224. Advances in the Science of Winemaking (3)
Lecture—2 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.—II, III, (III.)

225. Advanced Sensory Analysis of Wines (3)
Lecture/discussion—2 hours; laboratory—4 hours. Prerequisite: courses 124 and 125 (or Food Science and Technology 107) and Agricultural Management and Rangeland Resources 120 or the equivalent. Sensory descriptive analysis experiments will be designed and conducted using standard sensory science methods. Data will be analyzed by analysis of variance, principal component analyses and generalized Procrustes analysis to evaluate the judge’s performance and interpret the significance of the results.—II. Heymann

235. Winery Design (4)
Lecture—2 hours; discussion—1 hour; independent study. Prerequisite: course 124, 135 or consent of instructor. Design of wineries. Includes process calculations, equipment selection, process layout and building choice and siting. Project scheduling, capital costs, and ten-year cash flow analysis for the winery. One field trip required. Offered in alternate years.—II. Boulton

270. Critical Evaluation of Scientific Literature (2)
Discussion—2 hours. Prerequisite: consent of instructor. Contemporary research topics in biological sciences. Discussion of recent research articles in a special topic area. Intended to develop skills in critical evaluation of scientific publications. May be repeated for credit. (S/U grading only)—I, II, III, (II, III) Bisson

290. Seminar (1)
Seminar—1 hour. Prerequisite: consent of instructor. (S/U grading only)—I, II, III, (III)

290C. Advanced Research Conference (1)
Discussion—1 hour. Prerequisite: graduate standing and consent of instructor. Planning and results of research programs, proposals, and experiments. Discussion and critical evaluation of original research being conducted by the group. Discussion led by individual research instructors for research group. May be repeated for credit. (S/U grading only)—I, II, III, (I, II, III)

291. Advanced Viticulture (2)
Lecture/discussion—2 hours. Prerequisite: course 110, 111, 124, 125, 126, 127; 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 supervised and supervised by a graduate group faculty member or students major professor, but are arranged by the student. May be repeated one time for credit. Offered in alternate years.—II. Matthews

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 supervised and supervised by a graduate group faculty member or students major professor, but are arranged by the student. May be repeated one time for credit. Offered in alternate years.—II, III, (I, II, III)

297. Tutoring in Viticulture and Enology (1-5)
Prerequisite: graduate standing and consent of instructor. Designed for graduate students who desire teaching experience, but are not teaching assistants. Contact student currently in laboratory or discussion sections, and under direction of a faculty member. (S/U grading only)

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

299. Research (1-12)
(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, (II, III)

Viticulture and Enology (A Graduate Group)

David A. Mills, Ph.D., Chairperson of the Group
Group Office, 1204 RMI South
530-752-1852; Fax 530-7582-032; http://vengg.ucdavis.edu

Faculty
Douglas O. Adams, Ph.D., Professor (Viticulture and Enology)
Charles W. Bamforth, Ph.D., Professor (Food Science and Technology)
Linda F. Bisson, Ph.D., Professor (Viticulture and Enology)
David E. Black, Ph.D., Professor (Viticulture and Enology, Chemical Engineering)
Academic Senate Distinguished Teaching Award
Roger B. Boulton, Ph.D., Professor (Viticulture and Enology, Chemical Engineering)
Dario Cantu, Ph.D., Assistant Professor (Food Science and Technology)
Susan E. Ebeler, Ph.D., Professor (Viticulture and Enology)
Jean-Xavier Quinard, Ph.D., Professor (Food Science and Technology)
Hildegard Heymann, Ph.D., Professor (Viticulture and Enology)
Marina Macri, Ph.D., Assistant Professor (Food Science and Technology)
Mark A. Matthews, Ph.D., Professor (Viticulture and Enology)
David A. Mills, Ph.D., Professor (Viticulture and Enology, Food Science and Technology)
Statistical Consulting Award
Kenneth A. Shackel, Ph.D., Professor (Plant Sciences)
David R. Smart, Ph.D., Associate Professor (Viticulture and Enology)
Li, Tian, Ph.D., Assistant Professor (Plant Sciences)
M. Andrew Walker, Ph.D., Professor (Viticulture and Enology)
Andrew L. Waterhouse, Ph.D., Professor (Viticulture and Enology)
Larry E. Williams, Ph.D., Professor (Viticulture and Enology)

Affiliated Faculty
Matthew W. Fidelibus, Ph.D., Associate Specialist in Cooperative Extension, (Viticulture and Enology)
W. Douglas, Gubler, Ph.D., Specialist in Cooperative Extension (Plant Pathology)
Andrew J. McElrone, Ph.D., Assistant Adjunct Professor (Viticulture and Enology)
Anita Oberholster, Ph.D., Assistant Specialist in Cooperative Extension (Viticulture and Enology)
Keri L. Steenwerth, Ph.D., Assistant Adjunct Professor (Viticulture and Enology)

Graduate Study
The M.S. program offered advanced studies in viticulture and enology, ranging from the genetics, physiology and biochemistry of grapevines to the chemistry, microbiology and sensory science of wine and the chemical engineering of winemaking. Applications must be submitted online by January 15.

Ph.D. students are not offered by the Graduate Program in Viticulture and Enology.
Preparation
Applicants to the program are required to have a level of competence equivalent to that of a strong science undergraduate program.

This includes coursework in biology, general chemistry, organic chemistry, calculus, statistics (analysis of variance), biochemistry, microbiology, and economics.
Specific requirements are outlined in detail and may be obtained by visiting http://vengg.ucdavis.edu.

Graduate Advisers. H. Heymann, A.J. McElrone

War-Peace Studies

[College of Letters and Science]

The interdisciplinary minor in War-Peace Studies examines the causes and dynamics of intra- and international wars and efforts to prevent and settle such conflicts.

Students in the minor are encouraged to participate in the educational activities of the Davis Program of the UC Institute on Global Conflict and Cooperation (IGCC).

The minor is sponsored by the International Relations Program.

Minor Program Requirements:

UNITS

War-Peace Studies..................... 19-20

One or two courses from each of the following areas:

Approaches: Anthropology 123AN, 126B,
Comparative Literature 157, Philosophy 115, 116, Political Science 121, 123, 124, 132, 176, Sociology 157, Women’s Studies 102


Restriction. No more than two courses from a single department may be offered in satisfaction of the minor requirements.

Advising. International Relations Program
530-754-8098

Water Science

See Hydrologic Sciences (A Graduate Group), on page 347; Hydrology, on page 348; and Soil and Water Science, on page 511.

Wildlife, Fish, and Conservation Biology

[College of Agricultural and Environmental Sciences]

John M. Eadie, Ph.D., Chairperson of the Department
Department Office. 1088 Academic Surge
530-752-6586; http://wfbc.ucdavis.edu

Faculty
Louis W. Batsford, Ph.D., Professor
Tim Caro, Ph.D., Professor
John M. Eadie, Ph.D., Professor
Nann A. Fangue, Ph.D., Assistant Professor
Douglas A. Kelt, Ph.D., Professor
A. Peter Klimestone, Ph.D., Adjunct Professor
Peter B. Mayle, Ph.D., Professor

Quarter Offered: I-Fall, II-Winter, III-Spring, IV-Summer, 2013-2016 offering in parentheses

Pre-Fall 2011 General Education (GE): Arts & Humanities; Alice K. and T. D. White Diversity; Science and Engineering; Social Sciences; Diversity; World Cultures; Writing Experience

Fall 2011 and on Revised General Education (GE): Arts & Humanities; Science and Engineering; Social Sciences; Diversity; Oral Skills; Quantitative; Scientific; Visual; World Cultures; Writing Experience

ACGH—American Cultures; DD—Diversity; DL—Oral Skills; GL—Quantitative; SL—Scientific; VL—Visual; WC—World Cultures; WE—Writing Experience
Brian D. Todd, Ph.D., Assistant Professor
Andrea K. Townsend, Ph.D., Assistant Professor
Dirk H. Van Vuren, Ph.D., Professor
Emeriti Faculty
Daniel W. Anderson, Ph.D., Professor Emeritus
Joseph L. Cheek Jr., Ph.D., Professor Emeritus
Christopher M. Deewe, Ph.D., Specialist in Cooperative Extension Emeritus
Deborah L. Elliott-Fish, Ph.D., Senior Lecturer Emerita
Don E. Erman, Ph.D., Professor Emeritus
Nancy A. Erman, M.S., Specialist Emerita
E. Lee Fitzhugh, Ph.D., Specialist in Cooperative Extension Emeritus
Walter E. Howard, Ph.D., Professor Emeritus
Rex E. Marsh, A.B., Specialist Emeritus
Terrell P. Salmon, Ph.D., Specialist in Cooperative Extension Emeritus
Affiliated Faculty
Roger A. Baldwin, Ph.D., Assistant Specialist in Cooperative Extension
Lisa C. Thompson, Ph.D., Specialist in Cooperative Extension
The Major Program
The Wildlife, Fish, and Conservation Biology major deals with the relationships between the requirements of wildlife and the needs of people. Understanding these relationships is vital for the maintenance of ecological diversity, recreational resources, and food supplies. Students completing the major possess a broad knowledge of ecology and natural history, but with the quantitative skills to use knowledge in critical thinking and decision-making.

The Program. The major emphasizes broad training in biological sciences, with specialization in one of five areas. The major is primarily for students interested in becoming professionals in the diverse fields of wildlife, fish, and conservation biology, including veterinary and wildlife health sciences. The breadth of course requirements, when combined with electives also make this an excellent preparatory major for secondary school teaching. Certification by professional societies such as The Wildlife Society, American Fisheries Society, or the Ecological Society of America, or preparation for graduate studies may also be achieved by careful planning of electives with a faculty adviser careful planning of electives with a faculty adviser.

Career Alternatives. The major prepares students to excel in the diverse fields of environmental and conservation biology emphasizing vertebrate animals in their natural environments, as well as resolution of conflicts between humans and wild animals. Positions now held by graduates in this major include wildlife biology, fisheries biology, wildlife damage management, and resource biologists and managers with local, state, and federal agencies. Many graduates are biologists or consultants with private industries such as environmental consulting firms, commercial fishing businesses, electrical utilities, sporting clubs or businesses, and aquaculture operations, while others are veterinarians, medical physicians, and professors/researchers who teach and/or conduct research in academic institutions.

B.S. Major Requirements:

- **Written/Oral Expression**
  - University Writing Program 1-2
  - Communication 1-4
  - Above requirements simultaneously satisfy the College requirements

- **Preparatory Subject Matter**
  - Biological Sciences 2A, 2B, 2C 14
  - Chemistry 2A, 2B, 8A, 8B 16
  - Mathematics 16A, 16B 6
  - Physics 1A, 1B 6

- **Depth Subject Matter**
  - Statistics 100, 102, or Plant Sciences 120 4
  - Wildlife, Fish, and Conservation Biology 10, 11, or 50 3-4

- **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 Major Adviser so that their program can be evaluated and a faculty adviser assigned. Contact the Department in 1088 Academic Surge Building or telephone 530-752-9976.

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.

Minor Adviser. N. A. Fangue

Graduate Study. Faculty in Wildlife, Fish, and Conservation Biology and The College of Agricultural and Environmental Sciences have members of several graduate programs, including the Ecology, Population Biology, Genetics, Animal Behavior, and Avian Science graduate groups. Students interested in graduate studies should consult the Graduate Adviser, or visit Graduate Studies, on page 111.
Courses in Wildlife, Fish, and Conservation Biology (WFC)

Lower Division

10. Wildlife Ecology and Conservation (4)
Wrt | SE, SL, WE | I, III. [I, II, III. Fangue, Moyle, Kelt

11. Introduction to Conservation Biology (3)
Lecture—3 hours. Introduction to conservation biology and background to the biological issues and concerns surrounding loss of species and habitats for students with no background in biological sciences. Offered in alternate years. GE credit: SciEng, Wrt | SE, SL, WE | II, III. Caro

50. Natural History of California’s Wild Vertebrates (3)
Lecture—2 hours; discussion—1 hour. Examination of the natural history of California’s wild vertebrates (fish, amphibians, reptiles, birds, and mammals), including their biogeography, systematics, ecology, and conservation status. GE credit: SciEng, Wrt | SE, SL, WE | II, III. Townsend

92. Internship (1-6)
Internship—3-18 hours. Prerequisite: lower division standing and instructor. Work experience off and on campus in all subject areas offered in the department. Internships supervised by a member of the faculty. (P/NP grading only)

99. Special Study for Undergraduates (1-5)
Prerequisite: consent of instructor. Special study for undergraduates. (P/NP grading only)

Upper Division

100. Field Methods in Wildlife, Fish, and Conservation Biology (4)
Lecture—2 hours; laboratory—3 hours; fieldwork—3 hours. Prerequisite. Evolution and Ecology 101 or Environmental Science and Policy 100 and consent of instructor. Introduction to field methods for monitoring and studying wild vertebrates and their habitats, with an emphasis on ecology and conservation. Required weekend field trips. GE credit: SciEng | SE | II, III. Eadie, Kelt, Todd, Van Vuren

101. Field Research in Wildlife Ecology (2)
Lecture/discussion—2 hours. Prerequisite: Consent of instructor and one upper division course in each of ecology, systematics, and ornithology, mammalogy, or herpetology. Field research in ecology of wild vertebrates in terrestrial environments; formulation of testable hypothesis, design, introduction to research methodology, and oral and written presentation of results. Limited enrollment. Offered in alternate years. GE credit: SciEng | Wrt | SE, VI, WE | I, II, III. Eadie, Kelt, Todd, Van Vuren

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, systematics, and ornithology, mammalogy, or herpetology. 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. Limited enrollment. Offered in alternate years. GE credit: SciEng | Wrt | SE, SL, WE, I, II, III. Eadie, Kelt, Todd, Van Vuren

102. Field Studies in Fish Biology (1)
Lecture—discussion—1 hour. Prerequisite: upper division course in ecology of aquatic biology, fish biology, and statistics, and consent of instructor. Emphasis on the technique of quantitative fish capture methods and design of individual research projects on ecology, behavior, physiology or population biology of fishes. Offered irregularly. —III. Moyle

102L. Field Studies in Fish Biology: Laboratory (6)
Fieldwork—15 hours; laboratory—12 hours; discussion/laboratory—3 hours. Prerequisite: course 102, upper division course in each of ecology, aquatic biology, fish biology, and statistics, and consent of instructor. Field investigations of fish biology emphasized including quantitative capture methods and individual research projects on ecology, behavior, physiology or population biology of fishes at the field site in relation to their habitats. Offered irregularly. (Deferred grading only pending completion of projects.) GE credit: SciEng, Wrt | SE, SL, WE | II, III. Moyle

110. Biology and Conservation of Wild Mammals (3)
Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or Biological Sciences 2A, 2B, 2C; Evolution and Ecology 101 or Environmental Science and Policy 100 or equivalent course. Origins, evolution, diversification, and ecological distributions of mammals. Morphological, physiological, reproductive, and behavioral adaptations of mammals to their environment. —III. Kelt

110L. Laboratory in Biology and Conservation of Wild Mammals (3)
Lecture—6 hours. Prerequisite: course 110 may be taken concurrently; consent of instructor. Laboratory exercises in the morphology, systematics, species identification, and adaptations of wild mammals to different habitats. Limited enrollment.—I, III. Kelt

111. Biology and Conservation of Wild Birds (3)
Lecture—3 hours. Prerequisite: Biological Sciences 1A, 1B, 1C, or Biological Sciences 2A, 2B, 2C; Evolution and Ecology 101 or Environmental Science and Policy 100 or equivalent course. Phylogeny, distribution, migration, population dynamics, behavior and physiological ecology of wild birds. Emphasis on adaptations to environments, species interactions, management, and conservation. GE credit: SciEng | SE, I, II. Eadie

111L. Laboratory in Biology and Conservation of Wild Birds (3)
Lecture—6 hours; laboratory—3 hours. Prerequisite: course 111 may be taken concurrently; consent of instructor. Laboratory exercises in bird species identification, anatomy, molts, age and sex, specialized adaptations, behavior, research, with emphasis on conservation of wild birds. Several weekend field trips, study other wild bird sites, and independent bird study are required. Limited enrollment.—II. Eadie

120. Biology and Conservation of Fishes (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, 2C; Evolutionary and conservation of marine and freshwater fishes. —I, I. Moyle

120L. Laboratory in Biology and Conservation of Fishes (2)
Lecture—3 hours. Laboratory—course 120 may be taken concurrently; limited enrollment. Morphology, taxonomy, conservation, and identification of marine and freshwater fishes with emphasis on California species. —II. Moyle

121. Physiological Ecology 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. GE credit: SciEng, Wrt | SE, WE | I, II. Moyle

122. Population Dynamics and Estimation (4)
Lecture—3 hours; laboratory—3 hours. Prerequisite: Mathematics 16A-16B; Statistics 13 or the equivalent; an upper division course in ecology. Description of bird, mammal and fish population dynamics, modeling philosophy, techniques for estimation of animal abundance (e.g., mark-recapture, chaining, ratio, etc.), mathematical models of populations (e.g., Leslie matrix, logistic, dynamic pool, stock-recruitment), case histories.—II, III. Sotsford

130. Physiological Ecology of Wildlife (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Evolution and Ecology 101 or Environmental Science and Policy 100 or equivalent courses. Field principles of physiological ecology, emphasizing vertebrates. Ecological, evolutionary, and behavioral perspectives of physiological mechanisms used by animals to adapt to their environment, including consideration of climate-change and other threats to biodiversity. Tropical, temperate, and polar ecosystems are highlighted. GE credit: SciEng | SE, I, II. Fangue

134. Herpetology Laboratory (3)
Laboratory—6 hours. Prerequisite: Biological Sciences 2A, 2B, 2C; Evolution and Ecology 101 or Environmental Science and Policy 100 or equivalent upper division course recommended; course 134 concurrently; consent of instructor. Diagnostic characteristics and functional attributes of amphibians and reptiles, emphasizing ecological, biogeographic, and phylogenetic diversity of wild environments with common species of reptiles and amphibians in the Davis area. Offered in alternate years.—II. Todd

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.—II. Eadie

141. Behavioral Ecology (4)
Lecture—3 hours; film viewing—1 hour. Prerequisite: Evolution and Ecology 101 or Environmental Science and Policy 100 or equivalent course. Basic theories underlying the functional and evolutionary significance of behavior, and the role of ecological constraints. Supporting empirical evidence taken mainly from studies of wild vertebrates. Offered in alternate years. GE credit: SciEng | SE | II. Caro

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 species that adapt to 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.—II. Townsend

151. Wildlife Ecology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: Biological Sciences 2A, 2B, 2C 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.—I. Van Vuren

152. Ecology of Human—Wildlife Conflicts (3)
Lecture—3 hours. Prerequisite: Biological Sciences 2A, 2B, 2C, or the equivalent. Ecological approaches to managing wild vertebrates that come into conflict with agriculture, public health, or the conservation of biodiversity. Offered in alternate years.—II. Van Vuren

153. Wildlife Ecotoxicology (4)
Lecture—3 hours; discussion—1 hour. Prerequisite: introductory courses in organic chemistry, ecology, and physiology, or consent of instructor; Environmenal Toxicology 101 recommended. Variations of environmental pollution in relation to fish and wildlife, the effects and mechanisms of pollutants, effects on individuals and systems, laboratory and field-eco
Seminar—1 hour. Prerequisite: upper division stand-
ents in developing disease control policies.
miological models and their applications. Role of sci-
iology 101 or the equivalent. Intro-
(II.) Lauren & Todd
155L. Habitat Conservation and Restoration Laboratory (2)
Fieldwork—3 hours; laboratory—3 hours. Prerequi-
te: Evolution and Ecology 101 or Environmental Science and Policy 100 or equivalent course, course 153 and Environmental Horticulture 160 recommended. Analysis of the characteristics of wildlife and fish habitats, the con-
servation of habitats, and restoration. GE credit: Sci-
Eng, Wrt | SE, VL, WE. —II. (II.)

155. Habitat Conservation and Restoration (3)
Lecture—3 hours. Prerequisite: Evolution and Ecol-
y 101 or Environmental Science and Policy 100 or equivalent course; course 154 and Environmental Horticulture 160 recommended. Analysis of the characteristics of wildlife and fish habitats, the con-
servation of habitats, and restoration. GE credit: Sci-
Eng | SE, WE. —II. (II.)

156. Plant Geography (4)
Lecture—3 hours; laboratory—3 hours; term paper. Field trips will be substituted for some in-lab activi-
ties. Prerequisite: Environmental Science and Policy 100 or Evolution and Ecology 101; course work in organis-
ological biology, physical geography, and geology recom-
mended. Overview of coastal ecosystems, physical and biological elements and processes, and coastal zone dynamics, including sandy, rocky and muddy 
shorelines, estuaries, dunes and coastal waterways. Discussion of the role of historical factors and conser-
vation, restoration, and management approaches. Not offered every year. GE credit: Sci, Eng, Wrt | SE, VL, WE. — III.

157. Coastal Ecosystems (4)
Lecture—3 hours; laboratory/fieldwork—3 hours. Prerequi-
te: Environmental Studies 100 or Evolution and Ecology 101; course work in organisa-
logical biology, physical geography, and geology recom-
mended. Overview of coastal ecosystems, physical and biological elements and processes, and coastal zone dynamics, including sandy, rocky and muddy 
shorelines, estuaries, dunes and coastal waterways. Discussion of the role of historical factors and conser-
vation, restoration, and management approaches. Not offered every year. GE credit: Sci, Eng, Wrt | SE, VL, WE. — III.

158. Infectious Disease in Ecology and Conservation (3)
Lecture—3 hours. Prerequisite: Evolution and Ecol-
y 101 or Environmental Science and Policy 100 or Veterinary Medicine 409 or the equivalent. Intro-
duction to the dynamics and control of infectious dis-
ease in wildlife, including zoonotic diseases and those that affect other species. Basic epide-
miological models and their applications. Role of sci-
entists in developing disease control policies. Offered irregularly.

190. Departmental Research Seminar (1-3)
Seminar—1 hour. Prerequisite: upper division stand-
ing in the biological sciences. Reports and discuss-
sions of recent advances related to wildlife and fisheries biology. May be repeated for credit up to 3 times. GE credit: SE. —I, II, III.

191. Museum Science (2)
Lecture—1 hour; laboratory—3 hours. Prerequisite: upper division standing and consent of instructor. Principles and methods required to preserve and present biological specimens for research, teaching collections, and museum exhibits. Offered irregularly. (P/NP grading only.)—II. English

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. Internships supervised by a member of the faculty. (P/NP grading only.)

195. Field and Laboratory Research (3)
Laboratory—4 hours; discussion—1 hour. Prerequi-
te: course 110L, 111L or 120L, 121 or 130; Evo-
lution and Ecology 101 or the equivalent; and 
consent of instructor. Critique and practice of research methods applied to field and/or laboratory environments of wild vertebrates. Students work independently or in small groups to design experi-
mental protocol, analyze data, and report their find-
ings. May be repeated two times for credit. GE credit: Sci, Eng | SE, VL, WE. —II. (II.)

197T. Tutoring in Wildlife and Fisheries (1-5)
Prerequisite: major in Wildlife, Fish, and Conserva-
tion Biology and consent of instructor. Experience in teaching under guidance of faculty member. (P/NP grading only.)

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

199. Special Study for Advanced Undergraduates (1-5)
(P/NP grading only.)

Graduate

222. 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 recom-
mmended. Logical basis for population models, evaluation of simple ecological models, current pop-
ulation 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. Offered irregularly. —II. (II.) Batsford

223. Conservation Biology and Animal Behavior (3)
Lecture—1.5 hours; discussion—1.5 hours. Prerequi-
te: Ecology 208 or Animal Behavior 221. Influ-
ces of concepts of animal behavior (functional, evolutionary, developmental, mechanistic, and meth-
odological issues) on conservation biology theory and practice. Offered in alternate years. III. —Caro

290. Seminar (1-3)
Seminar—1-3 hours. Prerequisite: consent of instruc-
tor. Seminar devoted to a highly specific research topic in any area of wildlife or fisheries biology. Spe-
tical topic selected for a quarter will vary depending on interest of instructors and students. (S/U grading only.)—I, II, III. (II, III)

290C. Research Group Conference (1)
Discussion—1 hour. Prerequisite: consent of instruc-
tor. Weekly conference on research problems, prog-
ness and techniques in wildlife and fishery sciences. May be repeated for credit. (S/U grading only)—I, II, III. (II, III)

291. Seminar in Aquatic Ecology (2)
Seminar—2 hours. Prerequisite: graduate standing in biology. Presentation and analysis of assigned topics in aquatic ecology. May be participating fish, fisheries and aquatic conservation. Offered in alternate years. (S/U grading only.)—III. (III) Moyle

292. Physiology of Fishes Seminar (1)
Seminar—1 hour. Prerequisite: graduate standing and at least two courses in physiology; consent of instructor. Seminar devoted to current topics concern-
ing the physiological functioning of fishes. May be repeated two times for credit. Offered irregularly. (S/U grading only.)—II. (II)

294. Behavioral Ecology of Predators and Prey (3)
Seminar—2 hours. Prerequisite: graduate standing. Presentation and analysis of research papers on social and foraging behavior of predatory animals, antipredator strategies of prey species, co-evolution of predators and prey, and ecology of predator prey interactions. May be repeated for credit. (Same course as Animal Behavior 294.) Offered in alternate years. —II. Caro

295. Seminar in Wildlife Ecotoxicology (3)
Seminar—2 hours; term paper. Prerequisite: gradu-
ate standing in biology. Presentation and analysis of assigned and searched research papers on trans-
port, exposure, and effects of environmental contam-
inants on wildlife-associated ecosystem components, especially at individual/organism population levels. Specific subjects vary each year. Offered irregularly. (S/U grading only.)

297T. Supervised Teaching in Wildlife and Fisheries Biology (1-3)
Tutorial—3-3 hours. Prerequisite: meet qualifications for teaching assistant; graduate standing; and con-
sent of instructor. Tutoring and teaching students in undergraduate courses in Wildlife, Fish, and Conser-
vation Biology. Weekly conferences with instructor; evaluations of teaching; preparing for and conduct-
ing demonstrations, laboratories, and discussions; preparing and grading examinations. May be be-
teated for a total of 6 units when a different course is tutored. (S/U grading only.)

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

Students transferring to UC Davis from another insti-
tution or new students declaring the major of Wild-
life, Fish, and Conservation Biology must consult the Master Adviser so that their program can be evalu-
ated and a faculty adviser assigned. Contact the Department in 1086 Academic Surge Building or telephone 530-752-6586.

Wine Production

Food Science and Technology, on page 313; Microbiology and Molecular Genetics, on page 423; and Viticulture and Enology, on page 541.

Women and Gender Studies

(Comitee in Charge
Elizabeth Constable, Ph.D. (Women and Gender Studies)
Maxine Craig, Ph.D. (Women and Gender Studies)
Wendy Ho, Ph.D. (Asian American Studies, Women and Gender Studies)
Suad Joseph, Ph.D. (Anthropology, Women and Gender Studies)
Susan Kaiser, Ph.D. (Textiles and Clothing, Women and Gender Studies)
Anna K. Kuhn, Ph.D., Emerita (Women and Gender Studies)
Amina Mama, Ph.D. (Women and Gender Studies)
Kimberly D. Nettles-Barcelón, Ph.D. (Women and Gender Studies)

Faculty
Elizabeth Constable, Ph.D., Associate Professor (Women and Gender Studies)
Maxine Craig, Ph.D., Associate Professor (Women and Gender Studies)