

242. Sixteenth-Century Literature (4)

Seminar—3 hours; conference—1 hour. Studies in sixteenth-century literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

244. Shakespeare (4)

Seminar—3 hours; conference—1 hour. Studies in Shakespeare. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

246. Seventeenth-Century Literature (4)

Seminar—3 hours; conference—1 hour. Studies in seventeenth-century literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

248. Eighteenth-Century Literature (4)

Seminar—3 hours; conference—1 hour. Studies in eighteenth-century literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

250. Romantic Literature (4)

Seminar—3 hours; conference—1 hour. Studies in Romantic literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

252. Victorian Literature (4)

Seminar—3 hours; conference—1 hour. Studies in Victorian literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

254. Twentieth-Century British Literature (4)

Seminar—3 hours; conference—1 hour. Studies in twentieth-century British literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

256. Early American Literature (4)

Seminar—3 hours; conference—1 hour. Studies in Early American literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

258. American Literature: 1800 to the Civil War (4)

Seminar—3 hours; conference—1 hour. Studies in American literature from 1800 to Civil War. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.—II.

260. American Literature: Civil War to 1914 (4)

Seminar—3 hours; conference—1 hour. Studies in American literature from the Civil War to 1914. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

262. American Literature after 1914 (4)

Seminar—3 hours; conference—1 hour. Studies in American literature after 1914. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

264. Studies in Modern British and American Literature (4)

Seminar—3 hours; conference—1 hour. Studies in modern British and American literature. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when a different topic is studied.

270. Studies in Contemporary World Literature (4)

Seminar—3 hours; conference—1 hour. Prerequisite: graduate standing, consent of instructor, with preference given to those enrolled in the masters program in Creative Writing. Emerging global, international or transnational techniques, theories, and individual works of contemporary world prose or poetry. Discussion, seminar reports, research papers. May be repeated for credit when topic differs.

285. Literature by Women (4)

Seminar—3 hours; conference—1 hour. Studies in literature by women and the theoretical approaches to literature by women. Course materials to be selected by the instructor. Preparation and evaluation of research papers. May be repeated for credit when topic and/or reading list differs.

290F. Seminar in Creative Writing of Fiction (4)

Seminar—3 hours; 1 additional hour of writing. Prerequisite: consent of instructor; graduate standing, with preference given to those enrolled in master's program in Creative Writing. Writing of prose. Evaluation of written materials and individual student conferences. May be repeated for credit.—I, II, III. (I, II, III.)

290NF. Seminar in Creative Writing of Non-Fiction (4)

Seminar—3 hours; term paper. Prerequisite: consent of instructor, graduate standing, preference given to those enrolled in the master's program in Creative Writing. The 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.

290P. Seminar in Creative Writing of Poetry (4)

Seminar—3 hours; 1 additional hour of writing. 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.—I, II, III. (I, II, III.)

298. Directed Group Study (1-5)

(S/U grading only.)

299. Individual Study (1-12)

(S/U grading only.)

299D. Special Study for the Doctoral Dissertation (1-12)

(S/U grading only.)

Professional Courses**391. Teaching Creative Writing (2)**

Discussion—2 hours. Prerequisite: graduate standing; appointment as Teaching Assistant in the English. Designed for new instructors of English 5F or 5P; discussion of ways to facilitate creative writing workshops and to respond to student manuscripts. (S/U grading only.)

393. Teaching Literature and Composition (2)

Discussion—2 hours. Prerequisite: graduate standing; appointment as Teaching Assistant in the English Department. Designed for new instructors of English 3 or the equivalent courses; discussion of problems related to teaching literature and composition to lower division students. (S/U grading only.)

396. Teaching Assistant Training Practicum (1-4)

Prerequisite: graduate standing. May be repeated for credit. (S/U grading only.)—I, II, III. (I, II, III.)

Entomology

(College of Agricultural and Environmental Sciences)

Walter S. Leal, Ph.D., Professor, Chairperson of the Department

Thomas W. Scott, Ph.D., Vice Chairperson

Frank G. Zalom, Ph.D., Vice Chairperson

Department Office. 367 Briggs Hall
(530) 752-0475; <http://entomology.ucdavis.edu>

Faculty

James R. Carey, Ph.D., Professor
Peter S. Cranston, Ph.D., Professor
Penelope J. Gullan, Ph.D., Professor
Bruce D. Hammock, Ph.D., Professor
Richard Karban, Ph.D., Professor
Harry K. Kaya, Ph.D., Professor
(Entomology, Nematology)
Lynn S. Kimsey, Ph.D., Professor
Sharon P. Lawler, Ph.D., Associate Professor
Walter S. Leal, Ph.D., Professor
Edwin Lewis, Ph.D., Professor
(Entomology, Nematology)
Fumio Matsumura, Ph.D., Professor
(Entomology, Environmental Toxicology)
Michael P. Parrella, Ph.D., Professor
(Entomology, Plant Sciences)
Jay A. Rosenheim, Ph.D., Professor
Thomas W. Scott, Ph.D., Professor
Diane E. Ullman, Ph.D., Professor
Philip S. Ward, Ph.D., Professor
Frank G. Zalom, Ph.D., Professor

Emeriti Faculty

Oscar G. Bacon, Ph.D., Professor Emeritus
Hugh Dingle, Ph.D., Professor Emeritus
John D. Edman, Ph.D., Professor Emeritus
Lester E. Ehler, Ph.D., Professor
Bruce F. Eldridge, Ph.D., Professor Emeritus
Norman E. Gary, Ph.D., Professor Emeritus
Jeffrey Granett, Ph.D., Professor
Albert A. Grigarick, Jr., Ph.D., Professor Emeritus
Charles L. Judson, Ph.D., Professor Emeritus
Donald L. McLean, Ph.D., Professor Emeritus
Robert E. Page Jr., Ph.D., Professor Emeritus
Christine Y. S. Peng, Ph.D., Professor Emeritus
Timothy Prout, Ph.D., Professor Emeritus
Richard E. Rice, Ph.D., Lecturer Emeritus
Robbin W. Thorp, Ph.D., Professor Emeritus
Robert K. Washino, Ph.D., Professor Emeritus

Affiliated Faculty

Anton Cornel, Ph.D., Lecturer
Mary L. Flint, Ph.D., Lecturer
Larry Godfrey, Ph.D., Lecturer
Robert Kimsey, Ph.D. Associate Adjunct Professor
Eric C. Mussen, Ph.D., Lecturer

The Major Program

The Entomology major is a general biological science program. The curriculum is designed to develop an understanding of fundamental biological concepts by studying insects. Insects offer unique opportunities to study biological systems and are model experimental animals. Many insects are either pests, or beneficial species that have great importance to the economy, environment or public health. Students may focus on specific areas of interest including agricultural entomology, insect systematics and evolution; behavior and ecology; medical entomology; and insect molecular biology, physiology and toxicology.

The Program. Students begin their study in entomology with selected insect biology courses. After completing these courses, students may enroll in courses in their particular area of interest. A student interested in applied entomology, for example, could enroll in courses such as arthropod pest management and biological control.

Career Alternatives. Entomology graduates find careers in many different areas of applied or basic biology. Graduates have the opportunity to continue

in professional graduate programs such as veterinary or human medicine, or get advanced degrees leading to careers in biotechnology, conservation biology, or academic teaching and research. Many graduates have participated in internship programs with the California Department of Food and Agriculture and found careers in insect diagnostic laboratories, conducting insect surveys, and/or developing entomological collections. Other graduates have worked in agriculture in the area of insect pest management. Graduates are prepared for managerial and technical positions with state and federal agencies and in agricultural production and supporting industries. Some entomology graduates pursue careers in primary, secondary, and college level science education.

B.S. Major Requirements:

UNITS

English Composition Requirement 0-8

See College requirement.

Preparatory Subject Matter..... 46-47

Biological Sciences 1A, 1B, 1C; or	
2A, 2B, 2C	14-15
Chemistry 2A, 2B, 8A, 8B	16
Mathematics 16A.....	3
Physics 1A, 1B.....	6
Statistics 13, 32, or Plant Sciences	
120.....	3-4
Plant Sciences 21, Engineering 5, or	
Mathematics 16B.....	3

Breadth Subject Matter 6-24

Satisfaction of General Education requirement.

Depth Subject Matter 34-40

Microbiology 102, Plant Biology 118,	
148, Plant Pathology 120 or Pathology,	
Microbiology, and Immunology 128.....	3-5
Biological Sciences 101.....	4
Environmental Science and Policy 100 or	
Evolution and Ecology 101	4
Evolution and Ecology 100	4
Biological Sciences 102 and 103 or Animal	
Biology 102 and 103.....	6-10
Entomology 100, 100L.....	6
At least 7 units from Entomology 102, 103,	
104, 107, 109, or 116.....	7

Restricted Electives..... 34

Upper division entomology courses	14
Upper division electives related to student's	
interest with approval of adviser	20
Note: No more than a total of 6 units from	
Entomology 192, 197T and 199 may count	
toward fulfilling depth subject matter or	
restricted elective units.	

Unrestricted Electives 26-60

Total Units for the Major 180

Major Adviser. S. Lawler

Minor Program Requirements:

The Department of Entomology has five minor programs open to students in other disciplines who are interested in rounding out their academic study with a concentration in the area of entomology.

UNITS

Insect Biology..... 19-23

Entomology 100, 100L.....	6
At least seven units from Entomology	
102, 103, 104, 107, 109.....	7
At least two additional upper division	
Entomology courses (except courses	
192, 198, 199).....	6-10

Agricultural Pest Management..... 21-23

Entomology 100, 100L, 110, 135	15
At least two courses from Nematology	
100, Plant Sciences 176, Plant Pathology	
120.....	6-8

Insect Ecology and Evolution 20

Entomology 100, 100L, 104.....	9
At least seven units from Entomology 103,	
107, 109, 116, 158.....	7

Evolution and Ecology 149 or Environmental
Science and Policy 121

Medical-Veterinary Entomology 19

Entomology 100, 100L, 104, 153,	
156	15
At least four units from Entomology 156L,	
158; Pathology, Microbiology, and	
Immunology 126, 126L, 128	4

Forensic Entomology 22

Entomology 100, 100L, 102, 158.....	13
Biological Science 1A	5
Evolution and Ecology 104	4

Minor Adviser. S. Lawler

Graduate Study. The Department of Entomology offers a program of study and research leading to the M.S. and Ph.D. degrees. See [Graduate Studies, on page 104](#) and the Graduate Announcement, for further details.

Graduate Advisers. See the *Class Schedule and Registration Guide*.

Related Courses. See courses in Nematology.

Courses in Entomology (ENT)

Lower Division Courses

1. Art, Science and the World of Insects (3)

Lecture—3 hours; laboratory—3 hours. Fusion of entomology and art to create an appreciation of insect biology, ecology, interactions with humans and importance in human culture. Multidisciplinary approaches in education and career paths in entomology and art. GE credit: ArtHum or SciEng.—I. (I.) Ullman

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). Humans and biodiversity—domestication, aesthetics, ethics and valuation. Species richness and “success.” Biodiversity through time; monitoring, evaluation and conservation. Biomes—global, continental and Californian. (Same course as Evolution and Ecology 2.) GE credit: SciEng, Wrt.—I. (I.) Gullan, Cranston, Shaffer

10. Natural History of Insects (3)

Lecture—3 hours. 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. An introduction to the insects detailing their great variety, structures and functions, habits, and their significance in relation to plants and animals including man. GE credit: SciEng.—II. (II.) Kaya, Ullman

50. Insects in the Environment (3)

Lecture—1 hour; discussion—1 hour; laboratory—3 hours. Prerequisite: course/ Evolution and Ecology 2 or course 10 or Biological Sciences 1B or consent of instructor. Ecological roles of insects in different habitats and environmental systems. The uses of insects in terrestrial and aquatic surveys and environmental monitoring. Field and laboratory research, data analysis and scientific writing.—III. (III.) Cranston, Gullan

90X. Special Topics in Entomology (2)

Seminar—2 hours. Freshman seminar course for in-depth examination of a special topic within the subject area. May be repeated twice for credit. (P/NP grading only.)—I, II, III.

92. Internship (1-12)

Internship—3-36 hours. Prerequisite: consent of instructor. Work-learn experience on and off campus in all subject areas offered by the department, supervised by a member of the faculty. May be repeated up to 12 units of credit. (P/NP grading only.)

99. Special Study for Undergraduates (1-5)

(P/NP grading only.)

Upper Division Courses

100. General Entomology (4)

Lecture—3 hours; term paper. Prerequisite: Biological Sciences 1B. Biology, anatomy, physiology, development, classification, ecology and relation of insects to human welfare. GE credit: SciEng, Wrt.—I, III. (I, III.) Cranston, Gullan, Kimsey

100L. General Entomology Laboratory (2)

Laboratory—6 hours. Prerequisite: course 100 (may be taken concurrently). Anatomy, development, population ecology, methods of collecting, classification and identification of insects of all orders and of major families. GE credit with concurrent enrollment in course 100: Wrt.—I. (I.) Kimsey

101. Functional Insect Morphology (3)

Lecture—2 hours; laboratory—3 hours. Prerequisite: course 100. Study of the basic external and internal structures, organs and tissues of insects, with emphasis on functional systems. Functional anatomy, histology and fine structures of important organs and tissues will be discussed. GE credit: SciEng.—II. (II.) Kimsey

102. Insect Physiology (4)

Lecture—3 hours; discussion—1 hour. Prerequisite: course 100 or course in physiology or invertebrate zoology. Processes by which insects maintain themselves, reproduce, and adapt to environment. Insects as models for basic/applied research through detailed analysis of metabolic, physiological, and behavioral processes. Emphasis on analysis of methodology, fact, and theory. GE credit: SciEng.—II. (II.) Hammock, Leal

103. Insect Systematics (3)

Lecture—2 hours; discussion—1 hour. Prerequisite: introductory course in zoology or entomology. Principles and methods of systematics, with particular reference to insects. Emphasis on different theories of classification, and analysis of phylogenetic relationships. Offered in alternate years. GE credit: SciEng, Wrt.—III. Cranston, Gullan

104. Behavioral Ecology of Insects (3)

Lecture—3 hours. Prerequisite: introductory biology or zoology. Basic principles and mechanisms of insect behavior and ecology. An evolutionary approach to understanding behavioral ecology of insects. GE credit: SciEng.—II. (II.) Lewis

107. California Insect Diversity (5)

Lecture—1 hour; laboratory—6 hours; fieldwork—6 hours. Prerequisite: an introductory course in entomology. Survey of the diversity of insects from selected ecological zones in California with emphasis on collection, identification, and natural history. Offered in alternate years. GE credit: SciEng, Wrt.—III. Ward

109. Field Taxonomy and Ecology (7)

Lecture—2 hours; laboratory—36 hours; five-week course. Prerequisite: an introductory course in entomology or consent of instructor. The study of insects in their natural habitats; their identification and ecology. Offered in alternate years. GE credit: SciEng, Wrt.—(IV.) Ward

110. Arthropod Pest Management (5)

Lecture—3 hours; laboratory—6 hours. Prerequisite: Biological Science 1B. Development of the ecological basis for the integrated pest management paradigm with emphasis on agriculture. Ecological and practical aspects of control tactics. Laboratory emphasizes identification of pests and beneficials of agriculture and urban situations. GE credit: SciEng, Wrt.—II. (II.) Zalom

116. Biology of Aquatic Insects (3-5)

Lecture—2 hours and laboratory (Saturday field trips); optional laboratory on identification and/or aquatic insect collection. Prerequisite: course 100 or consent of instructor. A study of the life history, ecology, and identification of insects associated with streams, ponds, and lakes. GE credit: SciEng.—III. (III.) Lawler

117. Longevity (4)

Lecture—3 hours; term paper. Prerequisite: upper division standing or consent of instructor. Nature, origin, determinants, and limits of longevity with par-

Quarter Offered: I=Fall, II=Winter, III=Spring, IV=Summer; 2009-2010 offering in parentheses

General Education (GE) credit: ArtHum=Arts and Humanities; SciEng=Science and Engineering; SocSci=Social Sciences; Div=Socio-Cultural Diversity; Wrt=Writing Experience

ficular reference to humans; emphasis on implications of findings from non-human model systems including natural history, ecology and evolution of life span; description of basic demographic techniques including life table methods. (Same course as Human Development 117.) GE credit: SciEng, Wrt.—I. Carey

119. Apiculture (3)

Lecture—3 hours; papers. Prerequisite: Biological Sciences 1C recommended. Biology and behavior of honeybees; communication, orientation, social organization, foraging activities, honey production, pollination activities. GE credit: SciEng, Wrt.—III. (III.)

123. Plant-Virus-Vector Interaction (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1C, 101; Plant Biology 105, Plant Pathology 120, and course 100 recommended. Analysis of the interactions necessary for viruses to infect plants. Interactions among insect vectors and host plants involved in the plant-virus life cycle. Evolutionary aspects of the molecular components in viral infection and modern experimental approaches to the interdiction of viral movement. Offered alternate years. (Same course as Plant Biology 123/Plant Pathology 123.)—(I.) Lucas, Gilbertson, Ullman

135. Introduction to Biological Control (4)

Lecture—3 hours; laboratory—3 hours. Prerequisite: course 100 or 110. Principles of biological control of arthropod pests and weeds. Biology of pathogens, entomopathogenic nematodes, parasitoids, and predators. Implementation in classical and augmentative biological control. Role of biological control in pest management. Offered in alternate years—III. Kaya, Parrella

153. Medical Entomology (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B, upper division standing in one of the biological sciences, or consent of instructor. Basic biology and classification of medically important arthropods with special emphasis on the ecology of arthropod-borne diseases and principles of their control. Relationships of arthropods to human health. GE credit: SciEng, Wrt.—II. (II.) Scott

140S. Biodiversity and Conservation in South Africa (8)

Lecture—3 hours; lecture/discussion—2 hours; term paper; field work. Prerequisite: Biological Sciences 1A, 1B, 1C. A comprehensive overview of biodiversity in a South African context. This Quarter Abroad course, based in Stellenbosch, provides immersion in another culture and exposure to a novel biota. Field visits involve weekends and homework requires evening effort. Limited enrollment. May be repeated once for credit. Only six units of credit allowed to students who have previously taken course 2 or Evolution and Ecology 2. Engineering 36. GE credit: SciEng, Wrt.—II. (II.) Cranston, Gullan

156. Biology of Parasitism (3)

Lecture—3 hours. Prerequisite: Biological Sciences 1A or consent of instructors. Lectures on the biological and ecological aspects affecting host-parasite relationships using selected examples from protozoan and metazoan fauna. GE credit: SciEng.—III. (III.) Kimsey, Theis, Nadler

156L. Biology of Parasitism Laboratory (1)

Laboratory—3 hours. Prerequisite: course 156 (concurrently) or consent of instructor. Laboratory demonstrations using selected examples of protozoan and metazoan organisms along with various techniques used in parasitology to exemplify concepts presented in the lecture course. GE credit with concurrent enrollment in course 156: Wrt.—III. (III.) R. Kimsey

158. Forensic Entomology (3)

Lecture—2 hours; laboratory—4 hours. Prerequisite: Biological Sciences 1B or Entomology 100, upper division standing. Arthropods, their general biology, succession, developmental cycles and population biology in matters of criminal prosecution and civil litigation. Emphasis on basic arthropod biology, ecological and developmental concepts and methods,

development of reasoning abilities, implication, development of opinions and evidence. GE Credit: SciEng or SocSci, Wrt.—III. (III.) R. Kimsey

192. Internship (1-12)

Internship—3-36 hours. Prerequisite: completion of 84 units and consent of instructor. Laboratory experience or fieldwork off and on campus in all subject areas offered in the Department of Entomology. Internships supervised by a member of the faculty. (P/NP grading only.)

197T. Tutoring in Entomology (1-3)

Discussion—1-3 hours. Leading small discussion groups. Preview assignments and prepare guidelines for discussion. (P/NP grading only.)

198. Directed Group Study (1-5)

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

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

(P/NP grading only.)

Graduate Courses

212. Molecular Biology of Insects and Insect Viruses (3)

Lecture—3 hours. Prerequisite: consent of instructor. A molecular biological analysis of insect systematics, physiology, and defense mechanisms. Molecular biology of insect viruses. Baculovirus expression vectors and post-translation modification of expressed polypeptides. Biological control of using neuro-peptides and toxin genes in insect viruses.—II. (II.)

214. Vector-Borne Infectious Diseases: Changing Patterns (2)

Lecture/discussion—2 hours. Vector-borne infectious diseases especially as they relate to changing patterns associated with climatic change, trade and population movement. (Same course as Population Health and Reproduction 214.)—I. (I.) Chomel

225. Terrestrial Field Ecology (4)

Seminar—1 hour; field work—12 hours. Prerequisite: introductory ecology and introductory statistics or consent of instructor. A field course conducted over spring break and four weekends at Bodega Bay, emphasizing student projects. Ecological hypothesis testing, data gathering, analysis and written and oral presentation of results. (Same course as Ecology 225/Population Biology 225.)—III. (III.) Karban

230. Advanced Biological Control (4)

Lecture—2 hours; laboratory—6 hours. Prerequisite: graduate or upper division standing in biological science or consent of instructor. Principles and current issues in biological control of arthropod pests and weeds; laboratory devoted to identification and life history of the major groups of parasitic and predaceous arthropods. Offered in alternate years.—(I.)

253. Advanced Medical Entomology (3)

Lecture—2 hours; discussion—1 hour. Prerequisite: one upper division course in entomology (other than course 153) and one course in microbiology: course 153 strongly recommended. An analysis of several arthropod-borne human diseases with emphasis on the relationships of the biology of the vector to the ecology of the disease. Discussion includes demonstration of vectors and techniques. Offered in alternate years.—(III.)

290. Exploratory Topics in Entomology (2)

Seminar—2 hours. Interdisciplinary topics in entomology, including innovative applications of entomological concepts to other fields of research and human endeavor (e.g. medicine, technology, art, criminology). May be repeated for up to 8 units of credit when topic differs.—I, II, III.

291. Current Topics in Medical and Veterinary Entomology (2)

Seminar—2 hours. Prerequisite: course 153. Discussion of parasitology, ecology and epidemiology related to vectors of pathogens causing disease in humans and animals. May be repeated once for credit. Not offered every year.—I, II, III. Kimsey, Scott

292. Current Topics in Insect Physiology and Behavior (2)

Seminar—2 hours. Prerequisite: course 102 if topic is physiology, a course in behavior if topic is behavior, or either if topic bridges both. Analysis of contemporary advances in insect physiology, biochemistry and/or behavior. Interpretation and description of physiological and behavioral mechanisms and functions. Application of general principles to solution of problems in the laboratory and field. May be repeated for up to 8 units of credit if topic differs. Not offered every year.—I, II, III. Hammock, Leal

293N. Current Topics in Insect Biotechnology and Genomics (2)

Seminar—2 hours. Prerequisite: course 212. Discussion of advances in insect biotechnology, including genetic engineering and genomics. May be repeated for up to 6 units of credit if topic differs. Not offered every year.—I, II, III. Hammock, Leal

294. Current Topics in Insect Ecology, Evolution, and Systematics (2)

Seminar—2 hours. Prerequisite: course 103, general course in ecology or evolution. Discussions of advanced topics in ecology, evolution and systematics with emphasis on analysis of factors influencing the distribution, abundance, adaptations and evolutionary relationships of insects. Includes consideration of applications of basic theory (e.g. biological control). May be repeated for credit up to eight units if topics differs. Not offered every year.—I, II, III.

295. Current Topics in Agricultural Entomology and Bee Biology (2)

Seminar—2 hours. Prerequisite: course 110 if topic covers pests and beneficial predators, course 119 if topic is bee biology, or either if topic bridges both. Discussion of advanced topics about the biology, ecology, behavior, and management of pest and beneficial insects. May be repeated for up to 8 units of credit if topic differs. Not offered every year.—I, II, III. Granett, Parrella, Rosenheim

297N. Seminar in Entomology (1)

Seminar—1 hour. Weekly entomology seminar. May be repeated up to 9 units of credit if topic differs. (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.)

Environmental Biology and Management

This major will be discontinued as of Fall 2008; See [Environmental Science and Management](#), on page 280

(College of Agricultural and Environmental Sciences)

Faculty

See the Department of [Environmental Science and Policy](#), on page 281.

The Major Program

The Environmental Biology and Management major offers an education in the basic natural sciences, especially ecology, together with a set of management and public policy analysis courses. Students completing the program will understand the scientific basis for environmental decision making, and the legal, economic, and political issues involved in management of the environment in the United States and worldwide.

Any student in good standing is eligible to transfer to the major; to do so, please see the major adviser, Marcel Holyoak in 3154 Wickson Hall or Kimberly Mahoney in 2134 Wickson Hall.