

sis is on critical examination of issues from cross-cultural, theoretical, and applied perspectives. GE credit: ArtHum, Wrt.—(III.) McLean

### 130. The Nature of Exploration (4)

Lecture/discussion—3 hours; term paper. Prerequisite: upper division standing. Writings and drawings of a historical period of exploration, with a focus on descriptions of nature. Consideration of what representations of the enterprise of exploration reveal about the cultural values of the explorers, and how those values persist. Offered in alternate years. GE credit: ArtHum, Wrt.—I. Glover

### 140. Animal Rights (4)

Lecture/discussion—3 hours; term paper. Prerequisite: upper division standing. Issues surrounding animal rights, including hunting, fishing, industrial husbandry and slaughter, experimentation, and pets. Emphasis on the complexities of human relations to other animals from historical, literary, and cross-cultural perspectives. Offered in alternate years. GE credit: ArtHum, Wrt.—II. McLean

### 160. Art and the Natural World (4)

Studio—6 hours. Field trips. Exploration of how the people of various cultures, from traditional to contemporary, have expressed their relationship to the natural world in art.

### 180. Fieldwork in Nature and Culture (4)

Discussion—1 hour; fieldwork—70 hours/quarter; term paper. Prerequisite: course 100 and consent of instructor. Fieldwork: one week prior to the beginning of the quarter, plus two weekends. Natural scientific, social scientific, and literary/artistic approaches to the study of nature and culture in one place, which will vary with instructor. Offered in alternate years.—I. (I.)

### 192. Internship in Nature and Culture (1-12)

Internship—3-36 hours. Prerequisite: course 1. Internship in natural sciences, social sciences, or humanities on or off campus in which students use and improve their interdisciplinary skills and perspectives gained through the Nature and Culture curriculum. Supervised by a faculty member. May be repeated for credit. (P/NP grading only.)

### 194H. Special Study for Honors Students (3)

Seminar—3 hours; term paper. Prerequisite: consent of instructor; admission to the Nature and Culture Honors program. Students must contact the department before enrolling. Supervised reading, research and writing to prepare for developing a project proposal under the direction of faculty sponsor. Not offered every year.—I, II.

### 195H. Honors Project (3)

Independent study; project. Prerequisite: consent of instructor; admission to the Nature and Culture Honors program. Students must contact the department before enrolling. Second of a two-course sequence comprising the senior honors program. It is an individual-study course in which a student produces an honors project under the supervision of a faculty member. Not offered every year.—II, III.

### 197T. Tutoring in Nature and Culture (1-5)

Tutoring—3-15 hours. Prerequisite: consent of instructor. Assist in field trips, lead study sessions with groups and individual students. (P/NP grading only.)

### 198. Directed Group Study (1-5)

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

### 199. Individual Study (1-5)

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

## Nematology

(College of Agricultural and Environmental Sciences)

Steven A. Nadler, Ph.D., Chairperson of the Department

**Chair Office.** 488 Hutchison Hall  
(530) 752-7567; <http://ucdnema.ucdavis.edu>

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### Faculty

Edward P. Caswell-Chen, Ph.D., Professor  
Howard Ferris, Ph.D., Professor  
Harry K. Kaya, Ph.D., Professor (*Entomology*)  
Edwin E. Lewis, Associate Professor  
Steven A. Nadler, Ph.D., Professor  
Becky B. Westerdahl, Ph.D., Professor  
Valerie M. Williamson, Ph.D., Professor

### Emeriti Faculty

Bruce A. Jaffee, Ph.D., Professor Emeritus  
Armand R. Maggenti, Ph.D., Professor Emeritus  
Dewey J. Raski, Ph.D., Professor Emeritus

### Minor Program Requirements:

	UNITS
<b>Nematology</b> .....	<b>18-20</b>
Nematology 100, 110, and Soil Science 100 .....	10
Two or three courses from one of the following areas.....	8-10
(a) <i>Plant Science</i> : Microbiology 102; Entomology 100, 135, 153, 156, 156L; Evolution and Ecology 112; Plant Pathology 120, 148; Plant Biology 121; Soil Science 111, 112	
(b) <i>Entomology</i> : One upper division Entomology course; Evolution and Ecology 112; Microbiology 102; Plant Biology 121; Plant Pathology 120, 148; Soil Science 102, 111, 112	

**Minor Adviser.** S. A. Nadler

**Graduate Study.** Graduate degrees specializing in Nematology are offered through the Departments of Entomology and Plant Pathology, and through various Graduate Groups (Biochemistry, Ecology, Genetics, Plant Protection and Pest Management). Refer also to the Graduate Studies chapter of this catalog.

### Courses in Nematology (NEM)

#### Upper Division Courses

#### 100. General Plant Nematology (4)

Lecture—2 hours; laboratory—6 hours. Prerequisite: Biological Sciences 1B or 10. An introduction to the classification, morphology, biology, and control of the nematodes attacking cultivated crops.—I. (I.) Ferris

#### 110. Introduction to Nematology (2)

Lecture—2 hours. Prerequisite: Biological Sciences 1B or the equivalent or consent of instructor. The relationship of nematodes to human environment. Classification, morphology, ecology, distribution, and importance of nematodes occurring in water and soil as parasites of plants and animals.—II. (II.) Caswell-Chen, Nadler

#### 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 instructor. 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.—II. (II.) Jaffee

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

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

### Graduate Courses

#### 201. Molecular and Physiological Plant Nematology (2)

Lecture—1 hour; discussion—1 hour. Prerequisite: Biological Sciences 101; Plant Pathology 120, course 100 or 110. Molecular biology and physiology of nematodes using *Caenorhabditis elegans* as a model, but with emphasis on plant-parasitic species. Plant responses to nematodes. Discussion of current literature emphasized. Offered in alternate years.—II. Williamson

#### 203. Ecology of Parasitic Nematodes (2)

Lecture—1 hour; discussion—1 hour. Prerequisite: course 100 or 110 or Entomology 156; Evolution and Ecology 101 or Plant Biology 117. Major concepts in population and community ecology of animal- and plant-parasitic nematodes. Current advances in techniques, theory, and basic information about nematode-host dynamics, and application to management of nematode diseases. Offered in alternate years.—(III.) Caswell-Chen

#### 204. Management of Plant-Parasitic Nematodes (2)

Lecture—1 hour; laboratory—3 hours. Prerequisite: course 100 or 110. Theory, foundation, principles and practices of nematode management. Techniques and equipment used to manage nematodes and methods used to analyze their effectiveness. Offered in alternate years.—III. Westerdahl

#### 205. Insect Nematology and Biological Control (2)

Lecture—1 hour; discussion—1 hour. Prerequisite: courses 100 and 110, Entomology 100 or 110. The biology of insect-parasitic nematodes, their effect on the host, and their potential as biological control agents of insect and other invertebrate pests. Application of ecological theory in classical and augmentative biological control. Offered in alternate years.—(I.) Kaya, Lewis

#### 206. Nematode Systematics and Evolution (2)

Lecture—1 hour; laboratory—3 hours. Prerequisite: course 100 or 110 or Entomology 156; Evolution and Ecology 100 recommended. Nematode diversity as revealed by morphological and molecular evidence. Laboratory experience focuses on structural features used in taxonomy. Phylogenetic relationships based on morphological and molecular data used to consider patterns of character change among taxa. Offered in alternate years.—(I.) Nadler

#### 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 Evolution and Ecology 210.) Offered in alternate years.—(I.) Nadler

#### 245. Field Nematology (1)

Fieldwork—6 days. Prerequisite: course 100. Six-day demonstration and field study in applied nematology including diagnosis and prediction of nematode field problem strategies for control field plot design, and establishment in association with diverse California crops. (S/U grading only)—I. (I.)

#### 290. Seminar (1)

Seminar—1 hour. (S/U grading only)—II, III, (II, 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. (S/U grading only.)

#### 298. Group Study (1-5)

(S/U grading only.)

#### 299. Research (1-12)

(S/U grading only.)