Evolution and Ecology

[College of Biological Sciences]
Sharon Strauss, Ph.D., Chairperson of the Department

Department Office: 2320 Storer Hall

Faculty
David J. Begun, Ph.D., Professor
Graham Coop, Ph.D., Associate Professor
Jonathan A. Eisen, Ph.D., Professor
[Medical Microbiology and Immunology]
Brian P. Grayford, Ph.D., Associate Professor
Richard K. Grosberg, Ph.D., Professor
Academic Senate Distinguished Teaching Award, UC Davis Prize for Teaching and Scholarly Achievement
Susan L. Keen, Ph.D., Senior Lecturer, SOE
ArtHum

The Program.

Biodiversity Major Program

R. Pat Randolph, Ph.D., Academic Coordinator/
Affiliated Faculty
Kenneth E. F. Watt, Ph.D., LL.D, Professor Emeritus
Peter R. Marler, Ph.D., Professor Emeritus
Milton Hildebrand, Ph.D., Professor Emeritus
Arthur M. Shapiro, Ph.D., Professor
Thomas W. Schoener, Ph.D., Professor
Eric D. Sanford, Ph.D., Professor
Marcel Rejmanek, Ph.D., Professor
Bruce H. Rannala, Ph.D., Professor
Santiago Ramirez, Ph.D., Assistant Professor
Brian R. Moore, Ph.D., Assistant Professor
Susan E. Lott, Ph.D., Assistant Professor
Richard K. Grosberg, Ph.D., Professor
Jonathan A. Eisen, Ph.D., Professor
David J. Begun, Ph.D., Professor

Faculty
ment

or a Bachelor of Arts degree. The requirements for university majors may earn either a Bachelor of Science

The program of study for the major

A.B. Major Requirements:

Preparatory Subject Matter

Biological Sciences 2A-2B-2C ......................... 15
Chemistry 2A-2B-2C ........................................ 15
Mathematics 17A-17B (17C recommended) or Statistics 100 or 102 ........................................ 4-8

Depth Subject Matter

Biological Sciences 101 ............................. 4
One course from: Evolution and Ecology 100; Geology 107; Anthropology 151 ........................ 3-4
One course from: Evolution and Ecology 101; Environment and Policy 100; Wildlife, Fish, and Conservation Biology 151 ........................................ 3-4

Additional upper division coursework in biological science to achieve a total of 36 or more units ........................................ 24-25
Include at least one course from each of the areas of study below.

Areas of Study:

(1) Biodiversity: Entomology 103; Evolution and Ecology 105, 108, 112, 140; Microbiology 105, Nematology 110; Plant Biology 116, 148; Plant Sciences 147; Wildlife, Fish, and Conservation Biology 110, 111, 120, 134.

Note: A maximum of four units of variable-unit courses (numbered 192, 198, 199) may be applied to upper division elective unit requirement. Courses numbered 197T are not applicable to the upper division elective unit requirement.

Total Units for the Major ............................. 77-81

B.S. Major Requirements:

Preparatory Subject Matter

Biological Sciences 2A-2B-2C ......................... 15
Chemistry 2A-2B-2C ........................................ 15
Chemistry 8A-8B or 118A-118B-118C ..................... 4-6
Mathematics 17A-17B-17C or 21A-21B-21C (21C recommended) ........................................ 8-12
Physics 7A-7B-7C ........................................ 12

Depth Subject Matter


Note: A maximum of four units of variable-unit courses (numbered 192, 198, 199) may be applied to upper division elective unit requirements. Courses numbered 197T are not applicable to the upper division elective unit requirement.

Total Units for the Major ............................. 105-115

Biological Sciences Electives

The following courses are acceptable toward the full-fillment of the upper division biological sciences requirements in the A.B. and B.S. major programs and may be selected without adviser approval. Other elective courses are approved on an individual basis by petition through an adviser.

Anatomy, Physiology and Cell Biology 100

Anatomy, Physiology and Cell Biology 151, 152, 153, 154A, 154B, 154C, 154CL, 155, 156

Biology, all upper division courses

Chemistry 107A, 107B

Entomology, all upper division courses except 110

Environmental Science and Policy 110, 116, 121, 123, 150C, 151, 151L

Evolution and Ecology 100

Geology 107, 107L, 150C

Microbiology, all upper division courses

Molecular and Cellular Biology, all upper division courses

Nematology 110

Neurobiology, Physiology, and Behavior, all upper division courses

Nutrition 101, 111

Pathology, Microbiology, and Immunology 101, 126, 126E, 128

Philosophy 108

Plant Biology, all upper division courses

Psychology 121, 122, 127, 129

Wildlife, Fish, and Conservation Biology 120, 120L, 121

Minor Program Requirements:

Evolution, Ecology and Biodiversity........... 18

Evolution and Ecology 100, 101 .......................... 8
One course in Biodiversity .............................. 3-5

Two courses in Advanced Ecology or Evolution and Ecology 102, 103, 107, 115, 117*, 119*, 120, 121, 131, 138, 141, 147, 149, 150, 161, 180A* and 180B*, 181

Laboratory or field course: At least one of the courses taken to fulfill these requirements must include a laboratory or field component.

*Appropriate courses from the above lists are indicated with an asterisk.
**These courses cannot be taken without the corresponding lecture course. Additional courses, if necessary, from above course lists to reach 18 units.
Major Advisers. Students transferring to UC Davis from another institution and majoring in Evolution, Ecology and Biotechnology must consult an adviser immediately upon matriculation so that their transfer credits can be applied to the major requirements. All new students in the major should contact the Biology Academic Success Center for adviser assignment. Substitutions of courses not on the above list for major requirements are arranged through the adviser.

Advising Center for the major is located at the Biology Academic Success Center (BASC), 1023 Sciences Laboratory Building, 5307520410. http://www.biosci.ucdavis.edu/BASC. Pre-professional students should establish contact with the Health Sciences Advising Office in 111 South Hall, to learn what specific courses are required on their transcripts.

Teaching Credential Subject Representative. Students planning for a teaching career should consult the School of Education in regard to preparation for certification, see the Teaching Credential/M.A. Program on page 115.

Courses in Evolution and Ecology (EVE)

Lower Division

2. Biodiversity (3)
Lecture—2 hours; lecture/discussion—1 hour. Introduction to nature, scope and geographical distribution of biodiversity (the diversity of life, with emphasis on plants and animals, especially insects). Human and biodiversity—domestication, aesthetics, ethics and valuation. Species richness and “success.” Biodiversity through time; monitoring, evaluation and conservation; implications to continental and California. (Same course as Entomology 2.) Offered irregularly. GE credit: SciEng, Wrt | SE, SL, WE.

10. Evolution for Non-Biologists (4)
Lecture—3 hours. Introduction to evolutionary biology for the general population. Offered in alternate years. GE credit: SciEng | QL, SE, SL—it. (B) Begin

Lecture—3 hours; discussion—1 hour. Prerequisite: elementary biology recommended. Ecological principles with emphasis on humans and their interactions with the environment; how humans affect and depend on natural ecosystems; the future of the Earth’s natural environment considered irregularly. GE credit: SciEng | QL, SE, SL, WE.

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; humans, factors and processes that influence diversity of sea life, including humans. Limited enrollment. Offered in alternate years. GE credit: SciEng, Wrt | SE, SL, WE. —III, Wilcox

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 Evolution and Ecology. Internships supervised by a member of the faculty. May be repeated for credit. (P/NP grading only.)—I, II, III, IV, III, IV

98. Directed Group Study (1-5)
Prerequisite: consent of instructor. (P/NP grading only.) GE credit: SE.

99. Special Study for Lower Division Students (1-5)
(P/NP grading only) GE credit: SE.

Upper Division

100. Introduction to Evolution (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; Biological Sciences 101; Mathematics 16A, 16B, 16C or the equivalent; Statistics 13 or 100 [Statistics 100 recommended]. A general survey of the origins of biological diversity and evolutionary mechanisms. GE credit: SciEng | QL, SE, SL—I, II, III, (II, II, III)

101. Introduction to Ecology (4)
Lecture—3 hours; lecture/discussion—1 hour. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; Mathematics 16A, 16B, 16C or the equivalent. A general treatment of ecological systems and processes. GE credit: SciEng | QL, SE, SL, VL—II, I, II, III, (II, II, III) Gaylord, Rejmnek, Schoener, Strong, Williams

101Q. Introduction to Computer Models in Ecology (1)
Autotutorial—1.5 hours; extensive problem solving—1.5 hours. Prerequisite: concurrent enrollment in course 101. Computational methods and mathematical models used to study ecological phenomena. Offered irregularly.

102. Population and Quantitative Genetics (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 101, and Statistics 100 or 102, and consent of instructor by random drawing, genetic drift, natural selection, inbreeding, migration, and mutation in theory and actuality. The resemblance between relatives and consequences of selection for application of these ideas to topics such as the evolution of sex. Offered in alternate years. GE credit: SciEng | SE—I, Langley

103. Phylogeny, Speciation and Macroevolution (4)
Lecture—3 hours; laboratory/discussion—3 hours. Prerequisite: course 100. Statistical inference of evolutionary patterns and processes above the species level. Topics include phylogenies and divergence times, character evolution, biogeographic history, and rates and patterns of lineage diversification, with an emphasis on the origin of species. Offered in alternate years. GE credit: SciEng | QL, SE, SL—(II) Moore, Turelli

104. Community Ecology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 101 or Environmental Science and Policy 100. Population growth and density dependence; predation, exploitative, interference and apparent competition; coexistence mechanisms; niches, spatial and temporal variation; stability, diversity, and productivity of food webs; adaptations to conservation and biological control. Emphasis on quantitative understanding through models, concepts, and empirical evidence. GE credit: SciEng | SE, SL, VL.

105. Phylogenetic Analysis of Vertebrate Structure (4)
Lecture—2 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1A and 1B, or 2B and 2C. The structure of the classes and subclasses of vertebrates is described in terms of phylogeny. Offered in alternate years. GE credit: SciEng | SE—II, Wainwright

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; student must complete the application available at http://www.bml.ucdavis.edu. Examines the bases of organism movement in terrestrial, aquatic, and aerial environments, emphasizing both the unifying principles underlying locomotion, as well as a range of strategies employed across diverse groups of organisms. Offered irregularly. GE credit: SciEng | QL, SE, VL, WE.

111. Marine Environmental Issues (1)
Discussion—1 hour; seminar—2 hours. Prerequisite: upper division standing or consent of instructor; concurrent enrollment in at least one course from Environmental Science and Policy 101, 110, 114, 106, 110, 114, residence at or near Bodega Marine Lab required. Student must complete the application available at http://www.bml.ucdavis.edu. A focused consideration of critical environmental issues occurring in coastal waters. Course links together material from concurrent courses at BML to develop an integrative understanding of marine environmental issues and their construction. Includes readings, group discussions, and interaction with visiting speakers. May be repeated twice for credit. (Same course as Environmental Science and Policy 111). GE credit: SciEng | QL, SE, SL—III, IV, (III, IV) Gaylord, Largier, Morgan, Sanford

112. Biology of Invertebrates (3)
Lecture—3 hours. Prerequisite: Biological Sciences 1B, 2B, 2C; courses in systematics, ecology, and evolution recommended. Survey of the invertebrate phyla, emphasizing aquatic forms, and focusing on morphology, development, natural history, ecology, and phylogenetic relationships. Limited enrollment. Offered in alternate years. —(II) Grosberg, Sanford

112L. Biology of Invertebrates Laboratory (2)
Laboratory—6 hours. Prerequisite: Biological Sciences 1B, 2B, 2C; course 112 concurrently. Field and laboratory experience with representative members of the major invertebrate phyla discussed in course 112. Emphasis on comparative morphology, natural history, ecology, and behavior of living invertebrates. Two field trips required. Offered in alternate years. —(II) Grosberg, Sanford

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 109, Evolution and Ecology 112), and/or evolution (Evolution and Ecology 101), and/or evolution (Evolution and Ecology 100) are recommended; residence at or near Bodega Marine Lab is required. Student must complete the application available at http://www.bml.ucdavis.edu. The biology, ecology, and evolution of local marine invertebrates with a focus on adaptations to environmental and biological factors. Course is offered on-campus and near Bodega Marine Lab with laboratory learning with an emphasis on generating and testing hypotheses. GE credit: SciEng | QL, SE, VL, WE—IV, (IV) Sanford

Quarter Offered: I—Fall, II—Winter, III—Spring, IV—Summer; 2015-2016 offering in parentheses.

Pre-Fall 2011 General Education (GE) (Arts and Humanities; Sciences and Social Sciences, Divisions: Cultural Diversity; Writing Experience; Fall 2011 and on Revised General Education (GE); AH—Arts and Humanities; SS—Science and Engineering; SE—Social Sciences,


Evolution and Ecology 309
115. Marine Ecology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: course 101 or Environmental Science and Policy 100 or Biological Sciences 2B, or consent of instructor. Processes affecting the distribution, abundance, and diversity of plant and animal life in the sea. Introduction to marine habitat diversity and human impacts on marine ecosystems. Offered in alternate years. GE credit: SciEng | SE, VL, WI, WE. —II. Stachowicz

117. Plant Ecology (4)
Lecture—3 hours; fieldwork—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; Plant Biology 111 recommended. The study of the interactions between plants, plant populations or vegetation types and their physical and biological environment. Special emphasis on California. Four full-day field trips and brief write-up of class project required. (Same course as Plant Biology 117.) —I. (II.) Latimer, Rejmanek

119. Population Biology of Invasive Plants and Weeds (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C; introductory statistics recommended. Origin and evolution of invasive plant species and weeds, reproduction and dispersal, seed ecology, modeling of population dynamics, interactions between invasive species and native crops, agricultural and biological control. Laboratories emphasize design of competition experiments and identification of weedy species. (Same course as Plant Biology 119.) GE credit: SciEng | SE, WE. —I. (II.) Rejmanek

120. Global Change Ecology (3)
Lecture/discussion—3 hours. Prerequisite: course 100 and 101 or equivalents. Treatment of historical evolution of the biosphere resulting from physical, chemical, and biological influences. Special focus upon changes caused by humans. Topics pertain to biodiversity, resources, conservation, and ecosystem services. —II. Strong

131. Human Genetic Variation and Evolution (3)
Lecture—3 hours. Prerequisite: Biological Sciences 1B or 2B. Introduction to genome-wide nucleotide sequence variation in human populations and computational methods for its analysis. Topics to include forensics, disease gene mapping, and studies of human evolutionary history. Misuses, such as eugenics, and ethical/legal issues will be discussed. Offered in alternate years. —II. Kannala

138. Ecoregions and Latitudes (5)
Lecture—3 hours; discussion—1 hour; extensive writing. Prerequisite: one course in Biological Sciences, Entomology, Wildlife, Fish, and Conservation Biology, Geography, or tropical experience, or consent of instructor. Biological and human-related aspects of the ecology of low latitudes. Distribution, numbers, and relationships of tropical organisms. Problems of development and conservation in the context of ecological and evolutionary theory. Offered in alternate years. GE credit: SciEng, Wrt | SE, SL, WE. —III. Shapiro

140. Paleobotany (4)
Lecture—3 hours; laboratory—2 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or 2A, 2B, 2C. Introduction to plant fossil record, beginning with invasion of land in the Silurian, emphasizing origin and evolution of major groups and adaptations and changing composition and distribution of floras in relation to plate tectonics and climatic change. —Doyle

141. Principles of Systematics (3)
Lecture—2 hours; independent study. Prerequisite: Biological Sciences 1B or 1C or 2B; course 100 recommended. Historical background, philosophical rationale, contemporary approaches, and working rules of biosystematics, including International Code of Zoological Nomenclature. Offered in alternate years. GE credit: SciEng, Wrt | OL, QL, SE, SL, VL, WE. —III. Shapiro

147. Biogeography (4)
Lecture—3 hours, term paper. Prerequisite: Biological Sciences 1A and 1B, or 2B. Movements of terrestrial organisms driven by climatic, geographic, and biologic changes in the geographic distribution of organisms. Offered in alternate years. GE credit: SciEng | SE, VL, WE. —I. (II.) Shapiro

149. Evolution of Ecological Systems (4)
Lecture—3 hours; term paper. Prerequisite: course 101 or Environmental Studies 100 (or the equivalent), and course 100 (or the equivalent). Evolution as an organizing force in natural communities. Co-adaptation and community genomics. Metacommunity ecology. Ecology of polymorphisms, clines, and speciation. Offered in alternate years. GE credit: SciEng | SE, SL, WE. —I. Shapiro

150. Evolution of Animal Development (3)
Lecture—3 hours. Prerequisite: Biological Sciences 101; and course 100 (may be waived for graduate students with consent of instructor). Comparative analysis of animal development and the genetic basis of morphological evolution. Offered in alternate years. GE credit: SE, WE. —II. Kopp

161. Microbial Phylogenomics—Genomic Perspectives on the Diversity and Diversification of Life (4)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, or 2C or equivalent. Use of DNA and genomic sequencing in studies of the diversity of microorganisms. Diversity of microbes, phylogenetics, genome sequencing, lateral gene transfer, molecular ecology, metagenomics, and studies of the human microbiome. Offered in alternate years. GE credit: SciEng | SE, SL, WE. —II. Eisen

175. Computational Genetics (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: Biological Sciences 101 and Statistics 100 or 102. The use of computers to solve problems in genetics and evolution. Introduction to a general purpose computer language (Python), computational statistical methods, and applications such as QTL mapping, linkage detection, estimation of rates of evolution, and gene finding. Offered irregularly.

180A. Experimental Ecology and Evolution in the Field (4)
Lecture/lab—3 hours; fieldwork—3 hours. Prerequisite: course 100; course 101, or Environmental Science and Policy 100; Entomology 102. Experimental design in field ecology. Examination of primary literature, experimental design, independent and collaborative research, analysis of data, development of original research paper based on field experiments. (Same course as Entomology 180A.) Offered in alternate years. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | QL, SE, VL, W, Y. —III. Yang

180B. Experimental Ecology and Evolution in the Field (4)
Lecture/lab—3 hours; fieldwork—3 hours. Prerequisite: Evolution and Ecology or Entomology 180A; course 100; Environmental Science and Policy 100; Environmental Science and Policy 105. Experimental design in field ecology. Examination of primary literature, experimental design, independent and collaborative research, analysis of data, development of original research paper based on field experiments. (Same course as Entomology 180B.) Offered in alternate years. (Deferred grading only, pending completion of sequence.) GE credit: SciEng | QL, SE, VL, W, WE. —III. Yang

181. Ecology and Evolution of Animal-Plant Interactions (4)
Lecture—1.5 hours lecture/discussion—1.5 hours; term paper; supportive writing or discussion. Prerequisite: Biological Sciences 2B and 2C required; Biological Sciences 2C may be taken concurrently. Animal adaptations for eating plants, pollinating flowers, dispersing seeds. Plant adaptations to herbivore defense, attraction of mutualists; role of coevolutionary arms race, mutualists and cheaters in plant/animal speciation. Exploration through lecture, original scientific literature, discussions and term paper. Offered in alternate years. GE credit: SciEng | QL, QL, SE, SL, WE, WE. —I. (II.) Moore, Wainwright

192. Internship (1-12)
Internship—3.36 hours. Prerequisite: completion of 84 units and consent of instructor. Work experience off and on campus in all subject areas offered in the Department of Evolution and Ecology. Internship supervised by a member of the faculty. (P/NP grading only)

194HA-194HB-194HC. Research Honors Laboratory—6 hours. Prerequisite: Students who have completed 135 units and qualify for the honors program (as defined by the current catalog). Students pursuing intensive research under the guidance of a faculty advisor. 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.

197. Tutoring in Biological Sciences 2B (1-2)
Tutorial—3.6 hours. Prerequisite: Biological Sciences 1B or Biological Sciences 2B with a grade of B or better. Assisting the instructor by tutoring students in a Biological Sciences 2B laboratory. Tutoring is voluntary and is supervised by a Laboratory Teaching Assistant and the Biological Sciences 2B Laboratory Coordinator. May be repeated three times for credit. (P/NP grading only) GE credit: SE.

198. Directed Group Study (1-5)
(P/NP grading only)

199. Special Study for Advanced Undergraduates (1-5)
(P/NP grading only) GE credit: SE. —I, II, III. (I, II, III.)

Graduate

210. Molecular Phylogenetic Analysis (3)
Lecture—2 hours; laboratory—3 hours. Theory and practice of inferring phylogenetic trees using molecular sequence data. Practical techniques for obtaining sequence data, advantages and disadvantages of common approaches for inferring trees, statistical methods for comparing alternative hypotheses. (Same course as Nematology 210.) Offered irregularly. —Nadar

211. Applied Phylogenetics (3)
Lecture—2 hours; laboratory—3 hours. Prerequisite: course 105 or 210 or Population Biology 200C or 211. Applied Phylogenetics (3) is a graduate seminar and is supervised by a member of the faculty. (Deferred grading only.) GE credit: SE.

220. Species and Speciation (3)
Lecture—2 hours; discussion—1 hour. Prerequisite: course 100, Philosophy 108 or the equivalent. History and Philosophy of Science 130B recommended. Current status of species concepts, models of specia-
231. Principles of Biological Data Analysis (3)
Lecture—2 hours; laboratory—3 hours. Introduction to the principles of data analysis, experimental design, statistical modeling, and hypothesis tests. Statistical methods of particular importance in biological applications will be emphasized. Examples will be presented from the fields of ecology and evolutionary genetics. Offered irregularly. (S/U grading only)—Ranalli

240. Paleobotany and Angiosperm Evolution (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Plant Biology 108, 116, or course 140. Critical analysis of the plant fossil record as a source of evidence on origin, evolution, and phylogeny of the angio-sperms, Cretaceous and Tertiary climates, geographic history of modern taxa, and origin of modern vegetation types. Offered irregularly.—Doyle

290C. Research Conference (1)
Discussion—1 hour. Prerequisite: graduate standing and consent of instructor. Presentation and discussion of teaching techniques and preparation and conducting of laboratory and discussion sections. May be repeated for credit. (S/U grading only)—I, II, III. (I, II, III)

298. Group Study (1-5)
(S/U grading only)

299. Research (1-12)
(S/U grading only)

Professional

390. Methods of Teaching (2)
Lecture—1 hour; discussion—1 hour. Prerequisite: graduate standing and consent of instructor. Practical experience in the methods and problems of teaching. Includes analyses of texts and supporting material, discussion of teaching techniques and preparing and conducting of laboratory and discussion sections. May be repeated for credit for a maximum of 8 units. (S/U grading only)—I, II, III. (I, II, III)

Exercise Biology

See Neurobiology, Physiology, and Behavior, on page 443.

Family and Community Medicine

See Medicine, School of, on page 396.

Feminist Theory and Research

Maxine Craig Ph.D., Advisor
Program Office, 2222 Hart Hall 530-752-6429; http://wms.ucdavis.edu/wgssite/

Graduate Study. The Gender, Sexuality and Women’s Studies Program at UC Davis offers a Designated Emphasis in Feminist Theory & Research. Currently graduate students in the following fourteen affiliated Ph.D. programs are eligible to participate: Anthropology, Comparative Literature, Cultural Studies, Education, English, French, German, Geogra-

B.S. Major Requirements:

Preparatory Subject Matter..............52-55
Chemistry 2A-2B-2C..................................15
Computer Science Engineering 15 or 30.. .4
Mathematics 16A-16B-16C or 21A-21B.. .16
Physics 7A-7B-7C or 9A-9B-9C.................12
Statistics 13 or Plant Sciences 120............4
Textiles and Clothing 6 and 8 or Engineering 45..................................................8

Depth Subject Matter.......................37-39
Textiles and Clothing 163, 163L..............4
Fiber and Polymer Science 100, 150, 161, 161L, 180A, 180B.. .14

Restricted Electives.........................30
Select courses from the following:
Marketing/Management: Agricultural and Resource Economics 100A, 100B, 113, 136, 157, Economics 1A, 1B, Statistics 103

Total Units for the Degree..............119-124
Major Adviser, Y. L. Hsieh (Textiles and Clothing)
Advising Center for the major is located in 1298 Everson Hall 530-754-8368.

Minor Program Requirements:

Fiber and Polymer Science.................18
Textiles and Clothing 6 or Engineering 45........................................................................4
Courses selected from the following: Fiber and Polymer Science 100, 150, 161, 161L, 180A and 180B; and Textiles and Clothing 163 and 163L.................................................................14
Minor Adviser, Y. L. Hsieh

Courses in Fiber and Polymer Science (FPS)
Upper Division

100. Principles of Polymer Materials Science (3)
Lecture—3 hours. Prerequisite: Chemistry 2A-2B; Chemistry 8A-8B or Engineering 45; introductory physics. The basic principles of polymer science are presented including polymer structure and synthesis, polymerization mechanisms, polymer classes, properties, and reactions; polymer morphology, rheology, and characterization; polymer processing. (Same course as Materials Science Engineering 147J) GE credit: SciEng | QL, SE—I, II) Pan 311

110. Plastics in Society and the Environment (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Chemistry 10 or introductory course in physical sciences. Basic concepts and methodologies in the study of plastics. Formation, classification, structure, properties, processing, and formulation. Their application to societal needs, and their impact on society and the environment. GE credit: SciEng or SocSci, Wrt | SE, SL, SS, WE.

150. Polymer Syntheses and Reactions (3)
Lecture—3 hours. Prerequisite: Chemistry 128B or 8B, and Chemistry 107A. Organic and physical chemistry aspects of polymer syntheses and reactions including polymerization mechanisms, kinetics