Biological Sciences 2A-2B-2C..... 15
Chemistry 2A-2B-2C or 2AH-2BH-2CH ... 15
Mathematics 17A-17B-17C or 21A-21B (21C recommended) 8-12
Physics 7A-7B-7C or 9A-9B-9C 12-15

Depth Subject Matter 57-68

Biological Sciences 101, 102, 103, 104 13
Chemistry 118A-118B-118C or 128A-128B-128C, 129A-129B 12-13
Chemistry 107A-107B or 110A-110-B-110C 6-12
Molecular and Cellular Biology 120L, 121, 123, 124..... 16
Statistics 100 or 130A & 130B 4-8
Restricted Electives 6

Six units of upper division courses in biological sciences or chemistry relevant to the student's interest chosen in consultation with the adviser. Students are encouraged to obtain additional laboratory experience; however, no more than 3 units of 192, 193 or 199 research may be counted toward restricted elective units.

Total Units for the Major 107-125

Biological Sciences

Changes to the Biological Sciences Major

A.B. Major Requirements:

UNITS

Preparatory Subject Matter..... 39-52

Biological Sciences 2A-2B-2C..... 14
Chemistry 2A-2B..... 10
Chemistry 8A-8B or 118A-118B-118C 6-12
Physics 1A-1B or 7A-7B-7C 6-12
Statistics 13, 32, 100, or 102..... 3-4
Recommended: Chemistry 2C and Mathematics 17A-17B or 21A-21B.

Depth Subject Matter 38-42

Biological Sciences 101 4
Biological Sciences 102 or 105 3
Evolution: one from Evolution and Ecology 100, 140; Geology 107; Plant Biology 116 3-5
Ecology: one from Environmental Science and Policy 100; Evolution and Ecology 101, 117; Plant Biology 117, 147 4
Philosophy of Biological Science: one from Animal Science 170; Nature and Culture 100, 120, 140; Philosophy 108; Science and Technology Studies 130A, 130B, 131; Veterinary Medicine 170 4
Physiology: one from Environmental Horticulture 102; Entomology 101, 102; Neurobiology, Physiology, and Behavior 101; Plant Biology 111, 112 3-5
One course each in animal, microbial and plant diversity..... 8-17
Animal Diversity: Entomology 100, 107, 109; Evolution and Ecology 105, 112 and 112L, 134; Nematology 110; Wildlife, Fish, and Conservation Biology 110, 111, 120
Microbial Diversity: Microbiology 101, 162; Pathology, Microbiology, and Immunology 127, 128; Plant Biology 148; Plant Pathology 148; Soil Science 111
Plant Diversity: Evolution and Ecology 108, 119, 140; Plant Biology 102, 108, 116, 119, 147

Additional upper division course work in biological sciences to achieve a total of 38 or more units; see "Approved Biological Sciences Restricted Electives" listed below.

Upper division course work must include a total of two units or a total of six hours/week of fieldwork or laboratory work.

There is a limitation on variable-unit courses that may be counted toward the major. Of these courses, up to four units of 199 courses may be counted, and no units of 192 or 197T courses may be counted.

Note: Although a course may be listed in more than one category, that course may satisfy only one requirement.

Total Units for the Major 77-94

B.S. Major Requirements:

UNITS

Preparatory Subject Matter..... 56-66

Biological Sciences 2A-2B-2C..... 15
Chemistry 2A-2B-2C..... 15
Chemistry 8A-8B or 118A-118B-118C..6-12
Mathematics 17A-17B-17C or 21A-21B (21C recommended)..... 8-12
Physics 7A-7B-7C..... 12
Recommended: one course in scientific terminology/bioethics/philosophy of science from: Biotechnology 171; Classics 31; Philosophy 15, 30, 31, 32, 38, 108; Science and Society 9, 13, 15, 20, 140

Depth Subject Matter 42-51

Statistics 100 4
Genetics: Biological Sciences 101..... 4
Biochemistry: Biological Sciences 105 or (102 + 103) 3-6
Cell Biology: Biological Sciences 104..... 3
Evolution: Evolution and Ecology 100 4
Ecology: Evolution and Ecology 101 or Environmental Science & Policy 100 4
Microbiology: one course from: Food Science and Technology 104; Microbiology 101*, 104, 162, 170 3-5
Animal Physiology, Behavior or Development: one course from: Molecular and Cellular Biology 150; Neurobiology, Physiology, and Behavior 100, 101, 102, 141..... 3-5
Plant Physiology or Development: one course from: Plant Biology 105**, 111, 112, 113, 116** 3-5
Laboratory Requirement: Select course(s) for a minimum total of 6 hours/week of laboratory or field work from the list of courses below. Course(s) selected to fulfill the laboratory requirement may also satisfy restricted elective or depth subject matter requirements (but not both).
Restricted electives 11

Select 3 or more courses from the list of Approved Biological Sciences Restricted Electives not used to satisfy Depth Subject Matter requirements above and laboratory courses (below) for a minimum of 11 units. Students may choose courses following a self-directed theme aligned with their academic or career objectives, or choose courses from a list of sample themes available on the BASC website at http://basc.ucdavis.edu.

Up to 3 of the 11 units may be fulfilled by approved seminar or research courses***.

Laboratory Courses:
* Courses with 3 hours lab or field work/week (select two): Evolution and Ecology 110, 117, 119, 140, 180A, 180B; Exercise Biology 104L, 115; Microbiology 101; Neurobiology, Physiology, and Behavior 100L, 101L, 121L, 123; Plant Biology 117, 119; other courses with approval of the master adviser.
** Courses with 6 hours lab or field work/week (select one): Biological Sciences 180L; Evolution and Ecology 105, 106, 108, 112L, 114; Exercise Biology 106L; Food Science and Technology 104L; Microbiology 104L, 105L; Molecular and Cellular Biology 120L, 140L, 160L; Neurobiology, Physiology, and Behavior 111L, 141P; Plant Biology 102, 105, 108, 116, 148; other courses with approval of the master adviser.
*** *Approved Seminar/Research courses:* (these courses provide an opportunity to conduct research, carry out an internship, discuss scientific literature, or otherwise apply biological concepts to real-world problems) Courses numbered 189, 190/190C, 192, 194H, 199, as well as Biological Sciences 122P, 123, 133; Evolution and Ecology 111; Microbiology 191; Molecular and Cellular Biology 138, 139, 148, 158, 178, 191, 193; Neurobiology, Physiology, and Behavior 139, 159, 169.

Total Units for Major 98-117

Approved Biological Sciences Restricted Electives

Animal Genetics 105, 107
Animal Science 104, 119, 123, 131, 142, 170
Anthropology 129, 151, 152, 153, 154A, 154BN, 157
Avian Sciences 100, 150
Biological Sciences all upper division courses

Biotechnology 150, 160, 161A, 161B, 171
Chemistry 104, 107A, 107B, 108, 130A, 130B, 150
Education 100, 181
Engineering: Biomedical 117, 140
Engineering: Computer Science 124
English 164
Entomology all upper division courses
Environmental Horticulture 102, 105
Environmental Science and Management 144
Environmental Science and Policy 110, 111, 116N, 121, 123, 124, 150A, 150B, 150C, 151, 151L, 155
Environmental Toxicology 101, 102B, 103A, 104
Evolution and Ecology all upper division courses
Exercise Biology 101, 103, 106, 106L, 110, 111, 124
Food Science and Technology 102A, 104
Geology 107, 107L, 108, 116N, 141, 141L, 144, 150A, 150B, 150C, 181
Human Development 117
Mathematics 124
Medicine: Cell Biology and Human Anatomy 101, 101L
Medicine: Medical Microbiology 188
Microbiology all upper division courses
Molecular and Cellular Biology all upper division courses
Neurobiology, Physiology, and Behavior all upper division courses
Nutrition 104
Philosophy 108
Plant Biology all upper division courses
Plant Pathology 120, 123, 130, 148
Plant Sciences 102, 130, 131, 135, 142, 144, 150, 153, 154, 157, 158
Psychology 121, 122, 123, 124
Science and Technology Studies 108, 129, 130A, 131, 164, 180
Sociology 154
Soil Science 111
University Writing Program 102B, 104T, 111C, 112A
Veterinary Medicine: Anatomy, Physiology and Cell Biology 100
Veterinary Medicine: Pathology, Microbiology, and Immunology 126, 126L, 128
Wildlife, Fish, and Conservation Biology 100, 101, 110, 110L, 111, 111L, 120, 120L, 121, 122, 130, 134, 134L, 136, 140, 141, 151, 154, 157

Biotechnology

Changes to the Biotechnology Major

Animal Biotechnology Option 37-45

Microbiology 101, Animal Genetics 111, Neurobiology, Physiology, and Behavior 101, Molecular and Cellular Biology 150 or 163, 182, Animal Science 170, Biochemistry: Biological Sciences 105; or Biological Sciences 102 and 103; or Animal Biology 102 and 103 27-35
Restricted Electives 10
Select at least one course from each of the following areas:
(a) Animal Cell Biology/Microbiology/ Immunology: Biological Sciences 183, Biotechnology 150, 161A, 161B, 188, Evolution and Ecology 100, Medical Microbiology 188, Microbiology 115, 162, Molecular and Cellular Biology 120L, 160L, Pathology, Microbiology, and Immunology 126, 126L, 127, 128, Molecular, Cellular, and Integrative Physiology 200L, Neurobiology, Physiology, and Behavior 132, Plant Pathology 140
(b) Animal Reproduction and Breeding: Animal Genetics 107, Animal Science 131, 140, Avian Sciences 121, Biological Sciences 181, Evolution and Ecology 102, Molecular and Cellular Biology 164, Neurobiology, Physiology, and Behavior 121, 121L, Plant Pathology 140

Bioinformatics Option 38-45

Biological Sciences 180L, Biological Sciences 181 or 183, Microbiology 101, Engineering: Computer Science 20, 30, Engineering: Computer Science 124 or 129, Molecular and Cellular Biology 182, Biochemistry: Biological Sciences 105; or Biological Sciences 102 and 103; or Animal Biology 102 and 103 31-38
Restricted Electives 7
Select from: Animal Genetics 212, Biological Sciences 132, 181, 183, Biotechnology 188, Engineering: Computer Science 40, 50, 60, 122A, 124, 129, 140A, 150, 154A, 166, Evolution and Ecology 100, 102, 103, Mathematics 124, Microbiology 115, Neurobiology, Physiology, and Behavior 132, Statistics 130A, 130B, 131A, 131B, 141

Cinema and Technocultural Studies

Effective Fall 2015, the Technocultural Studies Major has been renamed Cinema and Digital Media.

The Cinema and Digital Media Major Program

The Cinema and Digital Media (CDM) program combines the study of audio-visual and digital media, theories about such media, and the relevant modes of artistic practice and production. CDM integrates the analysis of audio-visual and digital texts with their theoretical underpinnings and their methods of production. The program also addresses the particular impact that technology has on culture in its many forms and fields.

CDM faculty teach and research on various histories, theories, and practices of media. Current fields for teaching and research in cinema and digital media include the history and analysis of film and video, film and video production, electronic music, digital content creation and design, the digital arts, community media and activism, computer graphics, animation, and gaming—as well as the theories and politics of these various areas.

The Program

Preparatory course work involves a solid introduction to the history, ideas and current trends in cinema and digital media. For depth subject matter, students in the major select a combination of critical studies and creative production courses. Two courses will be selected from the production/programming distribution, two from the theory/history distribution and four will be elected by the student, allowing them to take up to six production courses or six studies/theory classes, should they so choose.

Career Possibilities. Cinema and Digital Media is designed to prepare graduates to be highly adaptable analytical thinkers, collaborative, multi-skilled and current with the latest developments in media and technology. Perhaps most importantly is self-motivation: students do best when fueled by their own passions and plot their own directions, while held to very high standards. We feel this is the best education for living and working in a complex, rapidly changing world. Final research papers and creative production portfolios will provide graduate school admissions committees, employers or clients with tangible evidence of Cinema and Digital Media graduates' track records and talents.

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 25

Cinema and Technocultural Studies 12, 20 9
Choose two courses from:
Cinema and Technocultural Studies 40A, 40B, 41A, 41B; Film Studies 45 8
Choose two courses from:
Film Studies 1; Technocultural Studies 1 or 5 8

Depth Subject Matter 37-38

Film Studies 127 or Cinema and Technocultural Studies 150 5
Choose two courses for a total of 8 units from the following courses:
Art Studio 114A, 114B, 114C, 117; Cinema and Technocultural Studies 116, 124E, 174; Technocultural Studies 100, 101, 103, 104, 111, 112, 113, 115, 121, 122, 123, 125, 130, 131, 170A-E, 175, 192, 198, 199 8
Choose two courses for a total of 8 units from the following courses:
Cinema and Technocultural Studies 146A, 147A, 150; Film Studies 120, 121, 121S, 124, 125, 127, 129, 142, 176A, 189, 194H, 195H, 198, 199; Science and Technology Studies 160; Technocultural Studies 151, 152, 155, 158, 159.
Some courses are identified as fulfilling more than one requirement; a given course can only fulfill one such requirement 8
Plus four additional courses chosen from the lists above for a total of at least 16 units 16

Total Units for the Major 62-63

Major Adviser. See Advising office.

Chemistry

Changes to the Chemistry Major

Chemistry

ACS Accredited Program

B.S. Major Requirements:

UNITS

Preparatory Subject Matter 53

Chemistry 2A-2B-2C or 2AH-2BH-2CH ... 15
Physics 9A, 9B, 9C 15
Mathematics 21A, 21B, 21C, 21D, 22A, 22AL, 22B 23

Depth Subject Matter 54

Chemistry 105, 108, 110A, 110B, 110C, 115, 124A, 124B or 124C, 124L, 125, 128A, 128B, 128C, 129A, 129B, 129C 50
At least four additional upper-division units in chemistry (except Chemistry 107A, 107B) 4

Total Units for the Major 107

Recommended

Physics 9D

Classics

Changes to the Classics Major

The Major Program

Classical Civilization is an interdisciplinary major that examines the ancient Mediterranean cultures of Greece, Rome and the Near East, with courses offered on the languages, history, literature, religions, myths, art and archaeology of these societies, their achievements in rhetoric and philosophy, and their political and social institutions. Minor programs in Classical Civilization, Greek, and Latin, and many General Education courses are offered also.

The Program. The major has two tracks: *(1)* Classical and Mediterranean Civilizations, and *(2)* Classical Languages and Literatures. The core of both major tracks consists of two years of Latin or Greek, the introductory sequence on the ancient Mediterranean world (Classics 1, 2, 3), the advanced seminar (Classics 190), and a number of electives. The Classical and Mediterranean Civilization track allows students to choose their electives from a broadly balanced program in history, art and archaeology, literature, philosophy and rhetoric. The Classical Languages and Literatures track focuses more intensively on language and literature, requiring the study of two languages and allowing fewer electives. Students planning to go on to graduate work in Classics should take Track 2 and study as much Latin and Greek as possible. They should make a point of talking to an advisor early in their undergraduate program. They are also advised to acquire a reading knowledge of French or German.

Career Opportunities. A degree in Classical Civilization represents a solid liberal arts education that provides an excellent foundation for a wide variety of careers. In the last twenty-five years, many majors have applied to law or medical schools and nearly all have been accepted. Additional career options include library and museum work, teaching, journalism, and graduate study in Classics, art, archaeology, history, literature, philosophy, and religion.

Classical Civilization

A. B. Major Requirements:

UNITS

Classical and Mediterranean Civilizations track

Preparatory Subject Matter 26-27
- Latin 1-2-3, or Greek 1-2-3 15
- Two courses from: Classics 1, 2, 3 8
- One additional course from: Art History 1A; Classics courses 1 through 50; Comparative Literature 1; Philosophy 21; Religious Studies 21, 40 3-4

Depth Subject Matter 40
- Upper division courses in Latin or Greek 12
- Classics 190 4
- Six additional courses selected from at least three of the following groups 24
  Of these 24 units, at least 12 must be in Latin, Greek, or Classics.
  (a) Literature and Rhetoric: Additional upper division courses in Latin, Greek and Hebrew; Classics 102, 110, 140, 141, 142, 143
  (b) History: History 102A, 111A, 111B, 111C; Religious Studies 102, 125
  (c) Art and Archaeology: Classics 171, 172A, 172B, 173, 174, 175
  (d) Philosophy and Religion: Classics 141, 150; Philosophy 143, 160, 161, 162; Political Science 118A; Religious Studies 141A, 141B, 141C

Total Units for the Major 66-67

Classical Languages and Literatures track

Preparatory Subject Matter 34
- Latin 1-2-3 and Greek 1-2-3 30
- Classics 1, 2, or 3 4

Depth Subject Matter 36
- Six upper division courses in the two chosen languages, with at least two courses in each language 24
- Classics 190 4
- Two additional courses selected from any of the following groups 8
  (a) Literature and Rhetoric: Additional upper division courses in Latin or Greek; Classics 102, 110, 140, 141, 142, 143
  (b) History: History 102A, 111A, 111B, 111C; Religious Studies 102, 125
  (c) Art and Archaeology: Classics 171, 172A, 172B, 173, 174, 175
  (d) Philosophy and Religion: Classics 141, 150; Philosophy 143, 160, 161, 162; Political Science 118A; Religious Studies 141A, 141B, 141C

Total Units for the Major 70

Major Advisers. A. Uhlig, E.M. Albu, V. Popescu, C. Seal

Minor Program Requirements:

The Department offers minors in Classical Civilization, Greek and Latin for those wishing to follow a shorter but formally recognized program of study in Classics.

UNITS

Classical Civilization 20
- Classics 1, 2, or 3 4
- One upper division course in Latin or Greek 4
- Two additional upper division courses in Classics, Latin or Greek 8
- One additional upper division course selected from any of the groups *(a)* through *(d)* in the Classical Civilization major 4

Greek 20
- Classics 1 or 2 4
- Three upper division courses in Greek 12
- One additional upper division course in Classics, Latin, or Greek 4

Latin 20
- Classics 3 4
- Three upper division courses in Latin 12
- One additional upper division course in Classics, Latin, or Greek 4

Cognitive Science

New Cognitive Science Major

Program Office. 1240 Social Sciences and Humanities Building; 530-752-0703; *http://cogsci.ucdavis.edu/*

The Major Programs

The Cognitive Science major is designed to provide a broad interdisciplinary approach to the study of mind that includes courses from different departments and attracts students with a variety of interests. It emphasizes a multi- faceted approach to the study of mind that integrates concepts and techniques from psychology, artificial intelligence, linguistics, neurology, philosophy and other relevant fields.

For students interested in the liberal arts the Cognitive Science major can be pursued as a Bachelor of Arts (A.B.) program. Alternatively, it can be pursued as a Bachelor of Science (B.S.) program for students with a stronger interest in the mathematical, neurological and computational foundations of the discipline. The main objective of both programs is to give the student a broad grounding in the integrated sciences of the mind and to connect approaches from different fields. Students must complete a number of core courses for the degree, as well as a number of specialty courses on such wide-ranging topics as logic for artificial intelligence, computational linguistics, cognitive neuroscience, animal cognition and the psychology of music.

Career Alternatives. A degree in cognitive science provides broad intellectual foundations useful for careers in a variety of areas, including teaching, business, social work/counseling and the information technology industry. An undergraduate education in cognitive science also prepares the student for graduate study in appropriate subfields of psychology, linguistics, philosophy and informatics. It is also suitable training for pre-medicine, pre-law, and pre-management students.

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 28
- Linguistics 1 4
- Philosophy 10 4
- Philosophy 13+13G 4
- Psychology 1 4
- Psychology 41 4
- Statistics 13 4
- Philosophy 12 4

Depth Subject Matter 44
- All courses from group A 12
  Group A: Core
  One 4-unit upper division course in cognitive science, Psychology 101, Philosophy 112
- One course from group B 4
  Group B: Computation
  Linguistics 177, Philosophy 133
- A further sixteen units from two of groups B-F 16
  Group C: Neuroscience
  Psychology 121, 135
  Group D: Linguistics
  Linguistics 103A, 103B, 131, 141, 171, 173
  Group E: Philosophy
  Philosophy 103, 104, 136
  Group F: Psychology
  Psychology 100, 127, 130, 131, 132, 136, 140, 141
- Twelve additional units from groups B-G .. 12
  Group G: Other
  Communication 101, 105, 138, Education 110, 173, Human Development 100C, 102, 161, 163, Linguistics 112, 121, 150, 152, 182, Philosophy 102, 112, 125, 128, 137A, B or C, Psychology 113, 124, 129, 148, 152, Statistics 106, 108, 141

Total Units for the Major 72

B.S. Major Requirements:

Students select to pursue either the Computational Emphasis (Emphasis 1) or the Neuroscience Emphasis (Emphasis 2).

Emphasis 1; Computational

UNITS

Preparatory Subject Matter 60
- Engineering Computer Science 20, 30, 40, 50, 60 20
- Linguistics 1 4
- Mathematics 17AB or 21AB 8
- Mathematics 22A+22AL 4
- Philosophy 10 4
- Philosophy 12 4
- Philosophy 13+13G 4
- Psychology 001 4
- Psychology 041 4
- Statistics 13 (or STA 102) 4

Depth Subject Matter 48
- All courses from group A 12

Group A: Core
One four-unit upper division course in cognitive science, Engineering: Computer Science 140A, Philosophy 112
Three courses from group B 12
Group B: Computation
Eng. Computer Science 120, 170, 171, Linguistics 177, Philosophy 133
One course from group C..... 4
Group C: Neuroscience
Linguistics 175, Psychology 101, 135
One course from group D..... 4
Group D: Philosophy/Linguistics
Linguistics 103A, 103B, 150, 182, Philosophy 103, 104, 136
Four courses from group E in addition to any taken to satisfy group C requirements 16
Group E: Psychology
Psychology 100, 101, 103A, 103B, 113, 121, 122, 124, 127, 129, 130, 131, 135

Total Units for the Major..... 108

Emphasis 2; Neuroscience

UNITS

Preparatory Subject Matter 62-65
Biological Science 2ABC..... 14
Linguistics 1 4
Mathematics 17ABC or 21ABC 12
Philosophy 10..... 4
Philosophy 13+13G 4
Physics 7ABC (or 9ABC) 12-15
Psychology 001 4
Psychology 041 4
Statistics 13 (or STA 102)..... 4

Depth Subject Matter 45-47
All courses from group A..... 13
Group A: Core
One four-unit upper division course in cognitive science, Neurobiology, Physiology, and Behavior 100, Psychology 103A
One course from group B 4-5
Group B: Computation
Linguistics 177, Neurobiology, Physiology, and Behavior 167
12-13 units from group C 12-13
Group C: Neuroscience
Neurobiology, Physiology, and Behavior 112, 152, 161, 162, 163, 164, 165, Linguistics 175, Psychology 101, 121, 135
Two courses from group D..... 8
Group D: Philosophy/Linguistics
Linguistics 103A, 103B, 150, 182, Philosophy 103, 104
Two courses from group E in addition to any taken to satisfy group C requirements 8
Group E: Psychology
Psychology 100, 101, 113, 121, 122, 124, 127, 129, 130, 131, 132, 135

Total Units for the Major..... 107-112

Major Advisers. David Copp (Philosophy), David Corina (Linguistics), Steve Luck (Psychology), Bernard Molyneux (Philosophy)

Communication

Changes to the Communication Program

The Major Program

The major in communication focuses upon human symbolic behavior in interpersonal and mediated contexts.

The Program. The program of study in communication examines communication processes at several different levels of analysis. Courses dealing with communication at the individual, interpersonal, organizational and societal levels of analysis are offered. The emphasis in the program reflects the changing focus in the discipline and society toward computer-mediated communication, quantitative behavioral science and cognitive science. Classes addressing such topics as communication and cognition, message systems, interpersonal communication, nonverbal communication, communication and persuasion, organizational communication, mass media effects, computer-mediated communication and public communication campaigns explore communication at these levels of analysis. Related social science courses are also part of the major.

Career Alternatives. Communication graduates have found careers in such fields as broadcast and print journalism, administration, sales, management, politics and government, education, social work, and public relations. A communication degree is also excellent preparation for law school or other graduate programs.

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 29-30
Anthropology 4 or Linguistics 1..... 4
Communication 10Y..... 4
Communication 1 or 3 or 5/Linguistics 5 .. 4
Computer Science 15 or Philosophy 12 4
Psychology 1 4
Sociology 1..... 5
Statistics 13 or Sociology 46B 4

Depth Subject Matter 40
Communication 101; 102; 120;140; 170 or 172..... 20
Select five of the following additional courses: 20
Communication 110, 111, 112, 114, 121, 122, 123, 130, 131, 136, 139, 141, 142, 143, 144, 145, 146, 148, 161,165, 170, 172, 174, 176, 180, 189A, 189B, 189C, 189D, Anthropology 117, 120, Economics 122, Linguistics, 171, 177, 182, Political Science 165, Psychology 100, 107, 152, 154, Sociology 126, 175, Statistics 102, 106, 108
Note: Many of the upper division courses offered by the other L&S departments have their own prerequisites not accounted for by lower division Communication courses. To the degree that students elect to take those courses having "hidden prerequisites," the number of units necessary to complete the major increases above the stated minimum.

Total Units for the Major 69-70

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. 466 Kerr Hall

Community and Regional Development

Changes to the Community and Regional Development Major

The Major Program

The Community and Regional Development major (formerly Applied Behavioral Sciences) aims to provide a broad comparative understanding of theories, methodologies, and issues relevant to the study of communities and the people in them. The program focuses on the ways that economic, political and socio-cultural forces are transforming regions and local communities, and it considers how knowledge can be used to improve the quality of community life.

The Program. Principal subjects of study within the major are community and organizational development, social change processes, the role of culture and ethnicity in shaping community life, community research methodologies, the impacts of innovation and technology on community development, and the effects of social, economic and political systems on communities. The major is organized to allow students to develop fields of concentration that meet their career goals.

Internships and Career Alternatives. Community and Regional Development students are required to complete an internship in their field before graduation. Internships have been arranged with local, county, and state planning units, health departments, schools, housing offices, businesses, and education programs. Community and Regional Development graduates are prepared for occupations in community development, social research, program evaluation, organizational and educational consulting, city and regional planning, and for-profit organizations. The major also provides effective preparation for graduate or professional study in the social and behavioral sciences, or for professional degrees.

UC Davis students who wish to change their major to Community and Regional Development must be in good academic standing.

Students must have achieved a 2.00 GPA in any required upper-division course taken prior to declaring the major.

All courses satisfying the Preparatory Subject Matter, Depth Subject Matter, Area of Specialization options and English requirement must be taken for a letter grade.

B.S. Major Requirements:

UNITS

Preparatory Subject Matter..... 22-26
Community and Regional Development 1, 2 8
Plant Sciences 21 or Computer Science Engineering 15.....3-4
Economics 1A or 1B..... 4
Anthropology 2 or Sociology 1 4-5
Statistics 13 or 32 or Sociology 46B.....3-5

Depth Subject Matter 40-43
Core Issues in Community Development: Three courses from: Community and Regional Development 142, 152, 153A or 153B or 153C, 164, 172, 176, or 180 12-13
Economics of Community Change: Two courses from: Community and Regional Development 118, 140, 141, 162, or International Agricultural Development 103 8
Political Processes and Community Change: Two courses from: Community and Regional Development 147, 149, 154, 157, 158, or 171 8
Methods for Community Research: Community and Regional Development 151 or 156 4-5
One course from: Education 114 Landscape and Architecture 150, Sociology 103, 106 Statistics 102, American Studies 100 or Communication 102 4-5
Internship: Community and Regional Development 192 4

Areas of Specialization

Take 20 units from each of two options, including at least one Community and Regional Development course from each option, or 40 units from one option, including at least two Community and Regional Development courses. These courses cannot overlap with the depth subject. Up to 4 units of variable-unit course work may be counted toward this requirement; e.g., community and Regional Development 192.

Global Communities Option 40

Students must consult with a faculty adviser to identify an emphasis within the option and to select suitable courses.

Development Policy: Anthropology 122B, 126A, 142, Agricultural and Resource Economics 115A, 115B, Community and Regional Development 140, 152, 153A, 153B, 153C, 164, 180, Economics 115A, 115B, 160A, 160B, 162, International Agricultural Development 170, Sociology 138, 139, 141, 145A, 159
Gender and Development: Sociology 132, 145A, 145B, Anthropology 126B, Women and Gender Studies 102, 182
Globalization and Politics: Political Science 124, 130, 131, 175
Experiential Learning, Area Studies, and Language: Total number of units of credit in Experiential learning, Area Studies, and Language courses cannot exceed 32.
Up to 12 credits transferred from any accredited foreign program or foreign internship, including UCD EAP and Summer Abroad programs.
Up to 12 credits in regional area studies classes; e.g., Middle East, China, Latin America.
Up to 12 credits for foreign Language.

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, 194HA and 194HB, Agricultural and Resource Economics 100A, 171A, Economics 115A, Political Science 100, 105, 142A, 142B, 142C, 155, 183
Communication: Communication 134, 136, 140, 152, Community and Regional Development 147, 176, Education 120, 163
Human Resources: Community and Regional Development 151, 172, 176, Economics 151B, Sociology 120, 128, 129
Management: Community and Regional Development 118, 140, 141, 154, 162, 164, Agricultural and Resource Economics 112, 113, History 174A, 174AD, Sociology 138, 139, 158, 159, 180A, 180B

Policy, Planning, and Social Services 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, 153A, 153B, 153C, 154, 156, 162, 176, 180, 194HA and 194HB, Environmental Science and Policy 165N, Political Science 100, 105, 108, 109, 142A, 142B,142C, 154, 155, 183, Sociology 120, 140, 154, 155, 185
Community Health and Counseling: Communication 134, 135, 165, Community and Regional Development 164, Education 160A, 160B, 163, Public Health Sciences 101, Human Development 120, 121, 130, Psychology 123, 126, 151, 154, 162, 168, Sociology 154
Education and Community: Agricultural Education 100, 160, Communication 146, Education 100, 110, 120, 151, 152, 153, Psychology 100, 132, Sociology 124
Environmental Policy and Regional Planning: Community and Regional Development 140, 141, 149, 152, 158, 171, Economics 115A, Environmental Science and Management 121, Environmental Science and Policy 110, 160, 161, 164, 166N,168A, 168B, 171, 172, 173, 179, Political Science 102, 107, 175, Sociology 102, 118, 138, 141, 143A, 143B, 170
Family and Community: American Studies 152, Community and Regional Development 147, Human Development 100A, 100B, 100C, 101, 102, 103, 110, 130, 140, 140L, 141, 143, 160, 161, 163, Psychology 140, Sociology 122, 131, 134, 135, 152

Three courses in English Composition from the following list:

English 3, University Writing Program 1, 18, 19, 101, 102A, 102B, 102C, 102D, 102E, 102F, 102G, 102H, 102J, 102K, 102L, 104A, 104B, 104C, 104D, 104E, 104F, 104I, Communication 1, Comparative Literature 1, 2, 3, 4, or Native American Studies 5.

At least one course must be selected from:

University Writing Program 101, 102A-H, 104A-F.

The Upper Division Composition Exam does not satisfy the requirement.

Advanced Placement English score of 4 or 5 which satisfies English 3 and/or University Writing Program 1 will satisfy one of the three required courses.

Total Units for Major.....110-121

Major Adviser. M. Kenney

Advising Center for the major is located in 1303 Hart Hall 530-752-2244.

Honors Program. An Honors Program available to Human and Community Development majors who have demonstrated excellence in their field of study. Entrance into the honors program requires that a student have completed at least 135 units with a minimum grade point average of 3.500 in upper division courses counted toward the major. The program consists of a project whose specific nature is determined by consultation with the student's Honors Adviser. It may involve completion of a research project, a scholarly paper, a senior thesis, or some comparable assignment. The project will have a minimum duration of two quarters and will be noted on the student's record by a variable unit course number or special honors course designation. Successful completion of the honors program requires that a minimum of eight (8) units of credit be earned in course work for the project. It is expected that a student participating in the Honors Program of the Community Studies and Development will participate in the Undergraduate Research, Scholarship and Creative Activities Conference. Additionally, students participating in the Honors Program will be required to give a public presentation of their work in a departmental seminar program.

Honors Program Advisor. Frank Hirtz, *fwhirtz@ucdavis.edu*

Minor Program Requirements:

The Community and Regional Development Program (Department of Human Ecology) offers the following minor:

UNITS

Community Development.....24

Community and Regional Development 1 4
Five courses selected from:
Community and Regional Development 118, 140, 141, 142, 147, 149, 151, 152, 153A,153B, 153C, 154, 156, 157, 158, 162, 164, 171, 172, 176, 180 20

Minor Adviser. M. Kenney

Graduate Study. See Graduate Studies, on page 122.

Design

Changes to the Design Program

The Major Program

The Department of Design offers a creative, challenging, and flexible approach to the study of design with emphasis on socially responsible, human centered, and sustainable practice.

The Program. Foundation courses: Design and Visual Culture; Design Drawing, Form and Color, and Graphic Design and Computer Technology; are required of all design majors. One additional course in the student's area of interest is required for Preparatory Subject Matter. Depth Subject Matter courses provide: (*1*) further exploration of design principles and conceptual, formal and technical issues; (*2*) conceptual and critical development through a series of history and theory classes; (*3*) in-depth studio experience with projects that demonstrate a research-based, iterative design process. Optional capstone class. A more detailed explanation is available through the Design Advising office in 107 Art Building; 530-752-6244.

Portfolios. Portfolios are not required for admission to the major. However, it is highly recommended that design students maintain an updated portfolio of visual work for faculty and professional evaluation and consideration for enrollment in specialized courses, including independent study, group study and internship.

Internships, Careers, and Study Abroad. Design students are encouraged to supplement their coursework with internships in design firms, museums, and design related businesses. Design graduates go directly from this program into further graduate study, or professional work including exhibition, fashion, information, interior architecture and product (lighting and furniture), textiles, visual communications (digital, environmental and print) and sustainable design. In addition, students have become entrepreneurs through freelance and commissioned work in many related areas. The Department of Design encourages students to experience design abroad through a variety of sponsored programs. For more information, contact UC Davis Study Abroad.

A.B. Major Requirements:

UNITS

Preparatory Subject Matter.....28

Design 1.....4
Art 2 or Design 14 4
Design 15.....4
Design 16 4
University Writing Program 11,18 or 19 ...4
Design 40A, 40B, or 40C 4
One course from the following:
Design 21, 31, 37, 50, 60, 70, 77;
Art 9 4

Depth Subject Matter 44

Two courses, at least one of which must be a Design course, from the following: Art 110A, 110B; Design 107, 115, 117, 127B, 150A; Dramatic Art 128; Technocultural Studies 100 8
Three courses, at least two of which must be Design courses, from the following: Art History 168, 184, 187, 188A, 188B, 189; Design 127A, 138, 142A, 142B, 143, 144, 145, 149; Dramatic Art 114, 150, 155; Technocultural Studies 150, 152, 153, 155, 159 12
Choose six courses from the lists below: ..24
List A: Design 116, 131, 132A, 132B, 134A, 134B, 135A, 135B, 136A, 136B, 137A, 137B, 150B, 151, 155A, 160, 161, 170, 171, 177, 180A, 185, 186, 191. One course from the following approved list may count: ART 113, 114A, Chicano Studies 172, Dramatic Art 124A,

124B, 124C,124D, 124E, 130, 170, Technocultural Studies 104, 130, 131; Textiles and Clothing 163 and 163L
List B: Capstone Course Option (these courses are the most advanced in the major and prerequisites are strictly enforced): Design 154, 157, 159, 179, 180B, 187
Note: Substitutions for the listed courses may be allowed under certain circumstances with prior departmental approval.

Total Units for the Major..... 72

Major Adviser. Information on the current Academic Advisers can be obtained by contacting the Undergraduate Adviser at 530-752-6244.

Earth and Planetary Sciences

Changes to the Earth and Planetary Sciences

(College of Letters and Science)

Louise H. Kellogg, Ph.D., Acting Chairperson of the Department

David A. Osleger, Ph.D., Vice-Chairperson of the Department

Department Office. 2119 Earth and Physical Sciences Building 530-752-0350; *http://www.geology.ucdavis.edu*

Faculty

Magali I. Billen, Ph.D., Associate Professor
Sandra J. Carlson, Ph.D., Professor
William H. Casey, Ph.D., Professor *(Chemistry)*
Kari M. Cooper, Ph.D. Associate Professor
Eric S. Cowgill, Ph.D. Associate Professor
Howard W. Day, Ph.D., Professor
Graham E. Fogg, Ph.D., Professor
(Land, Air and Water Resources)
Tessa M. Hill, Ph.D., Associate Professor
Louise H. Kellogg, Ph.D., Professor
Charles E. Lesher, Ph.D., Professor
James S. McClain, Ph.D., Professor
Academic Senate Distinguished Teaching Award
Isabel P. Montañez, Ph.D., Professor
Ryosuke Motani, Ph.D. Professor
Sujoy Mukhopadhyay, Ph.D., Professor
Alexandra Navrotsky, Ph.D., Professor *(Chemistry)*
Michael E. Oskin, Ph.D., Associate Professor
David A. Osleger, Ph.D., Lecturer SOE
Academic Senate Distinguished Teaching Award
John B. Rundle, Ph.D., Professor *(Physics, Earth and Planetary Sciences)*
Howard J. Spero. Ph.D., Professor
Sarah T. Stewart, Ph.D., Professor
Dawn Y. Sumner, Ph.D., Professor
Donald L. Turcotte, Ph.D., Professor
Geerat J. Vermeij, Ph.D., Professor
Kenneth L. Verosub, Ph.D., Professor
Academic Senate Distinguished Teaching Award
Qing-zhu Yin, Ph.D., Professor
Robert A. Zierenberg, Ph.D., Professor

Emeriti Faculty

Richard Cowen, Ph.D., Senior Lecturer Emeritus,
Academic Senate Distinguished Teaching Award
John F. Dewey, Ph.D., Professor Emeritus
James A. Doyle, Ph.D., Professor Emeritus
(Evolution and Ecology)
Charles G. Higgins, Ph.D., Professor Emeritus
Eldridge M. Moores, Ph.D., Professor Emeritus
Jeffrey F. Mount, Ph.D., Professor Emeritus
James R. Rustad, Ph.D., Professor Emeritus
Peter Schiffman, Ph.D., Professor Emeritus
Donald L. Turcotte, Ph.D., Professor Emeritus
Robert J. Twiss, Ph.D., Professor Emeritus

Major Programs. See Geology, Marine and Coastal Science, and Natural Sciences.

Undergraduate advising center is located in 2119 Earth and Physical Sciences 530-752-9100.

Graduate Study. The department offers programs of study and research leading to the M.S. and Ph.D. degrees in Geology. For more information, see *http://geology.ucdavis.edu/students/grad*.

Courses. See courses listed under Geology.

East Asian Languages and Cultures

Changes to the Chinese major and Chinese & Japanese minor

Chinese

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 0-30
Chinese 1, 2, 3, 4, 5, 6; OR 1BL, 2BL, 3BL; OR 1CN, 2CN, 3CN; OR equivalent as determined by a required language placement exam.
Recommended but NOT required: Chinese 10, 11, 50, Comparative Literature 14, Japanese 10, Linguistics 1, History 9A.

Depth Subject Matter 40
Chinese 106, 107, 111, 112, 113, 114, 160..... 28
Note: With prior approval of the undergraduate adviser, students already proficient in Chinese at any third-year level (111-112-113) must take other upper-division Chinese courses to replace language course(s).
Three* courses (at least 12 units) selected from Chinese 100A, 101, 102, 103, 104, 105, 108, 109A-I, 110, 115, 116, 120**, 130**, 131, 132, 133**, 134, 140**, 150** or any approved substitutions; *one of the three courses must be from Chinese 101, 102, 103, 104, 109G..... 12
**Chinese 120, 130, 133, 140 and 150 can be repeated when the contents are different.
Recommended substitutions: Japanese 101, 102, 103, 104, 105, 106; Anthropology 148A or 148B; Art History 163A or 163B; East Asian Studies 113; History 191A-F; Religious Studies 172; or other advanced literature and culture courses selected in consultation with the undergraduate adviser.

Total Units for the Chinese Major 40-70

Major Advisors in Chinese. X. Chen, C. Chu, M. Halperin, Y. He, M. Yeh

Japanese

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 0-30
Japanese 1, 2, 3, 4, 5, 6 OR equivalent as determined by a language placement exam.
Recommended but NOT required:
Japanese 10, 15, 25, Chinese 10, 11, 50, Linguistics 1, History 9B.

Depth Subject Matter 40
Japanese 101, 102, 103, 111, 112, 113, 151..... 28
Note: With prior approval of the undergraduate advisor, students already proficient in Japanese at any third-year level (111-112-113) must take other upper division Japanese courses to replace language course(s)
Three classes (at least 12 units) selected from the following: Japanese 104, 105, 106, 107, 108, 109, 114A-C, 115, 121, 122, 123, 130, 131, 132, 133, 134, 135, 136, 137, 138, 141, 152, 156, 157; Anthropology 149A, 149B; Art History 164; Chinese (up to two upper-division Chinese courses); Comparative Literature 153; Economics 171; History 194A-, 194B-, 194C; Political Science 148B; Religious Studies 170, 172; or other advanced literature and culture courses selected in consultation with the undergraduate adviser 12

Total Units for the Japanese Major... 40-70

Major Advisors in Japanese. C. Chang, D. Gundry, N. Koyama, J. Sorensen

Minor Program Requirements:

Minors are offered in Chinese and in Japanese for students wishing to follow a formally recognized program of study in those languages and literatures.

UNITS

Chinese 20

Japanese..... 20

All upper division courses, including both language courses and literature in translation courses, may be used to meet this requirement. One approved lower division course (Chinese 10, 11, 50; Japanese 10, 25, 50) may also be used. In addition, students must demonstrate their language proficiency, normally through completion of Chinese 3BL or 6 or Japanese 6. Only four units from 192, 197T, 198, and 199 may be applied to the minor. For details, consult the undergraduate advisers.

Engineering: Biological and Agricultural

Changes to the Biological Systems Engineering Undergraduate Program

The Biological Systems Engineering Undergraduate Program

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D..... 16
Mathematics 22A-22B..... 6
Physics 9A-9B-9C..... 15
Chemistry 2A-2B..... 10
Chemistry 8A or 118A..... 2 or 4
Chemistry 8B or 118B..... 4
Biological Sciences 2A-2B-2C 15
Engineering 6, 35, 17..... 12
Biological Systems Engineering 1..... 4
Biological Systems Engineering 75..... 4
University Writing Program 1, 1Y or 1V (grade of C- or better is required)..... 4
Communication 1 or 3 4

Upper Division Requirements:

If your career objective is a professional degree in the health sciences (e.g., medicine, veterinary medicine, or dentistry), you should consult with advisers from the appropriate school to plan for successful admission and to ensure that you take specific courses that may be required and that you have the necessary experience. The upper division requirements are listed following the areas of specialization:

- Biotechnology Engineering
- Agricultural and Natural Resources Engineering
- Food Engineering

Areas of Specialization

Biotechnology Engineering. Biotechnology involves the handling and manipulation of living organisms or their components to produce useful products. Students specializing in biotechnical engineering integrate analysis and design with applied biology to solve problems in renewable energy production, large-scale biotechnical production, control of biological systems, and bio-based materials production.

Students may focus on the mechanisms and processes for the sustainable production and use of energy from renewable biological sources. Students may also focus on the challenges in scaling up laboratory developments to industrial production, including production, packaging, and application of biocontrol agents for plant pests and diseases; genetically altered plants; plant materials and food products; and microbial production of biological products, tissue culture, and bioremediation. Students may also focus on the development of biosensors to detect microorganisms and specific substances, useful in the development of products based on biological processes and materials.

Biotechnical engineers work in the biotech industries on process design and operation, scale-up, and instrumentation and control.

Recommended biological science electives:

Biological Sciences 101, 102, 103
Microbiology 102
Molecular and Cellular Biology 120L
Plant Biology 113

Recommended engineering electives:

Biological Systems Engineering 161
Chemical Engineering 161B, 161C, 161L
Civil and Environmental Engineering 143, 148A, 149, 150, 153
Engineering 180
Mechanical Engineering 161, 162, 163

Suggested advisers. M. Delwiche, J. Fan, K. Giles, M. Grismer, B. Hartsough, B. Jenkins, T. Jeoh, N. Pan, J. VanderGheynst, N. Nitin, R. Zhang

Agricultural and Natural Resources Engineering. With the world population expected to grow over the next several decades, major concerns lie with meeting the needs of agriculture and with the sustainable use of limited natural resources. Students specializing in agricultural and natural resources engineering combine analysis and design with applied biology to solve problems in producing, transporting, and processing biological products leading to food, fiber, energy, pharmaceuticals, and other human needs.

Students may focus on automation of field operations and on the biomechanics of humans and animals. They may also focus on engineering issues related to the sustainable use of natural resources, particularly water, but also land and air. Agricultural and natural resources engineers design machinery, processes, and systems for productive plant and animal culture, while minimizing adverse environmental effects.

Agricultural and natural resources engineers are employed as practicing professionals and managers with agricultural producers, equipment manufacturers, irrigation districts, food processors, consulting engineering firms, start-up companies, and government agencies. Graduates with interest in biomechanics work in industry on the design, evaluation, and application of human-centered devices and systems, as well as on improving worker health and safety.

Recommended biological science electives:

Animal Emphasis

Avian Sciences 100
Animal Science 143, 144, 146
Neurobiology, Physiology, and Behavior 101
Soil Science 100

Aquaculture Emphasis

Animal Science 118, 131, 136A
Applied Biological Systems Technology 163
Wildlife, Fish, and Conservation Biology 120, 121

Biomechanics Emphasis

Biological Sciences 102
Neurobiology, Physiology and Behavior 101
Exercise Biology 103
Cell Biology and Human Anatomy 101

Plant Emphasis

Entomology 100
Environmental Horticulture 102
Environmental Science and Policy 100
Environmental Toxicology 101
Hydrologic Sciences 124
Microbiology 120
Plant Biology 111
Soil Science 100
Plant Sciences 101, 110A, 114, 142

Recommended engineering electives:

Biological Systems Engineering 114, 120, 128, 145
Biomedical Engineering 109, 116, 126
Civil and Environmental Engineering 140, 141, 142, 144, 145, 148A, 171
Engineering 111, 121, 180

Additional recommended electives:

Applied Biological Systems Technology 150, 161, 165

Suggested Advisers. M. Delwiche, J. Fan, F. Fathallah, K. Giles, M. Grismer, B. Hartsough, B. Jenkins, R. Piedrahita, D. Slaughter, S. Upadhyaya, S. Vougioukas, J. VanderGheynst, W. Wallender, R. Zhang

Food Engineering. Producing the food we eat every day constitutes the largest industrial sector of the U.S. economy, and this production involves the work of engineers in a wide variety of food industries, both at home and around the world. Students specializing in food engineering design food processes and operate equipment and facilities for production of high quality, safe, and nutritious food with minimal impact of these operations on the environment.

Students learn to apply engineering principles and concepts to handle, store, process, package, and distribute food and related products. In addition to engineering principles, the food engineering specialization provides an understanding of the chemical, biochemical, microbiological, and physical characteristics of food. Students study concepts of food refrigeration, freezing, thermal processing, drying, and other food operations.

Food engineers work as practicing engineers, scientists, and managers in the food industry.

Recommended biological science electives:

Biological Sciences 101, 102, 103
Environmental Science and Policy 110
Environmental Toxicology 101
Food Science and Technology 104, 104L, 119, 128
Plant Sciences 172

Recommended engineering electives:

Biological Systems Engineering 161
Chemical Engineering 157
Mechanical Engineering 171, 172

Suggested Advisers. K. McCarthy, M. McCarthy, N. Nitin, R. P. Singh, D. Slaughter

Upper Division Required Courses

	UNITS
Engineering 100, 102, 104 105, 106	18
Biological Systems Engineering 103, 125, 127, 130, 165, 170A, 170B, 170BL, 170C, 170CL	29
Biological Systems Engineering electives—Select a minimum of 4 units from all upper division Biological Systems Engineering courses not otherwise required, with the exception of Biological Systems Engineering courses 189-199	4
Statistics 100	4
Engineering electives—Select a minimum of three units. All upper division courses offered by the College of Engineering may be taken as engineering electives with the exception of the following: Civil and Environmental Engineering 123, Computer Science Engineering 188, Engineering 103, 160, all courses numbered 190-197 and 199 (except Engineering 190, which may be taken for 2 units of engineering elective credit)	3
Biological science electives—All upper-division courses in the College of Biological Sciences (with the exception of Biological Sciences 132, Evolution and Ecology 175, Exercise Biology 102, 112, 115, 118 through 149L, Microbiology 100 and all courses numbered 190-199) may be used as biological science electives. The following courses may also be taken as biological science electives: Applied Biological Systems Technology 161; Animal Science 118, 143, 144, 146; Agricultural Management and Rangeland Resources 110A; Atmospheric Science 133; Avian Sciences 100; Cell Biology and Human Anatomy 101, 101L; Entomology 100; Environmental Horticulture 102; Environmental Science Policy and Management 120, 182, 185 (offered at UC Berkeley); Environmental Science and Policy 100, 110, 155; Environmental Toxicology 101, 112A, 131; Food Science and Technology 102A, 104L, 119, 120, 121, 128, 159; Infectious Diseases 141; Soil Science 100; Wildlife, Fish, and Conservation Biology 121. Students may choose other upper division courses with substantial biological content offered by the College of Agricultural and Environmental Sciences; consultation with a faculty adviser and approval by petition is required)	3
Upper Division Composition Requirement* one course from the following: University Writing Program 101, 102B, 102E, 102F, 102G, 104A, 104E, 104F, 104T (grade of C- or better is required)	4

** The Upper-Division composition exam administered by the College of Letters and Sciences cannot be used to satisfy the upper-division composition requirement for students in the Biological Systems Engineering program.*

Master Undergraduate Adviser. M. Delwiche

Energy Minor Programs

There is an urgent need to develop and commercialize technologies for the sustainable conversion and use of energy. The goal of these minors is to prepare students for careers that require training in energy science and technology and energy policy. Cleantech and green-tech markets including energy are some of the fastest growing market in new investment. Well trained individuals in all related fields are needed to provide the level of expertise required to advance technology and policy and to satisfy state, national, and international objectives for greater energy sustainability. The minors are expected to accommodate persons of diverse background with educational interests in areas that may include engineering, science, policy, economics, planning, and management.

Energy Science and Technology Minor

All courses must be taken for a letter grade. Grade of *C-* or better required for all courses used to satisfy

minor requirements with overall GPA in minor requirement courses of 2.000 or better.

Minor Requirements:

UNITS

Energy Science and Technology 20

Engineering 105 or Chemical Engineering 152B 4
Engineering 188 4
Select 12 units from: Biological Systems Engineering 162; Chemical Engineering 146, 158C, 161A, 161B, 161L, 166; Civil Engineering 125, 143, 162, 163; Mechanical Engineering 161; Agricultural and Resource Economics 175; Food Science and Technology 123; Applied Biological Systems Technology 182; Atmospheric Science 116; Plant Science 101; Environmental Science and Policy 167.... 12

Minor Advisors. Bryan Jenkins *(Department of Biological and Agricultural Engineering)*, Karen McDonald *(Department of Chemical Engineering and Materials Science)*, Case van Dam *(Department of Mechanical and Aerospace Engineering)*

Energy Policy Minor

All courses must be taken for a letter grade. Grade of C- or better required for all courses used to satisfy minor requirements with overall GPA in minor requirement courses of 2.000 or better.

Minor Requirements:

UNITS

Energy Policy 18

Engineering 188 and Environmental Science and Policy 167 8
Select 10 units from: Civil Engineering 125; Environmental Science and Policy 171, 163, 168A, 169B; Political Science 105, 109, 122, 164 143, 162, 164..... 10

Minor Advisors. Deb Niemeier *(Department of Civil and Environmental Engineering)*, Joan Ogden *(Environmental Science and Policy)*

Energy Efficiency Minor

All courses must be taken for a letter grade. Grade of C- or better required for all courses used to satisfy minor requirements with overall GPA in minor requirement courses of 2.000 or better.

Minor Requirements:

UNITS

Energy Efficiency 20

Engineering 188 and Civil Engineering 125 8
Select 12 units from: Civil Engineering 126, 127, 128, 143; Environmental Science and Policy 167; Design 136A, 136B, 137A..... 12

Minor Advisors. Frank Loge *(Civil and Environmental Engineering)*, Dan Sperling *(Institute of Transportation Studies)*, Mark Modera *(Western Cooling Efficiency Center)*

Engineering: Biochemical

Changes to the Biochemical Engineering Undergraduate Program

The Biochemical Engineering program is accredited by the Engineering Accreditation Commission of ABET; see http://www.abet.org.

As the biotechnology industry expands and matures, there is increasing need for engineers who can move products from the research stage to large-scale manufacturing. As they fill this need, engineers must also understand the production, purification, and regulatory issues surrounding biopharmaceutical manufacturing.

Biochemical engineers—with their strong foundations in chemistry, biological sciences, and chemical process engineering—are in a unique position to tackle these problems. Biochemical engineers apply the principles of cell and molecular biology, biochemistry, and engineering to develop, design, scale up, optimize, and operate processes that use living cells, organisms, or biological molecules for the production and purification of products (such as monoclonal antibodies, vaccines, therapeutic proteins, antibiotics, and industrial enzymes); for health and/or environmental monitoring (such as diagnostic kits, microarrays, biosensors); or for environmental improvement (such as bioremediation). An understanding of biological processes is also becoming increasingly important in the industries that traditionally employ chemical engineers, including the industries that process materials, chemicals, foods, energy, fuels, and semiconductors.

Objectives. We educate students in the fundamentals of chemical and biochemical engineering, balanced with the application of these principles to practical problems; educate students as independent, critical thinkers who can also function effectively in a team; prepare students with a sense of community, ethical responsibility, and professionalism; prepare students for careers in industry, government, and academia; teach students the necessity for continuing education and self learning; and foster proficiency in written and oral communications.

Students are encouraged to adhere carefully to all prerequisite requirements. The instructor is authorized to drop students from a course for which stated prerequisites have not been completed.

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D 16
Mathematics 22A-22B 6
Physics 9A-9B-9C 15
Chemistry 2A, 2B, 2C or Chemistry 2AH, 2BH, 2CH 15
Biological Sciences 2A 5
Chemical Engineering and Materials Science 5, 6, 51, 80 12
English 3 or University Writing Program 1, 1V or 1Y, or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better is required) 4

Upper Division Required Courses

Chemical Engineering 140, 141, 142, 143, 145A, 145B, 148A, 152A, 152B, 157, 158A, 158C, 161A, 161B, 161C, 161L 58
Biological Sciences 102 3
Microbiology 101 5
Chemistry 110A, 128A, 128B, 129A 12
Biochemical Engineering electives 9
Choose at least one laboratory course from the Laboratory Elective list; additional courses may be chosen from either list. You may receive biochemical engineering elective credit up to a maximum of two units of an internship (192) or independent study (199), or Biotechnology 189L with the approval of a petition, provided that the course is a laboratory-based experimental project, related to the biological and/or biochemical engineering sciences, and you submit a written report that demonstrates proficiency in laboratory skills, techniques, or method. Research does not replace the required lab elective.

Laboratory elective list: Biomedical Engineering 161L; Biotechnology 161A, 161B; Food Science and Technology 102B, 104L, 123L; Molecular and Cellular Biology 120L, 160L; Neurobiology, Physiology, and Behavior 101L, 104L; Viticulture and Enology 123L, 124L.
Lecture elective list: Biological Sciences 2B, 2C, 101, 103, 104; Biological Systems Engineering 165; Biomedical Engineering 102, 107, 109, 117, 140, 161A, 162; Biotechnology 160, 188; Chemical Engineering 144, 166, 170; Chemistry 130A, 130B; Food Science and Technology 102A, 104, 123; Microbiology 140, 150; Molecular and Cellular Biology 123; Neurobiology, Physiology, and Behavior 101, 107; Plant Biology 112; Plant Sciences 100A, 152; Statistics 120, 130A, 131A.; Viticulture and Enology 123, 124

Upper Division Composition Requirement ..... 0 or 4
One course from the following (grade of C- or better is required): University Writing Program 102E, 102F, 104A, 104E, 104T or passing the Upper Division Composition Exam offered by the College of Letters & Science.

Engineering: Chemical Engineering and Materials Science

Changes to the Chemical Engineering Undergraduate Program

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D 16
Mathematics 22A-22B 6
Physics 9A-9B-9C 15
Chemistry 2A, 2B, 2C or Chemistry 2AH, 2BH, 2CH 15
Chemical Engineering and Materials Science 5, 6, 51, 80 12
Engineering 45 or 45Y 4
Biotechnology 1 or Biological Sciences 2A ..... 4 or 5
English 3 or University Writing Program 1, 1V 1Y, or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better is required) 4

Upper Division Required Courses

Chemical Engineering 140, 141, 142, 143, 145A, 145B, 148A, 148B, 152A, 152B, 155, 157, 158A, 158B, 158C 54
Chemistry 110A, 110B, 128A, 128B, 129A 16
Chemical Engineering and Materials Science Electives 8
Choose any upper division courses in the areas of Chemistry (CHE), Chemical Engineering (ECH) or Materials Science and Engineering (EMS). You may receive elective credit up to a maximum of four units for any combination of engineering courses numbered 190C, 192, 198, and 199. Courses may also be selected from the following: Biological Sciences 102; Food Science and Technology 100A, 102A, 102B; Fiber and Polymer Science 150.

Upper Division Composition Requirement ..... 0 or 4
One course from the following (grade of C- or better is required): University Writing Program 102E, 102F, 104A, 104E, 104T or passing the Upper Division Composition Exam offered by the College of Letters & Science

Changes to the Materials Science and Engineering Program Details

The Department of Chemical Engineering and Materials Science offers three undergraduate programs: Chemical Engineering, Biochemical Engineering, and Materials Science and Engineering.

Mission Statement. To advance, through teaching and research programs, the frontiers of chemical engineering, biochemical engineering, and materials science and engineering; to educate students with a sense of professionalism and community; and to serve the public of California through outreach efforts.

Honors Program. An Honors Program is available to qualified students in the Chemical Engineering, Biochemical Engineering, and Materials Science and Engineering majors. It is a four-year program designed to challenge the most talented students in these majors. Students invited to participate will take a one-unit honors seminar in their freshman year and will enroll in various one-unit honors courses. In the upper division, students will complete either an honors thesis or a project that might involve local industry (Chemical engineering 194 HA, HB, HC). Students must maintain a grade point average of 3.500 to continue in the program. Successful completion of the Honors Program will be acknowledged on the student's transcript.

Changes to the Materials Science and Engineering Undergraduate Program

Lower Division Required Courses

- Mathematics 21A-21B-21C-21D 16
- Mathematics 22A-22B 6
- Physics 9A-9B-9C-9D 19
- Chemistry 2A, 2B, 2C or Chemistry 2AH, 2BH, 2CH 15
- Engineering 17, 45 or 45Y 8
- Materials Science and Engineering 2 2
- Chemical Engineering and Materials Science 6 4
- English 3 or University Writing Program 1 or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better required) 4
- Communication 1 or 3 4

Upper Division Required Courses

- Engineering 190 3
- Materials Science and Engineering 160, 162, 162L, 164, 172, 172L, 174, 174L, 180, 181, 188A, 188B 42
- Select one course from Engineering 180; Mathematics 135A; Statistics 120, 131A; Civil and Environmental Engineering 114; Chemical Engineering 140; or Physics 104A, ... 4
- Select one course from Chemistry 110A, 124A, 128A, or Physics 108, 108L, 110A, 122A, 151, 160 3
- A minimum of 14 units from one of the following focus areas:
  - *Biomedical Engineering:* Biology 2A, Biomedical Engineering 20, 106*, 109
  - *Biological Systems Engineering:* Biology 2A, Engineering 100, Biological Systems Engineering 75, 165
  - *Chemical Engineering:* Chemical Engineering 51, 140, 141, 142
  - *Civil Engineering:* Engineering 35, 104, Civil Engineering 130, 132
  - *Electrical Engineering:* Engineering 100, Electrical Engineering 140A, 140B, 146A
  - *Mechanical Engineering:* Engineering 35, 102, 103, 104 14
- Select one course from:
  - Chemical Engineering 158A; Materials Science Engineering 170, Engineering 106, 160, 188; Civil Engineering 123, 125, 143 3-4
- Depending on area of focus, 6-9 units of upper division electives 6-9

Students may receive up to a maximum of 4 units of credit for engineering 199 courses, when these courses are approved by the departmental undergraduate studies committee. To receive credit, students must submit a summary of their research to the committee. A letter of support from the faculty mentor is also required to verify that you have conducted substantial research activity.

*Students would need to take Neurobiology, Physiology, and Behavior 101 as an elective to enroll in Biomedical Engineering 106

- Upper Division Composition Requirement ..... 0 or 4
  - One course from the following (grade of C- or better is required): University Writing Program 102E, 102F, 104A, 104E, 104T or passing the Upper Division Composition Exam offered by the College of Letters & Science.

Engineering: Civil and Environmental

Changes to the Civil Engineering Undergraduate Program

Lower Division Required Courses

UNITS

- Mathematics 21A-21B-21C-21D 16
- Mathematics 22A-22B 6
- Physics 9A-9B-9C and choice of Physics 9D, Chemistry 2C, Biological Science 2A or Geology 50-50L 19
- Chemistry 2A-2B or 2AH-2BH 10
- Civil and Environmental Engineering 3, 16 6
  - (Civil and Environmental Engineering 3 is designed for lower division students and is not open to upper-division students. Students who do not take this course will substitute four units of additional upper-division Civil and Environmental Engineering coursework.)
- One course from: Civil and Environmental Engineering 19, Engineering 6, or Computer Science Engineering 30 4
- Engineering 35, 45 or 45Y 8
- English 3 or University Writing Program 1, 1V, or 1Y, or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better) 4
- Communication 1 or 3 4

Civil Engineering

Upper Division Required Courses

- Engineering 102, 103, 104, 104L, 105, 106 20
- Civil and Environmental Engineering 114, 190 6
- One course from Civil and Environmental Engineering 115, 153; Mathematics 118A; or Statistics 108 4
- A minimum of four of the following group options (a minimum of two courses in each of the four areas Courses listed in more than one group may be counted only once 30*
  - *Environment:* Civil and Environmental Engineering 148A or 149 and at least one course from Civil and Environmental Engineering 140, 143, 148B, 150
  - *Geotechnical:* Civil and Environmental Engineering 171 and 171 Lab and at least one course from Civil and Environmental Engineering 173, 175, 179
  - *Structures:* Civil and Environmental Engineering 130 and at least one course from Civil and Environmental Engineering 131, 132, 135 136, 137, 138, 139
  - *Transportation:* Civil and Environmental Engineering 161, 162 or 179 and at least one course from Civil and Environmental Engineering 161, 162, 163, 165, 179
  - *Water Resources:* Civil and Environmental Engineering 141 and 141 Lab and at least one course from Civil and Environmental Engineering 142, 144, 145, 146, 155
  - *Senior Design Requirement:* You must complete at least two of the following courses as part of the Group Option or Civil & Environmental Engineering elective requirement: Civil & Environmental Engineering 127, 136, 145, 148B, 150, 162, or 173
- Civil & Environmental Engineering electives 16
  - Civil & Environmental Engineering electives may include any upper division, letter-graded Civil & Environmental Engineering course not already used towards another degree requirement, and may include, but not exceed, a combination of six units from Civil & Environmental Engineering 198 and 199.**
- Upper Division Composition Requirement 0-4
  - One course from the following (grade of C- or better is required): University Writing Program 101, 102E, 102G, 104A, 104E, 104T or passing the Upper Division Composition Exam offered by the College of Letters & Science.

*Units in excess of the 30 unit group option requirement may count toward the Civil & Environmental Engineering elective requirement. Please consult with the undergraduate staff adviser.

**A maximum of 4 units of upper-division courses outside of Civil & Environmental Engineering may be considered on a petition basis. Please consult with the undergraduate staff adviser.

Construction Engineering and Management Minor

To declare this minor program offered by the Department of Civil and Environmental Engineering, students must complete ENG 104 with a C- or better and submit a short personal statement focusing on academic and career goals, including relevant internships/experience. The online Minor Declaration form is available via the Online Advising Student Information System (OASIS) at https://students.ucdavis.edu/. Minimum overall UC GPA at time of declaration: 2.500.

All prerequisites must have been taken for a letter grade; no grade lower than a C- will be accepted in any prerequisite course.

You are permitted to overlap one course between this minor and your major.

Successful completion and transcript notation of the minor requires both a minimum overall UC GPA of 2.000 and a minimum 2.000 GPA for the coursework completed for the minor, with no grade lower than a C- for any course used for the minor.

Minor 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; Environmental Science and Policy 161; may include one course from

Agricultural and Resource Economics 18, Management 11A, 11B 12

Minor advisors. J. Darby, J.T. Harvey, J. Lund

Sustainability in the Built Environment Minor

All courses must be taken for a letter grade. A grade of C- or better is required for all courses used to satisfy minor requirements with an overall GPA in minor requirement courses of 2.000 or better.

UNITS

Sustainability in the Built Environment.. 20

Civil and Environmental Engineering 123, 143 8
Twelve units from:
Civil and Environmental Engineering 125, 126, 127, 128, 148A, 149, 155, 162, 165, Engineering 188, Anthropology 101 (same as Environmental Science & Policy 101),104N, Agricultural and Resource Economics 175, 176, Atmospheric Science 116, Community and Regional Development 142, 154, 172, Environmental Science and Policy 161, 162, 171, Environmental Toxicology 101, 102A, Geology 130, 134, Landscape Architecture 3, 180*, Plant Sciences 101, 141, 150, 162 12

*Due to variability in series course offering, consent of minor advisor is required.

Minor advisors. F. Loge, A. Kendall

Engineering: Computer Science

Changes to Computer Science and Engineering Undergraduate Program

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D 16
Mathematics 22A or 67 3-4
Mathematics 22B 3
Physics 9A-9B-9C-9D 19
Chemistry 2A 5
Computer Science Engineering 20, 30, 40, 60 16
Computer Science Engineering 50 or Electrical and Computer Engineering 70 ... 4
Engineering 17 4
English 3 or University Writing Program 1, 1V, 1Y or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better required) 4
Communication 1 4

Upper Division Requirements:

Upper Division Required Courses

Computer Science Engineering 132, 140A, 150, 152A, 154A, 154B, 160, 188, 193A, 193B 32
Computer Science Engineering 120 or 122A 4
Electrical and Computer Engineering 100, 172 9
Computer Science electives 15
A minimum of four courses and a minimum of 15 units chosen from Computer Science Engineering courses numbered 120 to 189 inclusive; one approved course of 3 or 4 units from Computer Science and Engineering 192 or 199; Electrical and Computer Engineering 180A, 180B; Linguistics 177. No course can count as both a required course and a computer science and engineering elective.
Upper Division Composition Requirement 0-4
University Writing Program 101 (a grade of C- or better is required) or passing the Upper-Division Composition Exam administered by the College of Letters Science.

Engineering: Electrical and Computer Engineering

Changes to Electrical Engineering Undergraduate Program

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D 16
Mathematics 22A-22B 6
Physics 9A-9B-9C-9D 19
Chemistry 2A 5
Computer Science Engineering 30 4
Engineering 6, 17 8
Electrical and Computer Engineering 1, 10 4
Electrical and Computer Engineering 10 .. 3
(Electrical and Computer Engineering 10 is designed for sophomore students and is not recommended for upper-division students. Transfer and change of major students who do not take Electrical and Computer Engineering 10 will substitute three additional units of upper-division electives.)
Engineering 17 4
English 3 or University Writing Program 1, 1Y or 1V or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better required) 4
Communication 1 or 3 4

Upper Division Required Courses

Electrical and Computer Engineering 100, 110A, 130A, 140A, 150A, 161, 180A, 196 31
Engineering 160, 190 or Computer Science Engineering 188 3-4
Upper-division electives*** 32
Chose at least eight courses for a minimum of 32 units from the following:
Two core electives: Electrical and Computer Engineering 110B*, 130B, 140B, 170, 180B*, one from 150B, 157A*, or 160
Design laboratory electives: At least two design electives with lab: Electrical and Computer Engineering 110B, 112, 116, 118, 132A, 132B, 132C, 135, 146A, 146B, 152, 157A, 157B, 165, 172, 180B, 183
*At least one design project course**:* Electrical and Computer Engineering 119AB, 134AB, 136AB, 181AB, 193AB, 195AB;
The remaining electives may be any letter-graded upper division Electrical and Computer Engineering course not used to satisfy another major requirement; Computer Science and Engineering 40, 150, 152B, 163, 175, 177, or 178
Technical electives*** 9
A maximum of 6 units for any combination of engineering courses numbered 190C, 192, 198, and 199 may be used.
Chemistry 2B, 2C and any upper-division course except Chemistry 195 & 197
Engineering 35, 45, and any upper-division engineering course not used in satisfaction of core degree requirements, excluding Engineering 100, 160, 190 (restricted to one unit of technical elective), 198, Computer Science Engineering 132, 155, 157, 188, 154A, & 154B (ECS 154AB courses may be used by EEEL majors who did not take EEC 170).
Any upper-division Mathematics course except Mathematics 135A & 197TC
Any upper-division Physics course except 116, 137, 160 (restricted to one unit of technical elective), 195, 197T
Any upper-division Statistics course except Statistics 100, 102, 103, 104, 106, 108, 120, 130A
Biological Sciences 101, 101D, 102, 103, 104, 120, 120P, 122, 122P, 132
Economics 100, 101, 102, 103, 122, 140
Management 11A, 11B, 100, 120, 140, 150, 160, 170, 180
Upper Division Composition Requirement: One course from the following (a grade of C- or better is required): University Writing Program 101, 102A-L, 104A-T or passing the Upper Division Composition Exam offered by the College of Letters and Science ..... 0 or 4

* Maximum of one course appearing on both the core elective list and the design elective list may be counted in both categories.

** All design project courses are also considered design lab courses and may be counted in both categories simultaneously.

*** After completion of the upper division elective requirement (at least 8 courses, 2 core, 2 with labs, 1 project) any units in excess of 32 will count toward the technical elective requirement.

Changes to Computer Engineering Undergraduate Program

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D 16
Mathematics 22A-22AL-22B 7
Physics 9A-9B-9C-9D 19
Chemistry 2A 5
Computer Science Engineering 20, 30, 40, 60 16
Electrical and Computer Engineering 1, 10 4
(Electrical and Computer Engineering 10 is designed for sophomore students and is not recommended for upper-division students. Transfer and change of major students who do not take Electrical and Computer Engineering 10 will substitute three additional units of upper-division electives.)
Engineering 17 4
English 3 or University Writing Program 1, 1Y or 1V or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better) 4
Communication 1 or 3 4

Upper Division Required Courses

Electrical and Computer Engineering 100, 110A, 140A, 161, 170, 172, 173A, 180A, 180B, 196 40
Computer Science Engineering 122A, 150 8
Engineering 160, 190, or Computer Science Engineering 188 3-4
Upper-Division Elective Courses: 9-11
One design project course: Electrical and Computer Engineering 119AB, 134AB, 136AB, 181AB, 193AB, 195AB
One upper division Electrical and Computer Engineering or Computer Science course (excluding Computer Science 132, 155, 157, 188, 154A, & 154B).
Technical electives 8
A maximum of 6 units for any combination of engineering courses numbered 190C, 192, 198, and 199 may be used.
Chemistry 2B, 2C and any upper-division course except Chemistry 195 & 197.
Engineering 35, 45, and any upper-division engineering course not used in

satisfaction of core degree requirements, excluding Engineering 160, 190 (restricted to one unit of technical elective), 198, Computer Science Engineering 132, 155, 157, 188, 154A, 154B.
Any upper-division Mathematics course except Mathematics 135A & 197TC
Any upper-division Physics course except 116, 137, 160 (restricted to one unit of technical elective), 195, 197T
Any upper-division Statistics course except Statistics 100, 102, 103, 104, 106, 108, 120, 130A
Biological Sciences 101, 101D, 102, 103, 104, 120, 120P, 122, 122P, 132
Economics 100, 101, 102, 103, 122, 140
Management 11A, 11B, 100, 120, 140, 150, 160, 170, 180
Upper Division Composition Requirement ..... 0 or 4
One course from the following (a grade of C- or better is required): University Writing Program 101, 102A-L, 104A-T or passing the Upper Division Composition Exam.

Engineering: Mechanical and Aerospace Engineering

Changes to the Mechanical and Aerospace Engineering Undergraduate Programs

The Department of Mechanical and Aerospace Engineering administers two undergraduate programs in the College of Engineering: *(1)* Mechanical Engineering, *(2)* Aerospace Science and Engineering.

For more information about our programs, please see *http://mae.ucdavis.edu/ug.php*.

Mission. The Department of Mechanical and Aerospace Engineering is committed to educating future engineers so that they may contribute to the economic growth and well-being of the state, the nation, and the world, and to the advancement of knowledge in the mechanical and aerospace sciences.

Changes to Mechanical Engineering Program Requirements

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D 16
Mathematics 22A-22B 6
Physics 9A-9B-9C-9D 19
Chemistry 2A-2B or 2AH-2BH 10
Engineering 4 3
Engineering 6 or Mechanical Engineering 5 4
Engineering 17, 35, 45 (or 45Y). 12
Mechanical Engineering 50 4
English 3 or University Writing Program 1, 1Y or 1V, or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better is required) 4
Communication 1 or 3 4

Upper Division Required Courses

Engineering 100, 102, 103, 104, 105, 190 22
Mechanical Engineering 106, 107A & B, 150A, 165, 172 22
Mechanical Engineering 185A & 185B (taken in consecutive quarters), or Aerospace Science and Engineering 130A & 130B ... 8
Select one course from the following Applied Mathematics Electives: Chemical Engineering 140, Civil & Environmental Engineering 114, Computer Science Engineering 130, Engineering 180, Mathematics 118A, 128A, 128B, Mechanical Engineering 115, 151, Statistics 130A, 131A 4
Select one course from the following System Dynamics/Mechanical Design Electives: Engineering 122, Mechanical Engineering 121, 139, 150B, 154 or 171 4
Select two courses from the following Restricted Electives: Aerospace Science and Engineering 129, 138, 140, 141, 142; Engineering 122, 188, Materials Science and Engineering 180, 182; Mechanical Engineering 134, 152, 161, 163, 164. Students may also choose from Aerospace Science and Engineering 130A, 130B, Mechanical Engineering 121, 139, 150B, 151, 154, 171 if these courses are not used in satisfaction of other degree requirements 8
Technical Elective Requirement 7
At least four units must be taken from any Upper Division Engineering course, which may include courses from the above System Dynamics/Mechanical Design or Restricted Elective lists if these courses are not used in satisfaction of other degree requirements.
Up to 4 units may be selected from Mechanical Engineering 185A/B or any engineering 192, 199 not used in satisfaction of other degree requirements. Courses that cannot be used are Biomedical Engineering 110L, Engineering 160, 191, 198 (Gearing up for Graduate School/ undergraduate research), Computer Science Engineering 188 or any 197T course.
Up to three units may be used from the following technical electives list:
Agricultural and Resource Economics 100A, 100B, 112
Applied Biological Systems Technology 101, 142, 165
Atmospheric Science 149, 160
Biological Sciences 2A, 2B, 2C
Chemistry 2C, 2CH, 8A, 8B and any upper division course except Chemistry 195 and 197
Economics 100, 101, 102, 103, 122
Engineering: Any upper division course offered in the college of engineering except Biomedical Engineering 110L, Engineering 160, 191, 198 (Gearing Up for Grad School/Undergraduate Research), Computer Science Engineering 188 or any 197T course
Environmental and Resource Sciences 100, 100L, 121, 131, 136, 185, 186, 186L
Exercise Biology 102
Fiber and Polymer Science 100 (same as Materials Science Engineering 147)
Food Science and Technology 159, 160
Geology 17, 32, 35, 36, 50, 50L, 60, 100, 100L, 101, 101L, 130, 131, 160, 162, 163
Hydrologic Science 110, 124, 134, 141, 142, 143, 144, 146, 151, 182
Management 11A, 11B, 100, 120, 140, 150, 160, 170, 180
Mathematics: any upper division course except Mathematics 197TC
Physics 9HE and any upper division course except Physics 160 (restricted to one unit of technical elective), 195, 197T
Statistics: any upper division course except Statistics 100, 102, 103, 104, 106, 108
Upper Division Composition Requirement ..... 0 or 4
One course from the following (a grade of C- or better is required): University Writing Program 101, 102E, 104A, 104E, 104T or passing the Upper-Division Composition Exam.

Changes to Aerospace Science & Engineering Undergraduate Program

Lower Division Required Courses

UNITS

Mathematics 21A-21B-21C-21D 16
Mathematics 22A-22B 6
Physics 9A-9B-9C-9D 19
Chemistry 2A-2B or 2AH-2BH 10
Engineering 4 3
Engineering 6 or Mechanical Engineering 5 4
Engineering 17, 35, 45 (or 45Y) 12
English 3 or University Writing Program 1, 1Y or 1V, or Comparative Literature 1, 2, 3, or 4, or Native American Studies 5 (grade of C- or better is required) 4
Communication 1 or 3 4

Upper Division Required Courses

Engineering 100, 102, 103, 104, 105, 190 22
Mechanical Engineering 106, 107A & B, 165, 172 18
Aerospace Science and Engineering 127, 129, 130A, 130B, 133, 135, 138 28
Select one course from: Engineering 180, Mechanical Engineering 115 or Mathematics 128C 4
Technical electives 12
One course must be chosen from the following astronautics electives: Aerospace Science and Engineering 140, 141 or 142
The remaining units must be taken from: EME 139 or EAE 126 or from the above Astronautics Electives list if not used in satisfaction of other degree requirements.
Up to 4 units may be selected from any upper-division engineering course including any engineering 192 or 199 not used in satisfaction of other degree requirements. Courses that cannot be used are Biomedical Engineering 110L, Engineering 160, Computer Science Engineering 188 or any 197Tcourse.
Upper Division Composition Requirement ..... 0 or 4
One course from the following (grade of C- or better is required): University Writing Program 101, 102E, 104A, 104E, 104T or passing the Upper-Division Composition Exam.

English

Changes to the English Major

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 20
English 3 or University Writing Program 1 4
One course from: English 40, 43, 44, 45 4
English 10A, 10B, 10C 12

Depth Subject Matter 44
English 110A or 110B 4
Historical Distribution Requirements 20
Three courses focusing on literature written in English before 1800, at least one of which must be on literature written primarily before 1500:
Before 1500
English 111, 113A, 113B
1500-1800
English 115, 117, 122, 123, 142, 150A, 155A, 185A
One course focusing on literature written in English between 1800 and 1900:
English 130, 133, 143, 144, 155B, 158A, 181A, 185B

One course focusing on literature written in English between 1900 and present:
English 137N, 138, 146N, 147, 150B, 155C, 156, 158B, 166, 167, 168, 181B, 185C

Non-Historical Distribution Requirements ... 8
One course on literature and ethnicity, literature and gender, or literature and sexuality:
English 125, 139, 140, 141, 166, 167, 178, 179, 181A, 181B, 185A, 185B, 185C, 186
One course in film and media studies, language studies, cultural studies and contexts, literature and science/technology, or literature and the environment:
English 105, 106, 107, 120, 160, 161A, 161B, 162, 164/Science and Technology Studies 164, 171A, 171B, 172, 173, 175, 180, 182, 183, 184; Linguistics 106; Science and Technology Studies 173
Please note that while some courses are identified as fulfilling more than one distribution requirement, a given course can only fulfill one such requirement.

Area of Emphasis (choose one) 12
Literature, Criticism, and Theory
One upper division English elective.
Two advanced courses, one of which can be a seminar:
Please note that English 110A or 110B is a prerequisite for advanced study in the major.
English 149, 153, 159, 163, 165, 177, 187A, 188A, 189, 194H, 195H
Creative Writing
Three sections of English 100F, 100P, 100NF, 100FA, 100PA

Total Units for the Major 64

Environmental Policy Analysis and Planning

Changes to the Environmental Policy Analysis and Planning Major

B.S. Major Requirements:

UNITS

English Composition and Public Speaking Requirement 3-8
University Writing Program 101, 102A-G, 104A-E, or passing the Upper Division English Composition exam..... 0-4
Communication 1 or 3 or Dramatic Art 10..... 3-4

Preparatory Subject Matter 46-52
Biological Sciences 2A, 10, or 10V..... 4-5
Chemistry 2A..... 5
Plant Sciences 21, or Science & Society 18..... 3
Economics 1A, 1B..... 8
Animal Science 1, Atmospheric Science 60, Biological Sciences 2B, Environmental Science & Management 100, Geology 1 or 134, Plant Sciences 12, or Wildlife, Fish, & Conservation Biology 11..... 3-5
Environmental Science & Policy 1..... 4
Mathematics 16A-16B, 17A-17B, or 21A-21B..... 6-8
Physics 1A, 1B..... 6
Political Science 1 4
Statistics 13 or 32 3-4

Satisfaction of General Education requirement.

Depth Subject Matter 49-51
(Students must take these units on a letter grade basis, and must attain an overall grade point average of 2.000 or higher in the Depth Subject Matter courses.)
Environmental Science & Policy 110, 160, 168A, 168B 17
Environmental Science & Policy 161..... 4
Environmental Science & Policy 178..... 4
Environmental Science & Policy 179..... 4
Select one course from: Agricultural & Resource Economics 106, Sociology 106, Statistics 100, 103, or 108..... 4-5
Agricultural & Resource Economics 100A or Economics 100..... 4
Agricultural & Resource Economics 176, Economics 125, or Environmental Science & Policy 175 4
Applied Biological Systems Technology 150..... 4
Select one course from: Applied Biological Systems Technology 181N, 182, or Environmental Science & Management 185 or 186..... 4-5

Areas of Specialization (choose one)..... 12-17
Students must select courses in the Areas of Specialization that have not been taken in the Depth Subject Matter.

City & Regional Planning
Environmental Science & Policy 171 and 172 8
Select one course from: Civil & Environmental Engineering 162, 165 or Environmental Science & Policy 163 3-4
Select one course from: Art History 168, Community & Regional Development 149, 152, 156, or 171, Environmental Toxicology 110, Environmental Science & Policy 173 or Political Science 100..... 2-5

Climate Change Policy
Environmental Science & Policy 165N..... 3
Select one course from: Agriculture & Resource Economics 176, Economics 125, Environmental Science & Policy 163, 167, or 171 4
Select two courses from: Atmospheric Science 116, 133, or 160, Environmental Science & Management 131, Environmental Science & Policy 116N, Science & Society 25 or 25V..... 6-8

Conservation Management
Select two courses from: Environmental Science & Policy 166N, 169, 170, or 172..... 6-8
Select one course from: Environmental Horticulture 160, Environmental Science & Management 141, Environmental Science & Policy 100, 121, or 127, Evolution & Ecology 115, 138, or Wildlife, Fish, & Conservation Biology 154 or 155 3-5
Select one course from: African American & African Studies 176, 177, Agriculture & Resource Economics 115A, Anthropology 103, Asian American Studies 114, Chicana/Chicano Studies 112, Community & Regional Development 153A, 153B, or 153C, International Relations 104, or Sociology 145A 4

Energy & Transportation Planning
Economics 125, Engineering 106, or Environmental Science & Policy 175..... 3-4
Select two courses from: Civil & Environmental Engineering 162, 165, Environmental Science & Policy 163, 167, or 172..... 7-8
Select one course from: Atmospheric Science 116, Civil & Environmental Engineering 123, 143, Engineering 160, Environmental Science & Management 131, or Geology 130..... 3-4

Environmental Policy & Politics
Select one course from: Political Science 100, 104, 105, 107, or 109..... 4
Select one course from: Political Science 162, 164, 165, or 170 4
Select one course from: Civil & Environmental Engineering 165, Environmental Science & Policy 165N, 166N, 167, 169, 170, 171, 172 3-4
Select one course from: Agricultural & Resource Economics 106, 176, Civil & Environmental Engineering 153, Economics 130, or Environmental Science & Policy 175 4

Integrative Policy
Students choosing this individualized track must consult with a faculty adviser to identify an area of emphasis within this track and to select four upper division courses with a common theme. Possible areas of emphasis are marine policy, pollutants in the environment, planning in the presence of environmental hazards, sustainable development, or environmental and natural resource economics. If you are considering this track, please contact the major adviser as soon as possible.

Water Management
Select two courses from: Environmental Science & Policy 166N, 169, or Hydrologic Science 150..... 6
Select two courses from: Environmental Science & Management 100, 121, Environmental Science & Policy 151, 155, Geology 134, Hydrologic Science 141, 143, Soil Science 118, Wildlife, Fish, & Conservation Biology 120, Biological Sciences 124, Environmental Science & Policy 116N, 124, 150C, or 152 6-8

Total Units for the Degree 110-128

Major Adviser. J. Sanchirico *(Environmental Science and Policy)*

Environmental Science and Management

Changes to the Environmental Science and Management Major

B.S. Major Requirements:

UNITS

English Composition and Public Speaking requirement 3-8
University Writing Program 101, 102A-G, 104A-E, or passing the Upper Division English Composition exam 0-4
Communication 1, 3, or Dramatic Art 10 3-4

Preparatory Subject Matter..... 48-57
Biological Sciences 2A, 2B, 2C..... 15
Geology 1 or 50; (Geology 50 recommended) 3-4
Chemistry 2A, 2B or 2AH, 2BH; (Chemistry 2C or 2CH recommended)..... 10
Physics 1A, 1B, or 7A, 7B, 7C 6-12
Economics 1A 4
Mathematics 16A, 16B, 17A, 17B, or 21A, 21B (Mathematics 17A, 17B recommended) 6-8
Environmental Science and Policy 1 4
Satisfaction of the General Education requirement.

Depth Subject Matter 28-32
Environmental Science and Management 120 4
Environmental Science and Policy 100 or Evolution and Ecology 101 4
Environmental Science and Policy 162 4

Statistics 13 or 100; (Statistics 100 recommended)..... 4
Select one course from: Environmental Science and Management 108 or Environmental Science and Policy 179 .. 3-4
Applied Biological Systems Technology 150..... 4
Internship-Environmental Science and Management or Environmental Science and Policy 192 3
Capstone Class-Environmental Science and Management 195 2
Honors Thesis (optional)-Environmental Science and Management 194H 0-3

Ecology, Biodiversity and Conservation Track 36-46

Select one course from: Atmospheric Science 60, 116, 133, Environmental Science and Management 121, 131, Environmental Science and Policy 152, Geology 134, or Soil Science 100..... 3-5
Select one course from: Environmental Science and Policy 170, 171, 172 or 179..... 4
Evolution and Ecology 100 4
Select one course from: Environmental Science and Policy 127 or Wildlife, Fish, and Conservation Biology 154 4
Select one course from: Environmental Science and Policy 123, 124, Plant Sciences 147 and 147L, or Wildlife, Fish, and Conservation Biology 100 3-4
Select one course from: Environmental Science and Policy 121 or Wildlife, Fish, and Conservation Biology 122 4
Evolution and Ecology 104, 115, Environmental Science and Policy 151, 155, Plant Biology 117 or Wildlife, Fish, and Conservation Biology 155 3-4
Select one course from: Evolution and Ecology 147 or Plant Sciences 162 or Environmental Horticulture 160..... 3-4
Select one biome level course on wetlands, forests, or water (See adviser for list) 3-5
Select one organismal biology course on birds, mammals, or plants (See adviser for list) 3-5
Complete one lab associated with either the biome level or organismal biology course..... 2-3

Natural Resource Management Track 32-41

Select three courses from: Environmental Science and Policy 160, 165N, 166N, 167, 168A, 169, 171, 172 or 179 9-13
Select one course from: Environmental Science and Policy 161 or Hydrologic Science 150..... 3-4
Statistics 103 (or equivalent upper-division statistics) 4
Select two courses from: Entomology 104, Environmental Science and Management 141, 144, Environmental Science and Policy 151, 155, Evolution and Ecology 115, Plant Biology 117, Plant Sciences 130 or Wildlife, Fish, and Conservation Biology 110, 111, 120, or 134..... 6-8
Select two courses from: Atmospheric Science 116, Environmental Science and Management 121, 131 or Soil Science 100..... 6-9
Environmental Science and Management 185 or 186 4

Climate Change and Air Quality Track 32-41

Atmospheric Science 60 4
Select three courses from: Atmospheric Science 115, 116, 133, 160, Environmental Science and Management 131 or Geology 108..... 9-12
Select two courses from: Environmental Science and Management 100, 121, Environmental Science and Policy 116N, Hydrologic Science 143 or Soil Science 100 6-9
Select one course from: Environmental Science and Management 144, Environmental Science and Policy 124, 150C, 151, 155, Evolution and Ecology 115 or Plant Sciences 130.....3-4
Select one course from: Evolution and Ecology 147 or 149 4
Select two courses from: Environmental Science and Policy 163, 165N, 166N, 167, 171, 172 or 179 6-8

Geospatial Information Science Track 33-42

Select two courses from: Applied Biological Systems Technology 181N, 182, Environmental Science and Management 185, or 186 8-9
Select two courses from: Environmental Science and Policy 163, 165N, 166N, 169, 171, 172 or 179 6-8
Select two courses from: Environmental Science and Policy 121, Statistics 104, 106, 108, 130A, 130B or 137 8
Other applicable information technology courses from the Engineering department including database management, digital library science and network and Web technologies may be substituted for spatial information with approval.
Select three courses from the following options. Must cover both physical and biological courses from Atmospheric Science 110, 116, 133, Soil Science 100, Environmental Science and Policy 124, 150C, 151, 152, 155, Geology 136, Plant Sciences 101 or Plant Biology 117 9-14

Soils and Biogeochemistry 38-46

Soil Science 100 5
Select four courses from: Environmental Science and Management 100, Hydrologic Science 134, Soil Science 102, 105, 107, 109, 111, or 120 16-21
Select two courses from: Environmental Science and Management 121, Environmental Science and Policy 165N, 166N, 171, 172 or 179 6-8
Select one course from: Environmental Science and Management 185, Geology 134, Hydrologic Science 147, or Soil Science 118.....3-4
Select two courses from: Atmospheric Science 160, Environmental Science and Management 144, Environmental Science and Policy 116N, 150A, 150C, 151, 155, Geology 132, Plant Biology 117 or Plant Sciences 130 6-8

Watershed Science Track..... 38-47

Environmental Science and Management 121 or Hydrologic Science 10 3
Soil Science 100 5
Select two courses from: Environmental Science and Management 100 or Hydrologic Science 141 (but not both), Hydrologic Science 142, 143, Environmental Science and Management 108 or Hydrologic Science 151 (but not both).....6-8
Select one course from: Geology 35, 136, 139, or 140 3-5
Select one course from: Applied Biological Systems Technology 181N or 182 4
Select one course from: Soil Science 105, 118, or 120 4-5
Select two courses from: Environmental Science and Policy 166N, 168A, 169, 172, 179, Hydrologic Science 150, or Landscape Architecture 60.....6-9
Atmospheric Science 133 4
Select one course from: Entomology 116, Evolution and Ecology 115, or Wildlife, Fish, and Conservation Biology 120 or 134 3-4

Total Units for the Major 111-114

Major Advisers. Marcel Holyoak *(Environmental Science and Policy)* and Terrance Nathan *(Land, Air and Water Resources)*

Advising centers for the major, including peer advising, are located in both the Environmental Science and Policy and Land, Air and Water Resources departments.

Students whose last names begin with the letters A-L, please see Melissa Whaley in 2134 Wickson Hall.

Students whose last names begin with the letters M-Z, please see the advisor in 1150 Plant and Environmental Sciences.

Food Science

Changes to the Food Science Major

B.S. Major Requirements:

UNITS

Preparatory Subject Matter 61

University Writing Program 102F, 104A, or 104E 4
Communication 1 4
Mathematics 16A-16B-16C.....9
Biological Sciences 2A.....5
Chemistry 2A-2B-2C; 8A, 8B (or more advanced series) 21
Physics 7A-7B-7C 12
Food Science and Technology 50 3
Nutrition 10 (or approved substitute).....3

Depth Subject Matter 49

Biological Sciences 102, 103 6
Statistics 100 4
Microbiology 101 5
Food Science and Technology 100A, 100B, 101A, 101B, 103, 104, 104L, 110, 110L 190 30
Food Science and Technology 117 or Statistics 106 4
Food Science and Technology 127 or 107 4

Select one of the following two options:

Food Science Option

The Food Science option provides a broad exposure to food chemistry, food microbiology and food processing. Students find positions in quality assurance, product development, and food processing in the food industry.

Restricted Electives for the Food Science option..... 18

The restricted electives can:
(1) Provide a broad exposure to students who would seek positions in quality assurance, product development, and processing in the food industry
(2) Prepare students for graduate study in food science or related programs,
(3) Prepare students for professional school in the health sciences. Select courses from a master list, which is available from the advising center for the major.

Brewing Science Option

The Brewing Science option prepares students for careers in production or quality assurance within the brewing industry or other food fermentation industries (e.g., other alcoholic beverages, vinegar and cheese). The option also prepares students for graduate study in food science or related programs, and exposes the students to diverse topics, including chemistry, biochemistry, microbiology and processing.

Specific course requirements 18

Food Science and Technology 102A, 102B, 109, 123 18

Selected additional courses 9
Select courses from a master list available from the department Advising Center

Total Units for the Degree..... 132

Major Adviser. A.E. Mitchell *(Food Science and Technology)*

Advising Center for the major is located in 1208 RMI South Building 530-754-8368.

Graduate Study. A program of study and research leading to the M.S. and Ph.D. degrees in Food Science is available (see below). For further information on graduate study, contact the graduate adviser.

Gender, Sexuality and Women's Studies

Effective Fall 2015, the Women and Gender Studies Program has been renamed Gender, Sexuality and Women's Studies.

(College of Letters & Science)

The Major Program

Gender, Sexuality and Women's Studies is an interdisciplinary major founded on the understanding that the social production of gender is inseparable from that of race, sexuality, class, nationality, ability and other categories of difference. Our curriculum places feminist concerns within a transnational context, while respecting the need for geographic and historical specificity. These frameworks inform our teaching, our research, our institutional and community practices, and the principles we bring to our classrooms. Gender, Sexuality and Women's Studies offers a wide range of classes that use the lens of gender to examine colonialism and post colonialism, globalization, history, sexuality, queer theory, literature, popular culture, feminist video production, area studies, film fashion and food. The Program offers both an undergraduate major and minor. We also work collaboratively with other units on campus to sponsor two undergraduate minors, Sexuality Studies and Social and Ethnic Relations, and an undergraduate concentration in transnational production and consumption.

The Program. One of the most exciting and challenging aspects of the Gender, Sexuality and Women's Studies Program is that students, in consultation with the peer and faculty advisors, can pursue their particular academic interests and design their course of study accordingly. In devising their major plan, students will draw on courses offered in African American and African Studies, American Studies, Anthropology, Asian American Studies, Chicana/o Studies, Comparative Literature, English, French, German and Italian Studies, History, Linguistics, Native American Studies, Political Science, Psychology, Sociology, Spanish, Textiles and Clothing, and other related disciplines.

In addition to offering a broad array of courses that deal with gender, class, race, ethnicity, and sexuality, the Gender, Sexuality and Women's Studies Program affords interested students the opportunity to earn internship credit and conduct independent research as well as take advantage of the Honors Thesis option.

Students design a program of study in consultation with an adviser that is in accordance with their individual career goals. Many Gender, Sexuality and Women's Studies majors find it advantageous to pursue a double major, or to minor in another field of study. Upon successful completion of the degree requirements, students majoring in the program will graduate with a Bachelor of Arts in Gender, Sexuality and Women's Studies.

Career Alternatives. A degree in Gender, Sexuality and Women's Studies opens many possibilities for future employment. The major introduces students to relevant social issues, fosters critical thinking, develops strong verbal, writing and research skills and encourages social advocacy.

Pre-professional students will discover that a major in Gender, Sexuality and Women's Studies offers useful preparatory training for medical or law school. It is particularly suitable for those interested in specializing in social policy, international development, social justice or gender-related work in a wide range of institutions and contexts. Students who plan to do practical work in counseling, clinical psychology, social services, education, media or politics will also find a major in Gender, Sexuality and Women's Studies provides a strong foundation. Those who wish to pursue graduate level research in such fields as anthropology, comparative literature, cultural studies, economics, education, ethnic studies, English, film studies, history, languages and literatures, performance studies, philosophy, political science, and sociology will also benefit from a strong Gender, Sexuality and Women's Studies undergraduate background in critical theory, social analysis, history and a sound understanding of cultural representation and narratives of difference.

Increasingly, media and cultural institutions, corporations, and personnel firms are hiring specialists in women and gender studies trained in understanding the complex cultural challenges and demands arising from diverse communities. State and federal agencies need people who have special understanding of the problems that diverse groups of women face in society, industry, and the professions. Educational institutions across the spectrum need specialists to develop and administer women and gender studies programs, multi-cultural community centers, LGBTQ organizations and other organizations designed specifically to deal with gender, social diversity and inequality, and a growing range of old and new social challenges arising in the context of globalization.

Some of our alumni have developed careers other than those described above. Gender, Sexuality and Women's Studies faculty and peer advisors can provide even more ideas about possible future careers. Doing internships related to coursework enables students to integrate theory with hands-on practice and service in the community.

Gender, Sexuality and Women's Studies

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 20
Three courses from: Women's Studies, 50, 60, 70..... 12
Two courses selected from: African American and African Studies 10, 17, American Studies 21, 30, Anthropology 2, 20, 30, Asian American Studies 1, 2, Chicana/o Studies 10, 21S, 50, Comparative Literature 12, Dramatic Art 1, English 3, History 72A, 72B, 85, Native American Studies 10, 32, Political Science 7, Psychology 1, Science and Technology 1,2, 20, 32, Sociology 2, 3, 11, 30A, 30B, Textiles and Clothing 7, Undergraduate Writing Program 19, Women's Studies 20, 80..... 8

Depth Subject Matter 44
Women's Studies 103, 104, 137, 190... 16
Histories and Cultures..... 12
Choose three courses to meet this requirement. May not duplicate those used to meet other Gender, Sexuality and Women's Studies major requirements. The list that follows represents a partial list of options; other courses may be included with the consent of the Gender, Sexuality and Women's Studies Adviser.
African American and African Studies 107A, 107C, 123, 133, 181, Anthropology 126B, 130A, 139AN, 139BN, Asian American Studies 112, 150, Chicana/o Studies 111, 122, 131, Comparative Literature 135, 138, 159, Design 143, English 185A, 185B, French 124, German 114, 168, 176A, History 102M, 148A, 148B, 159, 184, 193A, 193B, 193C, Native American Studies 134, 135, 180, Political Science 166, Religious Studies 157, 161, Sociology 131, 134, 145B, 158, 172, Women's Studies 102, 130, 138, 145, 146, 148, 158, 160, 174, 175, 176, 178A-F, 180, 182, 184, 185, 187.
Thematic Cluster Tracks..... 16
Choose one of three cluster tracks. Choose four courses that form a thematic cluster, at least two of which are Women's Studies courses specified for the track. Courses used to meet this requirement may not duplicate those used to meet other Gender, Sexuality and Women's Studies major requirements. Students may also develop their own thematic or interdisciplinary cluster in consultation with the faculty advisor.

Track 1: Social Justice, Gender Politics and Activism
Requires two of the following Women's Studies courses: 102, 140, 145, 146, 148, 170, 175, 182, 187, 192, 193.
Requires two depth electives from: African American and African Studies 17, 123, 133, Anthropology 126B, 139BN, Asian American Studies 112, Chicana/o Studies 100, 110, 111, 112, 130, 131, 131S, 182, History 150, 159, 160, Native American Studies 180, Political Science 166, Sociology 133, 158, 172, Science and Technology 129, 150.

Track 2: Culture, Power, and Resources
Requires two of the follow Women's Studies courses: 136, 138, 139, 148, 160, 162, 164, 165, 176, 178A-F, 180, 182, 185.
Requires two depth electives from: African American and African Studies 181, Asian American Studies 141, 150S, Anthropology 126B, 128B, Chicana/o Studies 145, 147, 160, 170, 171, Comparative Literature 159, English 155B, 185A, Film Studies 120, 125, 129, 165, German 114, Linguistics 163, Science and Technology 129, 150, Textiles and Clothing 107.

Track 3: Sexualities, Subjectivities and Body Politics
Requires Women's Studies 170 and one course from: 130, 136, 138, 158, 160, 174, 175, 176, 187.
Requires two depth electives from: African American and African Studies 123, Asian American Studies 112, Anthropology 139BN, Chicana/o Studies 112,120,122,154,160, English 166,186, History 102M, 184, Native American Studies 134,135,180, Psychology 158,159.

Total units for the major 64

Major Adviser. All Gender, Sexuality and Women's Studies majors and minors must consult with a faculty adviser, individually, at least once each academic year.

Minor Program Requirements:

UNITS

Gender, Sexuality and Women's Studies 24
Women's Studies 20, 50, 60, 70 or 80 ... 4
Choose one from: African American and African Studies 123, 133, Anthropology 126B, 130A, 139BN, Asian American

Studies 112, Chicana/o Studies, 111, 122, 131, Native American Studies 134, 180, Sociology 131, 132, 134, 145B, 158, 172, Women's Studies 160, 180..... 4
Choose one from: Anthropology 148B, Comparative Literature 135, 138, 159, English 129, 185A, 185B, History 102G, 102H, 102M, 148A, 148B, Women's Studies 102, 180, 182, 184..... 4
Additional Electives from approved list of upper division cross-listed and Women's Studies courses 12
Note: With prior consultation with an adviser, other upper division courses may be accepted toward the minor program. Under no circumstances may more than one lower division course be offered in satisfaction of requirements for the minor.

Minor Adviser. All Gender, Sexuality and Women's Studies majors and minors must consult with a faculty adviser, individually, at least once each academic year.

Graduate Study. The Gender, Sexuality and Women's Studies Program offers a designated emphasis in Feminist Theory and Research for students enrolled in the Ph.D. programs of fifteen other affiliated departments.

Global Disease Biology

New Major & Minor in Global Disease Biology

(College of Agricultural and Environmental Sciences)

Department of Plant Pathology.

Program Office. 152 Hutchison Hall 530-754-7277.

Master Advisor. TBA

Committee in Charge

Patricia A. Conrad, D.V.M, Ph.D., Professor *(Pathology, Microbiology and Immunology)*
Satya Dandekar, Ph.D., Professor *(Medical Microbiology and Immunology)*
Thomas Gordon, Ph.D., Professor *(Plant Pathology)*
David M. Rizzo, Ph.D., Professor *(Plant Pathology)*
Dori Borjesson, D.V.M, Ph.D., Professor *(Pathology, Microbiology and Immunology)*
Joie Watson, D.V.M, Ph.D., Professor *(Medicine and Epidemiology)*
Michael S. Wilkes, M.D., M.P.H., Ph.D., Professor *(Internal Medicine)*

Faculty

Faculty includes members of the Departments of Plant Pathology, on page 479; Veterinary Medicine, School of, on page 545; Medicine, School of, on page 400.

The Major Program

The Global Disease Biology major offers students the opportunity to study disease and its relationship to health of people, animals, plants, and the environment. The program uses an integrated approach to advance student understanding of the concept(s) of disease, the societal and personal impacts of past, present and future diseases, and the science behind disease discoveries, causes, evolution, diagnosis, treatment, and prevention. The program recognizes the interconnectedness of people, animals, plants, and the environment and aims to identify and address the fundamental causes of poor health around the world. Managing global disease problems requires a multifaceted, holistic approach to address the full spectrum of human, animal, plant, and environmental health risks (also known as a One Health approach). Throughout a series of core courses, human, animal, and plant health issues, along with tools available to solve these problems, will be introduced to provide students with real-world scenarios in which they can apply and advance their creative and critical thinking skills. The major prepares graduates with the knowledge, leadership skills and experiences required to excel in professions associated with global health, the environment, food safety and security, biological safety and security, and health policy.

The Program. The Global Disease Biology major will provide students with broad preparatory scientific course work, global disease biology core classes, flexibility in upper division electives, and a strong research experience. Global Disease Biology core classes are intended to be transdisciplinary and focus on concepts that cut across human, animal, and plant diseases offering a unifying ecological and quantitative perspective on disease.

Students plan their chosen emphasis of study as part of a required discussion course and in consultation with their adviser. Students will draw from many undergraduate courses currently offered on disease and health in a way that compliments the core courses required for the Global Disease Biology major. The major includes a senior research project, which each student designs to bridge the disciplines of the major.

Internships and Career Alternatives. The program and interests of each student in solving societal problems guides students to a range of internship and career choices. On and off-campus internship opportunities are available in research laboratories, in field situations, with governmental agencies, with private industry, and in international programs. A degree in Global Disease Biology prepares students for careers in research, teaching, governmental regulation, health care industry, or agriculture (food safety/ food security) as each relates to disease and health of people, animals, and plants. Students in the major gain research experience and may choose to continue their training at the graduate or professional level in a variety of biological disciplines. Careers in medicine, veterinary medicine, and plant pathology are open to Global Disease Biology majors.

B.S. Major Requirements:

UNITS

Preparatory Subject Matter.....60-62
Global Disease Biology 90 1
Science and Society 13 3
Biological Sciences 2A-2B-2C..... 15
Chemistry 2A-2B-2C, and 8A-8B or 118A-118B.....21-23
General Physics 7A-7B 8
Mathematics 17A-17B-17C..... 12

Depth Subject Matter 46-51
Biological Sciences 101, 105 7
Evolution and Ecology 100 4
Microbiology 101..... 5
One course from Statistics 13, 100; Plant Sciences 120 4
Pathology, Microbiology & Immunology 129Y 3
VM Medicine and Epidemiology 158..... 3
Global Disease Biology 101, 102 8
Two courses from Plant Pathology 120; Pathology, Microbiology & Immunology 127, 128; Microbiology 162; Entomology 153,156/156L; Global Disease Biology 103.....6-9
Global Disease Biology 187 3
Global Disease Biology 189 3

Restricted Electives..... 25
Focused specialty upper division courses as outlined in the student's major proposal (from course 187) with approval of an adviser.

Total Units for the Degree 125-134

Recommended
Biological Sciences 101D 1
Global Disease Biology 189D 1

Minor Program Requirements:

A minor in Global Disease Biology may complement student's major program. Some courses have required prerequisites not included as part of the minor, and students should plan accordingly.

UNITS

Global Disease Biology 20-22
Science and Society 13.....3
Pathology, Microbiology & Immunology 129Y 3
VM Medicine and Epidemiology 158 3
Global Disease Biology 101, 102 8
One course from: Plant Pathology 120; Pathology, Microbiology & Immunology 127, 128; Microbiology 162; Entomology 153,156/156L; Global Disease Biology 103 3-5

Minor Program Advisor: TBA

Advising Center for the minor is located in 152 Hutchison Hall 530-754-7277.

Global and International Studies

Changes to the Minor Program Requirements

The minor is overseen by a Program Committee. For more information, see *http://studyabroad.ucdavis.edu/students/*.

Minor Program Requirements:

UNITS

Global and International Studies.....23-25

Arts and Humanities Emphasis:
One course from: Anthropology 4, 20, International Relations 1, Political Science 3 or Sociology 5 4
One upper division UC Davis general course on global international studies.....3-4
See program advisor for a list of approved courses.
Course cluster requirement.....16-17
The minor requires the selection of interrelated courses totaling a minimum of 16-17 upper division units in area and regional studies or thematic course clusters in global and international studies.
Suggested course clusters include:
(1) Country or region-specific courses: Western Europe; Russian and East/Central Europe; Asia and the Pacific; Latin and South America; Africa and the Middle East; Jewish Studies; specific countries.
or
(2) Courses clustered around a thematic field in global and international studies: people and nationalities; the individual and society, arts, language, literature and culture.

Study Abroad and International Internships. The course cluster requirement may be met in one of two ways: *(1)* completion of a minimum of 16-17 units in the course cluster emphasis by taking approved UC Davis upper division courses in the area of global/international studies and/or approved upper division courses taken while participating in UC Study Abroad or another approved study abroad program, or *(2)* completion of 12 units of course work in a UC Davis accredited international internship, plus UC Davis courses sufficient to total 16-17 units. Students must meet with the GIS advisor and complete a Course Cluster Worksheet to demonstrate subject interrelatedness.

Restrictions. No more than two courses from a single UC Davis Department may be offered in satisfaction of the minor requirements.

Foreign Language Study. Students are strongly encouraged to study a foreign language, particularly the language of the country in which and about which they intend to study. However, only upper division coursework may be used to fulfill requirements for the minor.

Human Development

Changes to the Minor Program Requirements

The Major Program

Human development explores the developmental process in humans throughout the life cycle. Biological, cognitive, and personality/sociocultural aspects of development are studied.

The Program. Human development majors complete a group of preparatory courses in anthropology, general biology, genetics, history, philosophy, physiology, psychology, and statistics. Upper division students can design their programs in consultation with a faculty member to emphasize a particular interest. For instance, students can study the cognitive, social, and biological aspects of human development while emphasizing child or adult development.

Internships and Career Alternatives. At least one practicum course is required. A second practicum or supervised internship can be used to fulfill the restricted elective requirement for the major. In addition, students can intern in schools, early childhood education or senior centers, hospitals, rehabilitation centers, probation offices, group foster homes, mental health clinics, or as tutors for handicapped or bilingual students. Human development graduates fill a wide variety of positions in preschools, elementary and special educational settings, programs designed for parents, families, and the elderly, as well as governmental jobs related to social services for people of all ages. Students who emphasize biological aspects of human development can apply to medical school or pursue training for positions in the health sciences. Human development prepares students to pursue advanced degrees in behavioral and social sciences, education, social work, family law, or health sciences.

Preparatory Requirements. UC Davis students who wish to change their major to Human Development must be in good academic standing. Students must complete the following courses with a combined grade point average of at least 2.500. All of the following courses must be taken for a letter grade:

Psychology 1
Statistics 10 or 13 or Psychology 41 or Sociology 46A and 46B
One course from: Anthropology 1, 2 or 15
One course from: Biological Sciences 2A, 10, 10VMessianic01; Microbiology 10; Molecular and Cellular Biology 10; or Neurobiology, Physiology, and Behavior 10, 12 or 101

Students must have achieved a 2.00 GPA in any required upper-division courses taken prior to declaring the major.

All courses satisfying the Preparatory Subject Matter, Depth Subject Matter, Restricted Electives and English requirement must be taken for a letter grade.

B.S. Major Requirements:

UNITS

Preparatory Subject Matter 38-48

Two courses from: Anthropology 1, 2, or 15 8-9
One course from: Biological Sciences 2A, 10, 10V, 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 3-5
Psychology 1 4
One course from: Psychology 41 or Sociology 46A and 46B, or Statistics 10 or 13 4-9

Depth Subject Matter 50-54

Life Span: Human Development 100A, 100B, 100C 12
Research Methods: Human Development 120 4
Biological Processes: one course from: Biological Sciences 101†, Human Development 117, Nutrition 111AV, or Psychology 121 3-4
Social-Cultural Processes: one course from: Human Development 102, 110, 130, or 160 4
Cognitive Processes: one course from: Human Development 101, 103, 132, 161 or 163 4
Practicum: 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.
At least one of the courses from the Depth Subject groups or Restricted Electives listed above must focus on childhood/adolescence (101, 102, 103, 110, 130, 132) and one on adulthood/aging (117, 143, 160, 161, 163).

English Composition Requirement 12

Three courses in English Composition from the following list:
English 3, University Writing Program 1, 18, 19, 101, 102A, 102B, 102C, 102D, 102E, 102F, 102G, 102H, 102J, 102K, 102L, 104A, 104B, 104C, 104D, 104E, 104F, 104I, Communication 1, Comparative Literature 1, 2, 3, 4, or Native American Studies 5. At least one course must be selected from University Writing Program 101, 102A-H, 104A-F.
The Upper Division Composition Exam does not satisfy the requirement.
Advanced Placement English score of 4 or 5 which satisfies English 3 and/or University Writing Program 1 will satisfy one of the three required courses.

Total Units for the Major 100-114

† Biological Sciences 101 cannot be used to satisfy both the Preparatory Subject Matter and the Depth Subject Matter Requirements.

Major Adviser. Lisa Miller

India & South Asia Studies

New minor in India & South Asia Studies

(College of Letters & Science)

The minor in India & South Asia Studies covers an area of immense historical, cultural, economic, demographic, and geopolitical significance. The minor is designed to emphasize the interconnected and comparative aspect of history, culture, society, economy, religion, gender relations, media, law, political economy, international relations, urbanism, migration and diaspora, language and literatures across regional and national boundaries. It is an interdisciplinary minor open to undergraduates in all four colleges.

Minor Program Requirements:

UNITS

India & South Asia Studies 20-24

Middle East/South Asia 100 4
Middle East/South Asia 180 4
Choose one from History 196A or History 196B 4
Choose one from Middle East/South Asia 181B or 182B 4
Additional Electives from Core Course list (below) 4-8

Core Course List:
Middle East/South Asia 112, 181B, 182B; Anthropology 145; Asian American Studies 150F; Comparative Literature 53B, 148, 156; Hindi 1, 2, 3, 21, 22; 23; History 8, 102Q, 196A, 196B; Music 148; Religious Studies 30, 68, 69, 156, 157.

With prior consultation with an advisor, students can petition in advance the Program Committee to accept other elective courses toward the minor program if the content is 50% or more on the Indian & South Asian World. Under no circumstances may more than one lower division course be offered in satisfaction of requirements for the minor.

With prior consultation with an advisor, students can petition the Program Committee to accept more than four units of Middle East/South Asia 181B and/or Middle East/South Asia 182B towards the minor program.

Integrative Pathobiology (A Graduate Group)

New Graduate Group in Integrative Pathobiology

Patricia Pesavento, Ph.D., Chairperson of the Group

Group Office. 5218, Vet Med 3A
530-752-3737; *http://www.vetmed.ucdavis.edu/integrativepath/*

Faculty

Verena Affolter, D.V.M., Ph.D., Professor *(Pathology, Microbiology and Immunology)*
Robert Atwill, D.V.M., M.P.V.M., Ph.D., Professor *(Population Health and Reproduction)*
Danika Bannasch, D.V.M., Ph.D., Associate Professor *(Population Health and Reproduction)*
Andreas Baumle, Ph.D., Professor *(Microbiology and Immunology)*
Alexander Borowsky, M.D., Associate Professor *(Department of Pathology and Laboratory Medicine)*
Peter A. Barry, Ph.D., Associate Professor *(Pathology and Oncology)*
Nicole Baumgarth, D.V.M., Ph.D., Associate Professor *(Pathology, Microbiology, and Immunology)*
Charles L. Bevins, M.D., Ph.D., Professor *(Microbiology and Immunology)*
Dori L. Borjesson, D.V.M., M.P.V.M., Ph.D., Associate Professor *(Pathology, Microbiology and Immunology)*
Walter M. Boyce, D.V.M., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Aaron C. Brault, Ph.D., Assistant Professor *(Pathology Microbiology and Immunology)*

Hilary A. Brodie, M.D., Ph.D., Professor *(Otolaryngology)*
Robert J. Brosnan, D.V.M., Ph.D., Assistant Professor *(Surgical and Radiological Sciences)*
Barbara A. Byrne, D.V.M., Ph.D., Assistant Professor *(Pathology, Microbiology, and Immunology)*
Robert D. Cardiff, M.D., Ph.D., Professor *(Pathology)*
Kermit Carraway, Ph.D., Professor *(Biochemistry and Molecular Medicine)*
Veronica Cerdeno, Ph.D., Assistant Professor (Pathology and Laboratory Medicine)
Hongwu Chen, Ph.D., Associate Professor *(Cancer Center, Basic Sciences)*
Tsung-Yu Chen, M.D., Ph.D., Associate Professor *(Cancer Center, Basic Science)*
Xinbin Chen, B.V.M., Ph.D., Professor *(Surgical and Radiological Sciences*
Anthony T.W. Cheung, Ph.D., Professor *(Pathology)*
Bruno B. Chomel, D.V.M., Ph.D., Professor *(Population Health and Reproduction)*
Mary M. Christopher, D.V.M., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Brett Chromey, Ph.D., Assistant Adjunct Professor *(Pathology and Laboratory Medicine)*
Alan J. Conley, D.V.M., Ph.D., Professor *(Population Health and Reproduction)*
Patricia A. Conrad, D.V.M., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Beate Crossley, D.V.M., Ph.D., M.P.V.M., Assistant Professor *(Department of Medicine and Epidemiology)*
James S. Cullor, D.V.M., Ph.D., Professor *(Population Health and Reproduction)*
Ftiz-Roy E. Curry, B.E., Ph.D., Professor *(Biomedical Engineering)*
Satya Dandekar, Ph.D., Professor *(Microbiology and Immunology)*
Wenbin Deng, B.M., M.S., Ph.D., Assistant Professor *(Cell Biology and Human Anatomy)*
Peter Dickinson, D.V.M., Ph.D., Assoc. Professor *(Neurology/Neurosurgery)*
Thomas B. Farver, Ph.D., Professor *(Population Health and Reproduction)*
Janet Foley, MS, D.V.M., Ph.D., Assistant Professor *(Medicine and Epidemiology)*
Rodrigo Gallardo, D.V.M., Ph.D. Assistant Professor *(Population Health and Reproduction)*
Damian Genetos, B.A., M.S., Ph.D., Assistant Professor *(Anatomy, Physiology and Cell Biology)*
Laurel J. Gershwin, D.V.M., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
M. Eric Gershwin, M.D., Professor *(Rheumatology)*
Paramita Ghosh, Ph.D., Associate Professor *(Biochemistry and Molecular Medicine)*
Ralph Green, M.D., Ph.D., Professor *(Medical Pathology and Laboratory Medicine)*
Johannes Hell, Ph.D., Professor *(Department of Pharmacology)*
Geraldine Hunt, D.V.M., Ph.D., Professor *(Surgical and Radiological Sciences)*
Dallas M. Hyde, Ph.D., Professor *(Anatomy, Physiology and Cell Biology)*
James H. Jones, D.V.M., Ph.D., Professor *(Surgical and Radiological Sciences)*
Amy Kapatkin, B.S., D.V.M., M.S. Associate Professor *(Surgical and Radiological Sciences)*
Imram Khan, Ph.D., M.B.A, Assistant Adjunct Professor *(Pathology and Laboratory Medicine)*
Gerald J. Kost, M.D., Professor *(Pathology and Oncology)*
Athanasiou Kyriacos, B.S., M.S., Ph.D., Professor and Chair *(Biomedical Engineering)*
Kit S. Lam, M.D., Ph.D., Professor *(Hematology/Oncology)*
Gregory C. Lanzaro, M.S., Ph.D., Professor *(Pathology, Microbiology and Immunology)*
Michael Lairmore, D.V.M., Ph.D, Professor and Dean *(Pathology, Microbiology and Immunology)*
Kent Leach, Ph.D., Associate Professor *(Biomedical Engineering)*
Rance B. LeFebvre, Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Jian-Jian Li, M.D., Ph.D., Professor *(Radiation Oncology)*
Kent K.C. Lloyd, D.V.M., Ph.D., Professor *(Anatomy, Physiology and Cell Biology*
Su Hao Lo, M.A., Ph.D., Associate Professor *(Orthopaedic Surgery)*
Paul A. Luciw, Ph.D., Professor *(Pathology and Oncology)*
Bruce G. Lyeth, M.S., Ph.D., Professor *(Neurological Surgery)*
N. James MacLachlan, B.V.Sc., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
John E. Madigan, M.S., D.V.M., Professor *(Medicine and Epidemiology)*
Jonna A.K. Mazet, D.V.M., M.P.V.M., Ph.D., Professor *(Medicine and Epidemiology)*
Michael McChesney, M.D., Professor Emeritus *(Pathology and Laboratory Medicine)*
Stephen McSorley, B.Sc., Ph.D. Associate Professor *(Anatomy, Physiology and Cell Biology)*
Matthew Mellema, Assistant Professor *(Surgical and Radiological Sciences)*
Stuart Meyers, D.V.M., Ph.D., Associate Professor *(Anatomy, Physiology and Cell Biology)*
Chris J. Miller, D.V.M., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Lisa Miller, B.S., Ph.D., Associate Professor *(Anatomy, Physiology and Cell Biology)*
Woutrina Miller, B.A., D.V.M., M.P.V.M., Ph.D., Assistant Adjunct Professor *(Pathology, Microbiology, and Immunology)*
Suzannee Miyamoto, Ph.D., Assistant Research Biochemist *(Internal Medicine)*
F. Charles Mohr, D.V.M., Ph.D, Professor of Clinical Anatomic Pathology *(Pathology, Microbiology, and Immunology)*
Peter F. Moore, B.V.S.C., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Brian Murphy, D.V.M., Assistant Professor *(Pathology, Microbiology & Immunology)*
William Murphy, M.D., Professor *(Dermatology)*
Jan Nolta, Ph.D., Professor *(School of Medicine, Internal Medicine)*
Sean Owens, Ph.D., Assistant Professor *(Pathology, Microbiology, and Immunology)*
Joanne Paul-Murphy, D.V.M., Professor *(Medicine and Epidemiology)*
Niels C. Pedersen, D.V.M., Ph.D., Professor *(Medicine and Epidemiology)*
Patricia Pesavento, D.V.M., Ph.D., Assistant Professor *(Pathology, Microbiology & Immunology)*
Kent E. Pinkerton, Ph.D., Professor *(Anatomy, Physiology and Cell Biology) Distinguished Teaching Award-Graduate/Professional*
David E. Pleasure, M.D. Professor *(Neurology and Pediatrics)*
Rachel E. Pollard, D.V.M., Ph.D., Assistant Professor *(Surgical and Radiological Sciences)*
Jerry S. Powell, M.D., Professor *(Anatomy, Physiology and Cell Biology)*
Thomas P. Prindiville, M.D., Professor *(Internal Medicine)*
Sarah Puchalski, B.Sc., D.V.M. Associate Professor (Surgical and Radiological Services)
Rajen Ramsamooj, M.D., Professor *(Pathology and Laboratory Medicine)*
A. Hari Reddi, M.S., Ph.D., Professor *(Orthopedic Surgery)*
William Reisen, Ph.D., Professor *(Pathology, Microbiology and Immunology)*
Robert Rebhun, D.V.M., Ph.D., Assistant Professor *(Surgical and Radiological Sciences)*
Alexander Revzin, Ph.D., Associate Professor *(Biomedical Engineering)*
Janet F. Roser, Ph.D., Professor *(Animal Science)*
Benjamin Sacks, Ph.D., Assistant Professor *(Population Health & Reproduction)*
Michael F. Seldin, M.D., Ph.D., Professor *(Biological Chemistry and Molecular Medicine)*
Jared Shaw, Assistant Professor *(Chemistry)*
Christina Sigurdson, Associate Professor *(Pathology, Microbiology and Immunology)*
Simon Scott, Ph.D., Professor *(Biomedical Engineering)*
David Smith, Ph.D., Professor *(Anthropology)*
Ellen Sparger, D.V.M., Ph.D., Associate Professor *(Medicine and Epidemiology)*
Joshua Stern, B.S., D.V.M., Assistant Professor *(Medicine and Epidemiology)*
Colleen Sweeney, Ph.D., Professor *(Biochemistry and Molecular Medicine)*
Jeffrey L. Stott, Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Susan M. Stover, D.V.M., Ph.D., Professor *(Anatomy, Physiology and Cell Biology)*
Julie Sutcliffe, Ph.D., Associate Professor *(Biomedical Engineering)*
Jane E. Sykes, B.V.Sc., Ph.D., Assistant Professor *(Medicine and Epidemiology)*
Fern Tablin, V.M.D., Ph.D., Professor *(Anatomy, Physiology and Cell Biology)*
Yoshikazu Takada, M.D., Ph.D., Professor *(Department of Dermatology)*
Alice F. Tarantal, Ph.D., Professor *(Pediatrics)*
Jose V. Torres, Ph.D., Professor *(Microbiology)*
Nam Tran, Ph.D., Assistant Adjunct Professor *(Department of Pathology and Laboratory Medicine*
Renee M. Tsolis, Ph.D., Assistant Professor *(Microbiology and Immunology)*
Francisco Uzal, D.V.M., Ph.D., Associate Professor of Clinical Diagnostic Pathology *(Pathology, Microbiology, and Immunology)*
Laura Van Winkle, Ph.D., Associate Professor *(Anatomy, Physiology and Cell Biology)*
William Vernau, Ph.D., Associate Professor *(Pathology, Microbiology and Immunology)*
Richard Vulliet, D.V.M., Ph.D., Professor *(Molecular Biosciences)*
Sebastian Wachsmann, M.D., Associate Professor *(Pathoology)*
Yu Jui Yvonne Wan, Ph.D., Professor *(Pathology and Laboratory Medicine)*
Johanna L. Watson, D.V.M., Ph.D., Associate Clinical Professor *(Medicine and Epidemiology)*
Scott Weber, D.V.M., Ph.D. *(Associate Professor)*
Robert H. Weiss, M.D., Professor *(Internal Medicine, Division of Nephrology)*
Dennis W. Wilson, D.V.M., Ph.D., Professor *(Pathology, Microbiology, and Immunology)*
Erik R. Wisner, D.V.M., Professor *(Surgical and Radiological Science)*
Jian Wu, M.D., Ph.D., Assistant Adjunct Professor *(Internal Medicine)*
Reen W. Wu, Ph.D, Professor *(Internal Medicine)*
Clare Yellowley, Ph.D., Professor *(Anatomy, Physiology and Cell Biology)*
Tilahun Yilma, D.V.M. Ph.D. Professor *(Pathology, Microbiology and Immunology)*
Michael Ziccardi, D.V.M. M.P.V.M., Ph.D., Associate Professor of Clinical Wildlife Health *(Pathology, Microbiology and Immunology)*
Chengji Zhou, Ph.D., Associate Professor *(Center for Neuroscience)*

Affiliated Faculty

Kristina Abel, M.Sc., Ph.D., Assistant Adjunct Professor *(Internal Medicine)*
Mary Chang, MS, Ph.D. Assistant Researcher *(Internal Medicine)*
Marta L. Marthas, Ph.D., Adjunct Professor *(Pathology, Microbiology, and Immunology)*
Michael B. McChesney, Ph.D., Associate Adjunct Professor *(Pathology and Oncology)*
Lisa Miller, Ph.D., Assistant Research Cell Biologist *(Anatomy, Physiology and Cell Biology)*
Woutrina A. Miller, D.V.M., M.P.V.M., Ph.D., Assistant Adjunct Professor *(Pathology, Microbiology and Immunology)*
William K. Reisen, Ph.D., Adjunct Professor and Research Entomologist *(Pathology, Microbiology and Immunology*
Ellen E. Sparger, D.V.M., Ph.D., Associate Adjunct Professor *(Medicine and Epidemiology)*
Coleen Sweeney, Ph.D., Assistant Adjunct Professor *(Biochemistry and Molecular Medicine)*
Laura Van Winkle, Associate Adjunct Professor *(Anatomy, Physiology and Cell Biology)*
Joseph G. Zinkl, D.V.M., Ph.D., Professor Emeritus *(Pathology, Microbiology and Immunology)*

Graduate Study. The Graduate Group in Integrative Pathobiology offers the M.S. and Ph.D. degrees for graduate study in disciplines concerned with disease processes. The group's focus is the study of the causes and nature of disease processes in animals and humans, with major emphasis on the mechanisms responsible for the development of diseases at the level of organ systems, the cell, or subcellular mechanisms. The group brings a wide array of scientific knowledge to this study, so that students with divergent interests can be accommodated in programs designed for individual needs. Beyond core courses selected from disciplines such as anatomy, bacteriology, genetics, immunology, parasitology, pathology, physiology, and virology, course programs are intentionally flexible.

Preparation. This program is primarily for students who have a professional medical degree; e.g., D.V.M., M.D., D.D.S. Students without a professional degree will be considered if they have an especially strong background in basic biomedical sciences.

Graduate Adviser. Jeffrey Stott *(Pathology, Microbiology, and Immunology)*

International Agricultural Development

Changes to the International Agricultural Development major

B.S. Major Requirements:

UNITS

Preparatory Subject Matter 36-38
- International Agricultural Development 10 4
- Plant Sciences 2 4
- Soil Sciences 10 or 100 3-5
- Economics 1A and 1B 8
- Statistics 13 or Sociology 46B or Plant Sciences 120 4
- Math 16A 3
- Community and Regional Development 1 4
- Six units from: Agricultural and Resource Economics 15, Animal Science 41, 41L, Community and Regional Development 20, Nutrition 10, Plant Sciences 1, 15, 49 6

Depth Subject Matter 32
- Agricultural and Resource Economics 147 or Plant Sciences 101 3
- Economics 115A 4
- Five units from: International Agricultural Development 142, 160, Plant Sciences 110A, 110C, 110L, 112, 130 5
- International Agricultural Development 103 and International Agricultural Development 170 8
- Sociology 170 or Community and Regional Development 141 or 162 4
- Community and Regional Development 142 or 149 or 152 4
- Political Science 123 or 124 or Sociology 145A or Anthropology 126A or 126B or 131 4

Foreign Language Requirement 0-15

Students must complete three sequenced quarters (15 units) of courses in one foreign language or its equivalent. Passing a foreign language proficiency examination, a score of 5, 4, or 3 on a foreign language Advanced Placement examination (except Latin), or a score of 550 on the SATII: Subject Test will also satisfy this requirement.

Internship Requirement 4

Students must complete at least four units of internship. Internships can be chosen in consultation with an adviser. Internship requirement waived for students enrolled in the UC Education Abroad Program.

Areas of Specialization 44-45
- Agricultural Production Option 45
  - Biological Sciences 2A and 2B 10
  - Chemistry 2A and 2B 10
  - 15 units from: Animal Science 118, 124, 136A, 136B, 143, 144, 145, 146, Avian Sciences 121, Entomology 110, 135, Environmental Horticulture 100, 133, Environmental Science and Management 100, Hydrology 124, International Agricultural Development 142, 160, Plant Pathology 120, Plant Sciences 110A, 110C, 110L, 112, 113, 114, 130, 150, 170A, 170B, 172, 176, Soil Sciences 109, 118 15
  - Restricted Electives: Courses selected in consultation with an adviser 10
- Trade and Economic Development Option 44-45
  - Mathematics 16B 3
  - Sociology 1 or Anthropology 2 4-5
  - 20 units from: Agricultural and Resource Economics 15, 100A, 100B, 115B, 120, 121, 130, 136, 138, 139, 175, 176, Community and Regional Development 141, Economics 160A, 160B, Textiles and Clothing 174 20
  - Restricted Electives: Courses selected in consultation with an adviser 17
- Environmental Issues Option 45
  - Biological Sciences 2A and 2B 10
  - Environmental Science and Policy 1 4
  - 16 units from: Agricultural and Resource Economics 147, 175, 176, Environmental Science and Policy 100, 101, 105, 110, 160, 161, 170, 171, 172, 175, Plant Sciences 101, 147, 147L, 150, Environmental Horticulture 150, 160, 160L 16
  - Restricted Electives: Courses selected in consultation with an adviser 15
- Rural Communities Option 45
  - Sociology 1 4
  - Anthropology 2 4
  - 16 units from: Community and Regional Development 140, 147, 149, 151, 152, 153A, 153B, 154, 164, 172, 176, 180 16
  - Restricted Electives: Courses selected in consultation with an adviser 20

Total Units for Major 116-134

International Agricultural Development Abroad 0-40

Major Adviser. P. Brown in 3041 Wickson Hall *(Plant Sciences)*

Advising Center for the major is located in 1220 Plant and Environmental Sciences 530-752-1715.

International Relations

Changes to the International Relations Major Requirements

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 28-54
- Economics 1A or Anthropology 2 4
- Economics 1B 4
- History 4C or 10C 4
- Political Science 3 4
- Statistics 13 or Sociology 46B 4-5
- Political Science 2 4
- Political Science 51 4

Note: Preparatory Subject Matter does not cover all potential prerequisite courses for upper division curriculum.

Foreign language 0-30

One of the following series in a single language, or certified fluency at the highest level required below:
- Arabic 1, 2, 3, 21, 22, 23 30
- Chinese 1, 2, 3, 4, 5, 6 30
- or Chinese 1A, 4, 5, 6 30
- or Chinese 1CN, 2CN, 3CN 15
- or Chinese 1BL, 2BL, 3BL 15
- French 1, 2, 3, 21, 22 25
- German 1, 2, 3, 20, 21 23
- Hebrew 1, 2, 3, 21, 22, 23 30
- Hindi/Urdu 1, 2, 3, 21, 22, 23 30
- Italian 1, 2, 3, 4, 5 21
- or Italian 1, 2, 3, 8A, 8B 21
- Japanese 1, 2, 3, 4, 5, 6 30
- or Japanese 1A, 4, 5, 6 30
- Portuguese 1, 2, 3, 21, 22 25
- Russian 1, 2, 3, 4, 5 23
- Spanish 1, 2, 3, 21, 22 25
- or Spanish 31, 32, 33 15
- Note: The language curricula are subject to change; please check with an adviser for the major. A language not listed above may be substituted only with prior written approval of the International Relations Program Committee.

Depth Subject Matter 36-48

Tracks I, II and II: Twelve upper division courses
Track IV: Nine upper division courses
Choose one track below:

Track I: World Trade and Development

Emphasizes contemporary economic relations of industrialized and developing countries.
- *For Advanced Industrialized Focus:*
- Economics 100; 101; 160A-160B, Political Science 123 20
- Two courses selected from Group A 8
- One course selected from Group B 4
- Four courses to fulfill Area Studies Requirement 16
- *For Developing Countries Focus:*
- Economics 115A-115B, 162 12
- Political Science 123, 124 8
- One course selected from Group A 4
- Two courses selected from Group B 8
- Four courses to fulfill Area Studies Requirement 16
- *Group A courses (Advanced Industrialized Countries):*
  - Agricultural and Resource Economics 138, Anthropology 127, Community and Regional Development 118, 141, Economics 102, 110B, International Relations 104, Political Science 130, 140A, 140B, 140C, 140D, 140E, Sociology 138, 139, 141, 183
- *Group B courses (Developing Countries):*
  - Anthropology 122A, 122B, 126A, 126B, 127, Community and Regional Development 153A, 153B, 153C, 180, Economics 110B, International Agricultural Development 103, International Relations 104, Political Science 124, 126, 142A, Science and Society 121, Sociology 138, 141, 145A, 145B

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.

Select five courses spanning two disciplines:
- Economics 162, History 120, 174B, 174C, Political Science 120, 121, 130, or 132 20
- Three additional courses from at least two departments selected from: Comparative Literature 157, Economics 122, History 145, 146A, 146B, Philosophy 118, Political

Science 112, 122, 124, 126, 131, 140A, 140B, 140C, 140D, 140E, Religious Studies 131, 134, Sociology 100, 118, 157, Women's Studies 102..... 12
Four courses to fulfill Area Studies Requirement 16

Track III: Global Environment, Health, and Natural Resources

Familiarizes students with new sources of global interdependence such as biodiversity, natural resource conflicts, population growth, and world health.

Note: Some courses shown below have additional prerequisites.
Economics 162..... 4
Political Science 123 4
Environmental Science and Policy 161 or 162..... 4
Select one from Anthropology 101, 131, Environmental Science and Policy 164, Philosophy 120..... 4
Select two from Agricultural and Resource Economics 147, 175, 176, Anthropology 103, Applied Biological Systems Technology 182, Economics 115A, 125, Environmental Science and Policy 164, International Agricultural Development 170, Philosophy 120, Physics 160, Political Science 107, 175, Sociology 160..... 7-8
Select two from one of the following groups 4-8
Atmospheric and Marine Environments: Atmospheric Science 116, 149, Environmental and Resource Sciences 131, Environmental Science and Management 120, 121, Environmental Science and Policy 166N, Geology 116N
Land Use and Energy Supply: Anthropology 104N, Community and Regional Development 142, Environmental and Resource Sciences 144, Environmental Science and Policy 167, Geology 130, 134, Plant Sciences 101, 144, 150, 160, Political Science 171
Health and Human Populations: Anthropology 102, 121, 129, 131, Environmental Science and Policy 121, Environmental Toxicology 101, Internal Medicine-Infectious Diseases 141, Nutrition 111AV, 111B, 118, Sociology 170
Four courses to fulfill Area Studies Requirement 16

Track IV: Peoples and Nationalities

Examines social and cultural foundations of national development and international relations.

Select two courses from: Anthropology 102, 123AN, 130A, Sociology 118, or 181..... 8
Select one course each from three of the following four groups..... 12
The Mixing of Peoples: Anthropology 130BN, 139AN; Community and Regional Development 176; International Relations 104; Political Science 126
Women: Anthropology 126B, 139BN; Human Development 103; Sociology 145B; Women's Studies 102, 182
Religion: Anthropology 124, 134; Philosophy 105; Religious Studies 106, 161, 170; Sociology 146
Development and its Impact on Social Cleavages: Anthropology 122B, 126A, 126B; Community and Regional Development 180, Political Science 124, 142A; Science and Society 121, Sociology 145A, 145B
Four courses to fulfill Area Studies Requirement 16
Education/Internship Abroad for a minimum of one quarter

Area Studies Requirement

Four courses: Courses must incorporate at least two of three groups (History, Social Analysis, Culture and Literature); we encourage students to take all four courses from one region, but will accept a minimum of three from one region and one from a different region. Tracks I, II and III students who choose to take advantage of an Education Abroad experience may fulfill the Area Studies requirement by completing three courses instead of four; all three courses must be from one region.

Africa and the Middle East
History: History 113, 115A, 115B, 115C, 115D, 115F, 193B, 193C
Social Analysis: African American and African Studies 107C, 110, 111, 156, 176, 177, Anthropology 140A, 140B, 142, Community and Regional Development 153C, Political Science 135, 136, 146A, 146B, Religious Studies 163, 167, Women's Studies 184, 185
Culture and Literature: African American and African Studies 153, 157, 162, Art History 150, Comparative Literature 147, 166, Dramatic Art 155A, French 124, Jewish Studies 111

East and South Asia
History: History 191E, 191F, 194C, 194D, 194E, 195B, 196B
Social Analysis: African American and African Studies 107C, Anthropology 143A, 143B, 147, 148A, 148B, 148C, 149B, Community and Regional Development 153A, Economics 171, Political Science 148A, 148B, 148C, Religious Studies 157, 165, Sociology 147, 188
Culture and Literature: Anthropology 145, Art History 153, 163C, Chinese 101, 103, 104, 105, 110, 132, Comparative Literature 110, Dramatic Art 154, East Asian Studies 113, Japanese 103, 104, 105, 106, 131, 132, 133, 135, 136, Religious Studies 156

Latin America
History: History 159, 162, 163B, 164, 165, 166B, 167, 168
Social Analysis: African American and African Studies 107A, 180, Anthropology 144, 146, Chicana/o Studies 130, Native American Studies 120, 133B, Political Science 143A, 143B, Sociology 158
Culture and Literature: African American and African Studies 163, Art History 151, Chicana/o Studies 160, Comparative Literature 152, 165, Dramatic Art 155A, Native American Studies 184, Portuguese 163, Spanish 149, 151N, 153, 154, 155, 156, 157, 158, 160, 170, 172

Russian and East/Central Europe
History: History 138B, 138C, 143
Social Analysis: Political Science 144A, 144B
Culture and Literature: Russian 123, 124, 129, 130, 133, 150

Western Europe
History: History 140, 141, 142A, 144B, 145, 146A, 146B, 147B, 147C, 151D
Social Analysis: African American and African Studies 107C, Community and Regional Development 153B, Political Science 137, 147A, 147B, 147C, 147D, 161
Culture and Literature: Studies 121, 176A, 176B, French 108, 120, 121, 133, German 112, 114, 115, 117, 118B, 118C, 118E, 120, 126, 129, 141, 142, 143, 168, 185, Italian 107, 108, 120A, 120B, Spanish 137N, 138N, 139, 140N, 141, 142, 148, 157, 170

Total units for the major.....64-102

Major Adviser. Daniel Kono *(Political Science)*

Iran & Persian Studies

New minor in Iran & Persian Studies

(College of Letters & Science)

The Iran & Persian Studies minor offers students courses on history and culture in the Iran & Persian world during the early modern and modern periods. It is an interdisciplinary minor open to undergraduates in all four colleges

UNITS

Iran & Persian Studies 20-24
Middle East/South Asia 100.....4
Middle East/South Asia 180.....4
Choose one from: History 190D or History 190D.....4
Choose one from: Middle East/South Asia 181A or 182A 4
Additional Electives from Core Course list (below).....4-8
Core Course List:
Middle East/South Asia 131A/Cinema & Technocultural Studies 146A, Middle East/South Asia 151A, 181A, 182A, Comparative Literature 155, History 190D, 193D.

With prior consultation with an advisor, students can petition in advance the Program Committee to accept other elective courses toward the minor program if the content is 50% or more on the Iranian and Persian World. Under no circumstances may more than one lower division course be offered in satisfaction of requirements for the minor.

With prior consultation with an advisor, students can petition the Program Committee to accept more than four units of Middle East/South Asia 181A and/or Middle East/South Asia 182A towards the minor program.

Italian

Changes to the Italian Program

The Major Program

The major in Italian provides a solid language background which will enable the student to develop an appreciation for the numerous Italian contributions not only to the arts, but also to political theory, science, literature and other expressions of human creativity, which continue to influence our global world.

The Program. The Italian program is geared to the specific needs and interests of the students, who enjoy the advantages of a small classroom setting and the individualized mentoring of dedicated professors. While the use of Italian is stressed in language and literature courses, the Italian program is interdisciplinary in nature. Starting at the lower-division level, students collaborate closely with academic advisers in order to design a major or minor curriculum which includes culture, film, art history, history, food science and other courses in related fields offered on campus or in Italy. The Italian program actively participates in the UC-wide Education Abroad Program, the Quarter Abroad Program (Florence), the International Internships Program, and the Summer Sessions International (Rome), all of which offer opportunities for travel and study in Italy.

Career Alternatives. The Italian Program provides a solid foundation for a variety of career paths by offering training in Italian language and culture and developing skills that are vital in any professional setting: critical analysis, interpersonal skills, effective written and oral communication, and cultural sensitivity. In addition to specific career paths in

Foreign Service and education, knowledge of the Italian language and culture enhances professional opportunities in a variety of fields, such as, viticulture and enology, food science, political science, medicine, architecture and engineering.

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 0-27

Italian 1, 2, 3, 4, 5, and 9 (or the equivalent)..... 0-27

Depth Subject Matter 36

Italian 101 and 105..... 8
Seven additional courses in Italian, literature, cinema and culture 28
Must include at least one course from two of the following literary periods (taught in Italian):
(a) Early Italian Literature: Italian 112, 113, 114, 145, if applicable
(b) Renaissance and Baroque Italian Literature: Italian 115A, 115B, 115C, 115D, 141, 145, if applicable
(c) Modern and Contemporary Italian Literature: Italian 118, 119, 120A, 120B, 131, 142, 145, if applicable
Upper division General Education courses in Italian may fulfill this requirement with approval of the major adviser.
The remaining five upper-division elective courses may include, but are not limited to, additional Italian literature or culture taught in Italian, Italian culture courses taught in English, and/or upper-division elective courses in related fields, such as Italian and Italian American Cinema (Italian 150, Italian/Film Studies121, Film Studies 120), and other courses in Italian Studies taught in other departments and programs, subject to approval by the major adviser.
All upper division courses are to be chosen in consultation with the major adviser.

Total Units for the Major 36-63

Recommended

Study abroad in Italy for a period of one year, one semester, or one quarter, and/or the study of Latin or another Romance Language.

Major Adviser. M. Heyer-Caput

Minor Program Requirements:

UNITS

Italian 20

Italian 101 and 105..... 8
Three additional upper division courses in Italian literature, cinema and culture 12
One course chosen from two of the following three areas:
(a) Early Italian Literature: Italian 112, 113, 114, 145, if applicable
(b) Renaissance and Baroque Italian Literature: Italian115A, 150B, 150C, 150D, 141, 145, if applicable
(c) Modern and Contemporary Italian Literature: Italian 118, 119, 120A, 120B, 131, 142, 145, if applicable).
The remaining two upper-division elective courses may include, but are not limited to, additional Italian literature or culture taught in Italian, such as Italian 104 and Italian 128, and Italian culture and film courses taught in English, such as Italian 150, Italian/Film Studies 121, Film Studies 120, such to approval by the minor adviser.

Minor Adviser. M. Heyer-Caput

Honors and Honors Program. Candidates for high or highest honors in Italian must write a senior thesis under the direction of a faculty member. For this purpose, honors candidates must enroll in Italian 194H (3 units) and Italian 195H (3 units). Normally, a student will undertake the honors project during the first two quarters of the senior year; other arrangements must be authorized by the department chair. Only students who, at the end of the junior year (135 units), have attained a cumulative grade-point average of 3.500 in courses required for the major will be eligible for the honors program. The requirements for earning high and highest honors in Italian are in addition to the regular requirements for the major in Italian.

Education Abroad Program. The department of French and Italian strongly encourages students to study abroad in the Summer Abroad program (Rome), the Quarter Abroad Program (Florence), or the Education Abroad Program. Applicable courses taken on EAP are accepted for credit in the major or the minor programs.

Teaching Credential Subject Representative. See the Major Adviser above; see the Teaching Credential/M.A. Program on page 126.

Prerequisite Credit. Credit will not normally be given for a course if it is a prerequisite of a course already successfully completed. Exceptions can be made only by the major adviser.

Quarter Abroad Program. The UC Davis Quarter Abroad Program and the Italian Program offer an exciting Italian Language and Culture Program in Florence, Italy. While studying abroad in Florence, students will earn 23-28 UC Davis quarter units and experience the richness and vitality of Italian and European culture.

Participants fulfill three-quarters-worth of Italian language study, enroll in culture and film courses, integrate in the Florentine community through meaningful internships with transcript notation, and explore electives in areas such as art history, photography, and food science.

There is no language requirement, and all registered UC Davis students with 2.000 GPA and above, good academic standing, and good disciplinary standing are eligible to apply.

For more information, please contact Professor Margherita Heyer-Caput at *mheyercaput@ucdavis.edu* or see *http://quarterabroad.ucdavis.edu*.

Managerial Economics

Changes to the B.S. Major Requirements

The Major Program

The Managerial Economics major at UC Davis is a disciplinary program combining strong preparation in microeconomic theory and quantitative methods. It prepares students for the analysis of management and policy issues in business, finance, marketing, production, agriculture, food distribution, natural resources, the environment, resource allocation, and international trade and development. Students specialize in one of four options: *(1)* Business Economics focuses on the economic aspects of managerial decision-making. *(2)* International Business Economics explores the economic drivers and policy challenges in the major emerging markets. Topics include the role of rising incomes, population growth, urbanization and relative wages on world markets and natural resources. Focus is on how emerging markets are impacting the world economy. *(3)* Environmental and Resource Economics concentrates on issues related to the use of resources and environmental quality. *(4)* Agricultural Economics focuses on the economic and policy aspects of production and marketing of foods and fibers.

Students in the Managerial Economics program develop valuable skills and strengths that lead to careers in business and government.

Internships and Career Alternatives. Students in managerial economics have opportunities to gain additional career information and preparation through internships in a variety of private business and governmental agencies. Graduates qualify for supervisory and management training positions in banking, finance, commodity and stock brokerages in the private sector, farm and ranch production, food and agricultural processing, sales and service, and a variety of agency career positions in local, state, and federal government. Graduates are well qualified to seek advanced degrees in agricultural and resource economics, economics, business administration, public policy, or law. For more information, see *http://iccweb.ucdavis.edu*.

Study Abroad. The Agricultural and Resource Economics department encourages students who would like to complement their Managerial Economics degree with a study abroad experience. Up to eight units of upper division credit (excluding core courses) from international campuses may be used towards the completion of the degree or the minor. To ensure that such courses will apply towards the Managerial Economics degree or minor, students need to select courses from the pre-approved list at UC Davis Study Abroad or seek pre-approval in the Agricultural and Resource Economics department for the courses they wish to complete abroad.

Graduate Study. Students who meet the admission requirements of Graduate Studies and the Department of Agricultural and Resource Economics may pursue studies leading to the M.S. and Ph.D. degrees. For information on admission to graduate study, degree requirements, consult the Graduate Program Coordinator in the Department of Agricultural and Resource Economics; also see *http://agecon.ucdavis.edu*.

B.S. Major Requirements:

UNITS

Major English Requirement 8

Choose one course from: Communications 1 or 3 4
University Writing Program 104A..... 4
(The upper-division composition exam will not satisfy this requirement.)

Preparatory Subject Matter..... 39-41

Agricultural and Resource Economics 18 .. 4
Economics 1A-1B..... 8
One course from: Plant Sciences 21, Engineering Computer Science 10, 15 or 30 3-4
Management 11A-11B..... 8
Mathematics 16A-16B-16C, 17A-17B, or 21A-21B.....8-9
Statistics 13, 103 8

Total Depth Subject Matter 52-55

Core 20

Agricultural and Resource Economics 100A, 100B, 106, 155 and Economics 101

Restricted Electives..... 32-35

Choose at least one of the options below:

Business Economics option
Choose at least 16 units from: Agricultural and Resource Economics 112, 118, 119, 136, 157, 171A, 171B.
Select the remaining 16 units from the above list or from Agricultural and Resource Economics 115A, 115B, 120, 121, 130, 132, 138, 139, 140, 143, 144, 145, 146, 150, 156, 175, 176, 194HA-194HB, Economics 115A, 115B, 121A, 121B, 151A, 151B, 160A, 160B.

International Business Economics option
Choose at least 20 units from Agricultural and Resource Economics 115A, 115B, 138, 139, 146, Economics 115A, 115B, 160A, 160B, 171.
Select the remaining 12 units from the above list or from Agricultural and Resource Economics 130, 171A, 171B, 175, 176, Economics 121A, 121B, Political Science 130.

Environmental and Resource Economics option

Agricultural and Resource Economics 175 and 176 8
Choose at least 16 units from: Agricultural and Resource Economics 120, 132, 138, 140, 145, 146, 150, 156, Economics 125, 130 Environmental Science and Policy 168A, 168B, 178.
Select 4 units from the above list or upper-division courses in Agricultural and Resource Economics, Economics, or Environmental Science and Policy 160, 161, 163, 165N, 166N, 167, 171, 172, 173 or Environmental Toxicology 138.

Agricultural Economics option
Choose at least 16 units from Agricultural and Resource Economics 120, 121, 130, 132, 138, 139, 140, 145, 150.
Select the remaining 16 units from the above list or upper division courses in Agricultural and Resource Economics and/or Economics.

Select the remaining 16 units from the above list or upper division courses in Agricultural and Resource Economics and/or Economics.

*Students must attain a major GPA of at least a *C* average (2.000) in courses taken for depth subject matter. These courses must be taken for a letter grade. All restricted elective courses taken will be calculated as part of the major GPA, including courses with *F* grades that have not been repeated.

Total Units for the Major 99-104

Minor Program Requirements:

UNITS

Managerial Economics 24

Agricultural and Resource Economics 100A, 100B, and 106 12
At least 12 units from the following Agricultural and Resource Economics 107, 112, 130, 136, 138, 139, 143, 145, 146, 150, 155, 156, 157, 171A, 171B, 175, 176.

Prerequisites for courses taken for the minor are required and students should plan accordingly. One upper division class to satisfy the minor may be taken for Passed/Not Passed grading. All minor courses must be taken in residence; no more than two pre-approved study abroad courses are allowed.

Mathematics

New major in Mathematical Analytics and Operations Research

B.S. Major Requirements:

Preparatory Subject Matter 43-50

Mathematics 12 (or high school equivalent) 0-3
Mathematics 21A, 21B, 21C, 21D, 22B, 25..... 23
One of the following two options:
a) Mathematics 22A and 108
OR
b) Mathematics 67 4-7
Mathematics 22AL or equivalent basic knowledge of MATLAB..... 0-1
Computer Science 30 4
Economics 1A, 1B..... 8
Statistics 32 or 103 4
NOTE: Basic knowledge of MATLAB is required for both 22A and 67. Students can learn it on their own; enroll in Engineering 6, Mechanical Engineering 5, or in the one unit course Mathematics 22AL (can be taken concurrently).

Depth Subject Matter 51-55

A. Entry Level (Optional).....0-4
Choices: 1 course from Mathematics 108, 114, 115A, 141, 145
B. Core..... 35
Mathematics 125A, 125B 8
Mathematics 128A 4
Mathematics 135A, 135B 8
Mathematics 150A 4
Mathematics 160..... 4
Mathematics 168..... 4
Mathematics 189..... 3
C. Enrichment Courses..... 16
1. Choice of 2 courses from Mathematics 114, 118A, 118B, 118C, 119A, 119B, 128B, 133,145, 165, 167; Statistics 131B, 131C, 137 8
2. Choice of 2 courses from Economics 100, 121A, 121B, 122, 134, 140, 145; Agricultural and Resource Economics 155, 156, 157 8

Total Units for the Major 94-105

Molecular and Cellular Biology

Changes to the Genetics and Genomics Major Program

B.S. Major Requirements:

UNITS

Preparatory Subject Matter.....56-66

Biological Sciences 2A-2B-2C..... 15
Chemistry 2A-2B-2C or 2AH-2BH-2CH... 15
Chemistry 8A-8B or 118A-118B-118C 6-12
Mathematics 17A-17B-17C or 21A-21B (21C recommended) 8-12
Physics 7A-7B-7C..... 12

Depth Subject Matter 40-48

Biological Sciences 101, 102 + 103 (or 105), 104 10-13
Molecular and Cellular Biology 121, 182 6
Evolution and Ecology 100 or Biological Sciences 181 3-4
Molecular and Cellular Biology 164 or Biological Sciences 183 3
Molecular and Cellular Biology 160L or Biological Sciences 180L..... 5
Statistics 100 or 130A-130B.....4-8
Restricted Electives 9
Select at least nine additional units from the following:
Biological Sciences 134, 181, 183
Biotechnology 150
Engineering: Computer Science 124
Evolution and Ecology 100, 102, 131, 150, 161, 175
Microbiology 105, 150, 170
Molecular and Cellular Biology 150, 162, 163, 164
Plant Biology 112, 113
Plant Science 154
Or upper division courses in genetics or other fields relevant to the student's interest chosen in consultation with the adviser. No more than 4 units of 192, 193, 198, or 199 may be used for credit in this category.

Total Units for the Major 96-114

Music

Changes to the Music Major & Minor Program

A.B. Major Requirements:

UNITS

Preparatory Subject Matter.....27-45

Music 6A, 6B, 6C 9
Plus Music 2A, 2B, 2C ..... (0-6)*
And Music 16A, 16B, 16C..... (0-6)*
Music 7A, 7B, 7C 9
Plus Music 17A, 17B, 17C ..... (0-6)*
Music 24A, 24B, 24C 9
* May be excused by diagnostic examination at the beginning of each quarter.

Depth Subject Matter 40-43

Choose upper division courses from one of the following tracks:

Track 1: Music Composition.....42
Music 123, 124A, 124B.....9
Music 121 or 122 4
Music 131 (one year).....6
Music 195 2
At least 6 units selected from: Music 140-151 6
Music 101A, 101B.....8
Music 103 3
At least 4 further units selected from: Music 102, 105, 106, 107A, 107B, 108A, 108B, 110A-G, 113, 114, 115, 116, 121, 122, 126, 129A-D, 192, 198, 199 4

Track 2: Music History, Theory, and Ethnomusicology.....43
Music 123, 124A, 124B.....9
Music 121 and/or 122.....8
Need eight units of seminar courses chosen from above in any combination. Note: Music 121 and 122 may be repeated for credit.
Music 131, one year.....6
Music 195 2
At least 6 units selected from: Music 140-151 6
At least 12 further units selected from: Music 101A, 101B, 102, 105, 106, 108A, 108B, 110A-G, 113, 114, 115, 116, 121, 122, 126, 129A-D, 192, 198, 199 12

Track 3: Music Performance.....40
Music 123, 124A, 124B.....9
Music 121 or 122 4
Music 131 (one year).....6
Music 195 2
At least 13 units selected from: Music 131, 140-151.....13
At least 6 further units selected from: Music 101A, 101B, 102, 105, 106, 108A, 108B, 110A-G, 113, 114, 115, 116, 121, 122, 126, 129A-D, 192, 198, 199 6

Total Units for the Major 64-85

Note: A maximum of 19 units in performance courses (Music 131, 140-151) apply toward the degree; see Unit Credit Guidelines, College of Letters and Science degree requirements section. Faculty of the College of Letters and Science bylaws makes it possible for students to take more than 19 units of performance classes without those additional units counting toward the 225-unit cap on units:

Composition Honors 46-50
Music 101A, 101B..... 8
Music 123, 124A, 124B..... 9
Music 103..... 3
Music 121 or 122..... 4
Music 131 (one year) 6
At least six units selected from: Music 140-151 6
Two quarters of Music 194H for a total of at least six units resulting in a Senior thesis 6
At least four-eight further units from: Music 102, 105, 106, 107A, 107B, 107C, 108A, 108B, 110A-G, 113, 114, 115, 116, 121, 122, 126, 129A-D, 192, 198, 199 4-8
Music History, Theory and Ethnomusicology Honors..... 47
Music 123, 124A, 124B..... 9
Music 121 or 122 (twice)..... 8
Music 131 (one year) 6
At least 6 units selected from: Music 140-151 6
Two quarters of Music 194H for a total of at least 6 units resulting in a Senior thesis 6
At least 12 further units selected from: Music 101A, 101B, 102, 105, 106, 108A, 108B, 110A-G, 113, 114, 115, 116, 121, 122, 126, 129A-D, 192, 198, 199 12

A student becomes eligible for graduation with honors by meeting the minimum GPA and course requirements established by the College of Letters and Science. To qualify for high or highest honors, students must also complete the Music Department honors program with a GPA of 3.500 or above and write a thesis or submit a portfolio that meets the criteria for high honors or highest honors. Students apply to participate in the department honors program during the latter part of their junior year. Admission to the program is based on GPA, a thesis proposal, examples of previous writing, and the recommendation of a faculty member who is willing to sponsor the student's project. Students who anticipate seeking admission to the honors program are urged to complete at least one offering of Music 121 or 122 before the end of their junior year. Interested students are urged to consult with faculty in their field early in their junior year.

Major Advisers. C. Reynolds (A-F), A. Triest (G-M), L. San Martin (N-Z)

Minor Program Requirements:

UNITS

Music 22

A minimum of 16 units of upper division Music courses 16
Courses chosen from: Music 105, 106, 107A, 107B, 110A-G, 115, 116, 126, 129A-D
A minimum of six units in upper division music performance courses 6
Courses chosen from: Music 140, 141, 142, 143, 144, 145, 146, 147, 148, 149, 150, 151

Natural Sciences

Changes to the Natural Sciences Major Requirements

B.S. Major Requirements:

UNITS

Preparatory Subject Matter 68-74

Chemistry 2A, 2B, 2C 15
Biological Sciences 2A, 2B, 2C 15
Geology 2, 3, 3L, 50L, 60 13
Mathematics 16A, 16B, 16C or 17A, 17B, 17C or 21A, 21B, 21C 9-12
Physics 7A, 7B, 7C or 9A, 9B, 9C ... 12-15
Statistics 100..... 4

Depth Subject Matter 42

Concentration (chosen from among the four fields of concentration listed below)..... 27
Supplementary Field; chosen from among the four fields listed below. May not include the same field as the concentration. The same course may not be used to fulfill the requirements for both a Concentration and a Supplementary Field. 15

Total Units for the Major 110-116

Fields of Concentration:

Chemistry..... 27-36
Chemistry 105..... 4
Chemistry 107A-107B or 110A-110B-110C 6-12
Chemistry 118A-118B or 128A-128B-129A-129B 8-10
Chemistry 124A 3
One course from Chemistry 100, 104, 118C, 128C 3-4
Three units from Chemistry 197, 199 or Education/Geology 181, 183..... 3
Earth Science 27
Geology 62, 101, 101L, 105, 109, 109L, 116N, 163 21
Once course from Geology 107, 108, 131..... 3
Three units from Geology 199 or Education/Geology 181, 183..... 3
Life Science 27-33
Chemistry 8A, 8B or 118A, 118B, 118C 6-12
Biological Sciences 101..... 4
Evolution and Ecology 100, 101 or approved electives and Biological Sciences 105..... 8
Neurobiology, Physiology, and Behavior 101..... 5
Four units from Biological Sciences 199, Evolution and Ecology 199, Molecular and Cellular Biology 199, or Neurobiology, Physiology, and Behavior 199 or Education/Geology 181, 183..... 4
Physics..... 27
Chemistry 107A, 110A 7
Geology 161, 162, 163 9
Physics 108, 108L, 160..... 7
Four units from Physics 199 or Education/Geology 181, 183 4

Supplementary Fields:

Chemistry..... 15-17
Chemistry 100..... 3
Chemistry 104 or 105..... 3-4
Chemistry 107A 3
Chemistry 118A or 128A 3-4
Chemistry 124A 3
Other Chemistry or related science courses may be substituted with the prior approval of the major adviser.
Earth Science 15
Geology 108, 109, 109L, 116N..... 10
Geology 138 or 140..... 4
Approved elective 1
Other Geology or related science courses may be substituted with the prior approval of the major adviser.
Life Science 15
Biological Sciences 101*..... 4
Evolution and Ecology 100 4
Neurobiology, Physiology, and Behavior 101..... 5
Approved electives..... 2
Other Biological Sciences or related science courses may be substituted with the prior approval of the major adviser.
Physics..... 15
Physics 108..... 3
Chemistry 107A 7
Geology 161, 162, 163 9
Approved electives..... 2
Other Physics or related science courses may be substituted with the prior approval of the major adviser.
*Note: Students pursuing a concentration in earth science or physics may not have had the necessary prerequisites in organic chemistry.

Major Advisers. H. W. Day *(Earth and Planetary Sciences)*, T. Hill *(Earth and Planetary Sciences)*

Philosophy

Changes to the Philosophy A.B. Major Requirements

The Major Program

Philosophy addresses problems and questions that arise in all areas of human thought and experience and in all disciplines. Recurring questions about the nature of value, the good life, right conduct, knowledge, truth, language, mind, and reality are central to philosophical study. Philosophy also investigates the methodologies and assumptions of the major disciplines in the university in order to deepen our understanding of the sciences, of mathematics, art, literature, and history, and of religion and morality. It leads us to address issues about the nature of these subjects, about the methods of reasoning characteristic of them, and about the contributions they make to our understanding of ourselves and our world.

Philosophy contributes to the liberal education of its students. The department emphasizes an analytic approach to philosophical questions, which trains students to understand and evaluate arguments and to think and write precisely and clearly. These skills are of immense value in a variety of careers.

The Program. The Department of Philosophy offers its majors a choice among three options. The General Emphasis provides a broad view of the field of philosophy. It includes a breadth requirement at the lower division level while providing students wide choice in more advanced courses. The Pre-Law and Pre-Med Emphases include courses that provide philosophical perspective on law and medicine respectively and that also provide important preparation for professional school.

The Department offers courses in most areas of contemporary analytic philosophy including the theory of knowledge, metaphysics, logic, ethics, and political philosophy. In addition, upper division courses are offered in moral and political philosophy, and aesthetics, and in the philosophy of religion, of mind, of language, of mathematics, of law, and of the physical, biological and social sciences. The problems of philosophy have important roots in past. The history of philosophy is important not only as part of the heritage of educated persons, but also because it is relevant to contemporary issues. For these reasons, the department places great emphasis on the history of philosophy, providing courses on the major figures and traditions of western philosophy.

Career Alternatives. Students of philosophy learn to understand and evaluate arguments and to think and write precisely and clearly. These analytical skills are assets in any career. Many of our majors have pursued graduate study in philosophy and have become philosophers in their own right. Others have pursued academic careers in related disciplines in the humanities and social sciences. Philosophy majors are well prepared for law, business, or other professional schools and have found careers in computer programming, government service, teaching, the ministry, and social work. Those wishing to attend law school or medical school should considering pursuing the Pre-Law and Pre-Med emphases, respectively.

A.B. Major Requirements:

General Emphasis

UNITS

Preparatory Subject Matter..... 16

One course from any three of the following areas..... 12
(a) General Philosophy: Philosophy 1
(b) Ancient Philosophy: Philosophy 21
(c) Early Modern Philosophy: Philosophy 22
(d) Philosophy of Mind: Philosophy 13G
(e) Ethics: Philosophy 14, 15 or 24
(f) Philosophy of Science: Philosophy 30, 31, 32 or 38
(g) Philosophy of Language: Philosophy 17
(h) Metaphysics: Philosophy 101
(i) Theory of Knowledge: Philosophy 102
Philosophy 12..... 4

Depth Subject Matter 36

Upper division units in Philosophy 36
Note: Philosophy 101 and 102 may not be counted toward both preparatory and depth subject matter units.

Total Units for the Major 52

Pre-Law Emphasis

UNITS

Preparatory Subject Matter..... 16

One course from any of the following three:..... 4
Philosophy 14, 15, or 16
Philosophy 5..... 4
Philosophy 12..... 4
Philosophy 24..... 4

Depth Subject Matter 36

Any three courses from the following six:..... 12
Philosophy 102, 116, 118, 128, 189C, or 189F
Philosophy 112 4
Philosophy 119 4
Additional upper division elective units in philosophy 16

Total Units for the Major 52

Pre-Med Emphasis

UNITS

Preparatory Subject Matter..... 16

One course from any of the following four: 4
Philosophy 24, 30, 31, or 32
Philosophy 12..... 4
Philosophy 15..... 4
Philosophy 38..... 4

Depth Subject Matter 36

One course from any of the following four: 4
Philosophy 107, 108, 128, 189I
Philosophy 112..... 4
Philosophy 121..... 4
Additional upper division elective units in philosophy 24

Total Units for the Major 52

Note: Admission to medical schools requires additional coursework not included in the Pre-Med Emphasis.

Major Advisers. G.J. Mattey, Marina Oshana

Advising Office. 1240 Social Science and Humanities

Political Science

Changes to the Political Science Minor Requirements

Minor Program Requirements:

Students electing a minor in Political Science need to take six upper division Political Science courses.

UNITS

Political Science 24

Science and Technology Studies

Changes to the Science and Technology Studies A.B. Major Requirements

A.B. Major Requirements

UNITS

Preparatory Subject Matter..... 16

Science and Technology Studies 1 4
Science and Technology Studies 20 4
Eight units selected from American Studies Eight units selected from American Studies 1A, 1E, 5; Environmental Studies 1; Humanities 3; Philosophy 30, 31, 32; Science and Society 1, 2, 3, 5; Science and Technology Studies 32; Lower-division science courses from the Approved Science Electives list below 8

Depth Subject Matter 44

Twelve units each from two of the following four modules: 24
(1) Cultural Studies of Science and Technology: American Studies 101G, 158; Cinema and Community and Regional Development 118, 162; History 139A, 139B; Science and Technology Studies 108, 109, 120, 130A, 131, 150, 160, 162, 165, 173, 176; Sociology 150, 175 12
(2) Ethics, Values, and Science Policy: Agricultural and Resource Economics 120, 147; American Studies 125; Communication 170; Computer Science 188; Environmental Science and Policy 165; History 185B; Philosophy 116, 120,; Physics 137, 160; Plant Pathology 140; Political Science 171, 175; Science and Technology Studies 108, 120, 162, 164; Veterinary Medicine 170 12
(3) History and Philosophy of Science: History 135A, 135B, 136, 185A, 185B; Philosophy 104, 108, 109; Science and Technology Studies 120, 130A, 130B, 131, 160, 161, 163, 164 12
(4) Medicine, Society, and Culture: American Studies 101G; Communication 165; Epidemiology and Preventive Medicine 101, 160; History 139A, 139B; Psychology 160; Science and Technology Studies 109, 120, 121; Sociology 154 12
Note: Although a course may be listed in more than one module, that course may satisfy only one requirement.
Science and Technology Studies 175 4
Science and Technology Studies 180 or 190 4
Science Electives: Select twelve units, at least eight of which must be from upper division courses, from the Approved Science Electives list below. (Unit totals will vary with required prerequisites.)..... 12-32
Note: Students are strongly advised to choose science elective courses in consultation with faculty advisors. Some courses in some areas may require prerequisites too extensive to be used for the STS major.

Total Units for the Major 60-80

Approved Science Electives. Courses may be drawn from any of the following approved subject areas:

Aeronautical Science and Engineering; Animal Genetics; Animal Science; Anthropology; Applied Behavioral Sciences; Applied Biological Systems Technology; Atmospheric Science; Avian Sciences; Biological Chemistry; Biological Sciences; Cell Biology and Human Anatomy; Chemistry; Earth & Planetary Sciences; Engineering; Engineering: Applied Science; Engineering: Biological Systems; Engineering: Chemical; Engineering: Civil and Environmental; Engineering: Computer Science; Engineering: Electrical and Computer; Engineering: Mechanical; Entomology; Environmental and Resource Sciences; Environmental Horticulture; Environmental Science and Policy; Environmental Toxicology; Evolution and Ecology; Exercise Science; Fiber and Polymer Science; Food Science and Technology; Geology; Hydrologic Science; Material Science and Engineering; Medical Microbiology; Medical Pharmacology and Toxicology; Microbiology; Molecular and Cellular Biology; Nematology; Neurobiology, Physiology, and Behavior; Nutrition; Pathology, Microbiology, and Immunology; Physics; Plant Biology; Plant Pathology; Population Health and Reproduction; Psychology; Soil Science; Wildlife, Fish, and Conservation Biology.

Major Adviser. J. Dumit

Theatre and Dance

Changes to the Theatre and Dance program

The Theatre and Dance Major Program

The A.B. degree in Theatre and Dance provides students with an appreciation for and understanding of performance and its role in culture and society. The program offers a strong foundation in all aspects of drama, theatre, dance performance, and production. Students build significant skills in specific areas (including acting, directing, choreography, design, playwriting and devising, production skills and management) as well as achieving a broad knowledge of theatre and dance.

Productions and Facilities. Each year's schedule includes opportunities to work with professional directors and choreographers in three Granada Artists-in-Residence productions; the Main Stage Dance/Theatre Festival; the UC Davis Film Festival; projects generated through the Institute for Exploration in Theatre, Dance and Performance; and workshops and performance projects developed by M.F.A and Ph.D. students. These productions are staged in our proscenium (Main), thrust (Wyatt), black box (Arena), performance studio (Nelson Hall) and intimate laboratory theatre (Lab A), as well as in the Mondavi Center's Vanderhoef Studio Theatre and Jackson Hall. These productions are part of the academic program of the department and serve an important purpose in the study of theatre and dance. Participation is open to all students.

A.B. Major Requirements:

UNITS

Preparatory Subject Matter 24
Choose four units from Dramatic Art 21A, 40A, 40B, 42A, 42B..... 4
Dramatic Art 28, 55, 56A, 56B, 56C 20

Depth Subject Matter 42
Two courses from Dramatic Art 142, 150, 155, 155A, 156A, 156B, 156C, 156D, 158, 159..... 8
One course from: Dramatic Art 124A, 124B, 124C, 124D, 124E, 126..... 4
One course from: Dramatic Art 120, 141, 144A..... 4
One course from: Dramatic Art 127A, 140A, 160A..... 4
Choose 8 additional units from: Dramatic Art 114, 115, 116, 120,121A, 121B, 121C, 122A, 122B, 122C, 124A, 124B, 124C, 124D, 124E, 125, 126, 127A, 127B, 130, 135, 140A, 140B, 140C, 141, 142, 143, 144A, 144B, 144C, 146A, 146B, 146C,150, 154, 155A, 156A, 156B, 156C, 156D, 158, 159, 160A, 160B, 170..... 8
Choose 6 units from at least 2 of: Dramatic Art 145, 180A, 180B, 180C 6
Dramatic Art 180D..... 4
Choose 2 units from: Dramatic Art 180E, 180F, 180G..... 2
Dramatic Art 195..... 2

Total Units for the Major 66

A.B. with Honors Major Requirements:

UNITS

Preparatory Subject Matter 24
Dramatic Art 28, 55, 56A, 56B, 56C 20
Choose 4 units from: Dramatic Art 21A, 40A, 40B, 42A, 42B..... 4

Depth Subject Matter 56
Two courses from: Dramatic Art 142, 150, 155, 155A, 156A, 156B, 156C, 156D, 158, 159..... 8
One course from: Dramatic Art 124A, 124B, 124C, 124D, 124E, 126..... 4
One course from Dramatic Art 120, 141, 144A, 146A..... 4
Once course from: Dramatic Art 127A, 140A, 160A..... 4
Choose 6 units from at least 2 of: Dramatic Art 145, 180A, 180B, 180C 6
Dramatic Art 180D..... 4
Choose 2 units from: Dramatic Art 180E, 180F, 180G..... 2
Choose 16 additional units from: Dramatic Art 114, 115, 116, 120, 121A, 121B, 121C, 122A, 122B, 122C, 124A, 124B, 124C, 124D, 124E, 125, 126, 127A, 127B, 130, 135, 140A, 140B, 140C, 141, 142, 143, 144A, 144B, 144C, 146A, 146B, 146C, 150, 154, 155A, 156A, 156B, 156C, 156D, 158, 159, 160A, 160B, 170..... 16
At least 8 of these units must be in a specific area determined in consultation with a faculty adviser and reflecting preparation for the honors project.
Dramatic Art 194HA and 194HB..... 6
Dramatic Art 195..... 2

Total Units for the Major With Honors... 80

Major Adviser. Consult Department office.

Minor Program Requirements:

UNITS

Dramatic Art 22
Two courses chosen from: Dramatic Art 142, 150, 155, 155A,156A, 156B, 156C, 156D, 158, 159..... 8
Choose 8 additional units from: Dramatic Art 114, 115, 116, 120, 121A, 121B, 121C, 122A, 122B, 122C, 124A, 124B, 124C, 124D, 124E, 125, 126, 127A, 127B, 130, 140A, 140B, 140C, 141, 142, 143, 144A, 144B, 144C, 150, 154, 155, 155A, 156A, 156B, 156C, 156D, 158, 159, 160A, 160B, 170..... 8
Dramatic Art 180D 2

Transfer Students. As described above, all students completing a major in Theatre and Dance must participate in dramatic productions, including work in at least two of the following three areas: acting/dance; design (scenic, costume, lighting, painting, props, sound); directing/playwriting/stage management as well as crew assignments for a minimum of two productions while in residence at UC Davis. Transfer students should see the major adviser for an evaluation of your previous experience.

Guest Artists. The Granada Visiting Artists Program brings distinguished professional artists to the campus each year, to be in residence for a quarter. These working professional artists interact closely with students in the classroom and rehearsal halls and provide them excellent pre-professional experiences of theater practice.

Graduate Study. The Department of Theatre and Dance offers programs of study and research leading to the M.F.A. in Dramatic Art (the interdisciplinary weaving of acting, directing, design, choreography and practice and research) and contributing to the Graduate Group Ph.D. in Performance Studies. Detailed information may be obtained by contacting the Graduate Program Administrators: Victoria Dye for the MFA in Dramatic Art 530-752-8710 and Marian Bilheimer for the Graduate Group in Performance Studies 530-754-6973.

Wildlife, Fish, and Conservation Biology

Changes to the Wildlife, Fish, and Conservation Biology Program

B.S. Major Requirements:

UNITS

Written/Oral Expression 7-8
University Writing Program 1..... 4
Communication 1, 3 or Dramatic Art 10 3-4
Completing University Writing Program 1 and Communication 1 will simultaneously satisfy the College requirements.

Preparatory Subject Matter 50-51
Biological Sciences 2A, 2B, 2C 15
Chemistry 2A, 2B, 8A, 8B 16
Mathematics 16A, 16B..... 6
Physics 1A, 1B..... 6
Statistics 100, 102, or Plant Sciences 120..... 4
Wildlife, Fish, and Conservation Biology 10, 11, or 50..... 3-4

Depth Subject Matter 45-50
Students graduating with this major are required to attain at least a C average (2.000) in all courses taken at the university in depth and area of specialization subject matter.
Environmental Science and Policy 100 or Evolution and Ecology 101 4
Evolution and Ecology 100 4
Biological Sciences 101 4
Wildlife, Fish, and Conservation Biology 121 or 130..... 4
Neurobiology, Physiology, and Behavior 102 or Wildlife, Fish, and Conservation Biology 141..... 3-4
Wildlife, Fish, and Conservation Biology 122..... 4
Wildlife, Fish, and Conservation Biology 154 4
Choose three lecture courses and two (laboratory) courses from: Wildlife, Fish, and Conservation Biology 110, (110L), 111, (111L), 120, (120L), or 134, (134L) ..14-15
Wildlife, Fish, and Conservation Biology 100, or 101 & 101L, or 102 & 102L.....4-7
Strongly recommended, but not required, Statistics 104, 106, or 108..... 4
Strongly recommended, but not required, Landscape Architecture 150..... 3
Strongly recommended, but not required, Anatomy, Physiology and Cell Biology 100 4

Restricted Electives..... 12-24

Choose one from the four Areas of Specialization shown below No course can be used to simultaneously satisfy the Depth Subject Matter and the Area of Specialization.

Areas of Specialization

(1) Wildlife and Conservation Biology: Complete Wildlife, Fish, and Conservation Biology 151
Choose one course from: Plant Sciences 102, 131,144,147 & 147L, 178, Plant Biology 102, 108, 117, 119, 148.
Choose one course from: Wildlife, Fish, and Conservation Biology 110, 111, 120, 134, 136, 152, 155 & 155L, 156, 157 or 160.
Choose one course from: Animal Science 103, 104, 170, Environmental Horticulture 160, Entomology 156, Environmental Science and Policy 121, 127, 155, 161, 162, 166N, 170, 171, Evolution and Ecology 107, 115, 138, 147, Environmental Toxicology 101, Plant Sciences 130, 135, or 162.
Note: Students interested in certification as a Wildlife Biologist from The Wildlife Society should consider additional courses in plant sciences.
(2) Fish Biology: Complete Wildlife, Fish, and Conservation Biology 120 & 120L.
Choose one course from: Entomology 116, Evolution and Ecology 112 & 112L or 114.
Choose three courses including at least one course from each of the following two groups:
(a) Aquatic Systems
Animal Science 118, Environmental Science and Policy 116N, 150C, 151, 151L,152, 155, Evolution and Ecology 115, Environmental Science and Management 100, Hydrology 143, Wildlife, Fish, and Conservation Biology 155 & 155L, 157, or 160.
(b) Water Policy/Law
Choose one course from: Hydrology 150, Environmental Science and Policy 161,162, 166N or 169.
(3) Wildlife Health: Complete Wildlife, Fish, and Conservation Biology 151.
Complete either Biological Sciences 102 and 103 or Animal Biology 102 and 103.
Choose one course from: Wildlife, Fish, and Conservation Biology 110, 111, 120, 134, 136, 152, 155 &155L or 160.
Choose one course from: Animal Science 103, 104, 170, Anatomy, Physiology, and Cell Biology 100, Microbiology 101, 104 Molecular and Cell Biology 150, Neurobiology, Physiology, and Behavior 101, 140, or Veterinary Medicine and Epidemiology 158.
Note that this AOS recommends additional preparatory courses; prerequisites for admission to Veterinary Medicine vary among schools and students should confirm the specific requirements of the school(s) to which they wish to apply.
Additional Preparatory (recommended, not required): Chemistry 2C, 118A, 118B, 118C, Physics 7A, 7B, 7C.

(4) Individualized: Students may, with prior approval of their adviser and the curriculum committee, design their own individualized specialization within the major. The specialization will consist of four upper division courses with a common theme.

Total Units for the Degree 114-133

Major Adviser. N. A. Fangue

Students transferring to UC Davis from another institution or new students declaring the major of Wildlife, Fish, and Conservation Biology must consult the Master Adviser so that their program can be evaluated and a faculty adviser assigned. Contact the Department in 1088 Academic Surge Building or telephone 530-754-9796.

Minor Program Requirements:

The minor in Wildlife, Fish, and Conservation Biology is for students interested in basic training and understanding of the ecology and conservation of wild terrestrial and aquatic vertebrates, emphasizing birds, mammals, and fish, but with relevance and application to all life forms.

UNITS

Wildlife, Fish, and Conservation Biology 20-31

Wildlife, Fish, and Conservation Biology 100, 151, and 154

Choose one course from: 110, 111, 120 or 134..... 15

Two-four upper division elective courses chosen from the Wildlife, Fish, and Conservation Biology curriculum, excluding Wildlife, Fish, and Conservation Biology 190, 191, 192, 195, 197T, 198, & 199..... 5-16

Minor Adviser. N. A. Fangue