

# NEMATOTOLOGY (NEM)

## College of Agricultural & Environmental Sciences

### NEM 010V – General Biology (4 units)

*Course Description:* Concepts and issues in biology. Emphasis on composition and structure of organisms; regulation and signaling; heredity, evolution and the interaction and interdependence among life forms and their environments. Designed for students not specializing in biology.

*Learning Activities:* Web Virtual Lecture 3 hour(s), Web Electronic Discussion 1 hour(s).

*Credit Limitation(s):* Not open for credit to students who have completed BIS 002A or BIS 002B or BIS 002C or BIS 010 or equivalent.

*Grade Mode:* Letter.

*General Education:* Science & Engineering (SE); Scientific Literacy (SL).

### NEM 100 – Plant Nematology (4 units)

This version has ended; see updated course, below.

*Course Description:* Plant-parasitic nematodes. Cellular, biochemical, and molecular aspects of plant-nematode interaction.

*Prerequisite(s):* BIS 101.

*Learning Activities:* Lecture 1 hour(s), Discussion/Laboratory 3 hour(s).

*Enrollment Restriction(s):* Pass One restricted to Entomology, Global Disease Biology, Microbiology, and Biochemistry & Molecular Biology majors.

*Grade Mode:* Letter.

*General Education:* Science & Engineering (SE).

### NEM 100 – Plant Nematology (4 units)

*Course Description:* Plant-parasitic nematodes. Cellular, biochemical, and molecular aspects of plant-nematode interaction.

*Learning Activities:* Lecture 1 hour(s), Discussion/Laboratory 3 hour(s).

*Enrollment Restriction(s):* Pass One restricted to Entomology, Global Disease Biology, Microbiology, and Biochemistry & Molecular Biology majors.

*Grade Mode:* Letter.

*General Education:* Science & Engineering (SE).

This course version is effective from, and including: Winter Quarter 2024.

### NEM 110 – Introduction to Nematology (2 units)

*Course Description:* Relationship of nematodes to the human environment. Classification, morphology, ecology, distribution, and importance of nematodes occurring in water and soil as parasites of plants and animals.

*Prerequisite(s):* BIS 002B; or consent of instructor.

*Learning Activities:* Lecture 2 hour(s).

*Grade Mode:* Letter.

### NEM 199 – Special Study for Advanced Undergraduates (1-5 units)

*Course Description:* Special study for advanced undergraduates.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Pass/No Pass only.

### NEM 201 – Molecular & Physiological Plant Nematology (2 units)

*Course Description:* 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.

*Prerequisite(s):* BIS 101; PLP 120; (NEM 100 or NEM 110).

*Learning Activities:* Lecture 1 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### NEM 203 – Ecology of Parasitic Nematodes (2 units)

*Course Description:* 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.

*Prerequisite(s):* (NEM 100 or NEM 110 or ENT 156); (EVE 101 or PLB 117).

*Learning Activities:* Lecture 1 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### NEM 204 – Management of Plant-Parasitic Nematodes (2 units)

*Course Description:* Theory, foundation, principles and practices of nematode management. Techniques and equipment used to manage nematodes and methods used to analyze their effectiveness.

*Prerequisite(s):* NEM 100 or NEM 110.

*Learning Activities:* Lecture 1 hour(s), Laboratory 3 hour(s).

*Grade Mode:* Letter.

### NEM 205 – Insect Nematology & Biological Control (2 units)

*Course Description:* 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.

*Prerequisite(s):* NEM 100; NEM 110; (ENT 100 or ENT 110).

*Learning Activities:* Lecture 1 hour(s), Discussion 1 hour(s).

*Grade Mode:* Letter.

### NEM 206 – Nematode Systematics & Evolution (2 units)

*Course Description:* 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.

*Prerequisite(s):* NEM 100 or NEM 110 or ENT 156; EVE 100 recommended.

*Learning Activities:* Lecture 1 hour(s), Laboratory 3 hour(s).

*Grade Mode:* Letter.

### NEM 210 – Molecular Phylogenetic Analysis (3 units)

*Course Description:* 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.

*Learning Activities:* Lecture 2 hour(s), Laboratory 3 hour(s).

*Cross Listing:* EVE 210.

*Grade Mode:* Letter.

### **NEM 245 – Field Nematology (1 unit)**

*Course Description:* 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.

*Prerequisite(s):* NEM 100.

*Learning Activities:* Fieldwork.

*Grade Mode:* Satisfactory/Unsatisfactory only.

### **NEM 290 – Seminar (1 unit)**

*Course Description:* Seminar.

*Learning Activities:* Seminar 1 hour(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.

### **NEM 290C – Advanced Research Conference (1 unit)**

*Course Description:* 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.

*Prerequisite(s):* Graduate standing and consent of instructor.

*Learning Activities:* Discussion 1 hour(s).

*Grade Mode:* Satisfactory/Unsatisfactory only.

### **NEM 298 – Group Study (1-5 units)**

*Course Description:* Group study.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Satisfactory/Unsatisfactory only.

### **NEM 299 – Research (1-12 units)**

*Course Description:* Research.

*Prerequisite(s):* Consent of instructor.

*Learning Activities:* Variable.

*Grade Mode:* Satisfactory/Unsatisfactory only.