

# ENTOMOLOGY AND NEMATOTOLOGY

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Not all courses are offered every semester. Refer to the schedule of courses for each term's specific offerings.

More Info (<https://one.ufl.edu/soc/>)

*Unless otherwise indicated in the course description, all courses at the University of Florida are taught in English, with the exception of specific foreign language courses.*

## Department Information

The Entomology and Nematology Department prepares students for exciting careers in a variety of fields. Entomology and Nematology majors can enter medical, dental, or veterinary school; progress to graduate study in any of several biological sciences such as ecology, nematology, entomology, horticulture, or zoology; or move directly to a variety of careers in fields such as pest management, ecotourism, or biosecurity.

**Website** (<http://entomology.ifas.ufl.edu/>)

### CONTACT

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Map (<http://campusmap.ufl.edu/#/index/0970>)

### Curriculum

- Beekeeping Certificate
- Bioinformatics Minor UF Online
- Combination Degrees
- Entomology and Nematology
- Entomology and Nematology Minor
- Entomology and Nematology Minor UF Online
- Landscape Pest Management Certificate
- Medical Entomology Certificate
- Pest Control Technology Certificate
- Urban Pest Management Certificate

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## Courses

### ALS 2931 Agricultural Honors 1-4 Credits

**Grading Scheme:** Letter Grade

Various courses offered. (WR)

**Prerequisite:** refer to the department.

**Attributes:** Satisfies 6000 Words of Writing Requirement

### ALS 3153 Agricultural Ecology 3 Credits

**Grading Scheme:** Letter Grade

Introduces the study of ecology from an agricultural perspective. Emphasizes ecological principles with examples and applications from agriculture.

### ALS 4161 Exotic Species and Biosecurity Issues 3 Credits

**Grading Scheme:** Letter Grade

Studies US policies and programs affecting agricultural biosecurity as applied to current agricultural and extension and regulatory programs. Emphasizes policies and procedures used to detect and report non-indigenous species. Develop the analytical capabilities to assess the consequences of agricultural biosecurity threats.

**Prerequisite:** BSC 2010/BSC 2010L and BSC 2011/BSC 2011L, or equivalent.

### ALS 4162 Consequences of Biological Invasions 3 Credits

**Grading Scheme:** Letter Grade

Non-native species invasions and environmental effects of these invaders. Students will develop analytical capabilities to assess the consequences of biological invasions.

**Prerequisite:** BSC 2010/BSC 2010L and BSC 2011/BSC 2011L, or equivalent.

**ALS 4163 Challenges in Plant Resource Protection 3 Credits**

**Grading Scheme:** Letter Grade

Applied training in the regulatory aspects of plant protection, using real-world case studies, scenarios and issues.

**Prerequisite:** BSC 2010/BSC 2010L and BSC 2011/BSC 2011L, or equivalent.

**Corequisite:** HOS 3020C or ENY 3005/ENY 3005L or PLP 3002C.

**ENY 1001 Bugs and People 3 Credits**

**Grading Scheme:** Letter Grade

Introduction for lower-division students who want to learn popular information about insects and associated organisms.

**Attributes:** General Education - Biological Science, General Education - International

**ENY 2040 The Insects 3 Credits**

**Grading Scheme:** Letter Grade

Introduces insect biology, insect-organism interaction, and insect association with humans. Features discussion of basic biological principles using insects as examples.

**Attributes:** General Education - Biological Science

**ENY 2041C Practical Beekeeping 3 Credits**

**Grading Scheme:** Letter Grade

Establish colonies of European-derived honey bees and manage them to be healthy and productive. A hybrid approach combines online lectures and in-person field experiences.

**ENY 2890 Using Insect Research to Understand the Nature of Scientific Engagement 3 Credits**

**Grading Scheme:** Letter Grade

A classroom undergraduate research experience (CURE) which bridges the divide between the classroom and the science laboratory and prepares for advanced opportunities in entomological science. become part of an entomology research team, collecting publishable data on insect evolution, ecology, and systematics.

**ENY 3005 Principles of Entomology 2 Credits**

**Grading Scheme:** Letter Grade

Introduces principles of insect study, including insect structure, insect development, evolutionary insect history and its ecological significance. (B)

**Corequisite:** ENY 3005L.

**Attributes:** General Education - Biological Science

**ENY 3005L Principles of Entomology Laboratory 1 Credit**

**Grading Scheme:** Letter Grade

Provides practical laboratory experience working with insects, dissecting insects and preparing lab reports. Insect collection is required. (B)

**Corequisite:** ENY 3005.

**Attributes:** General Education - Biological Science

**ENY 3007C Life Science 3 Credits**

**Grading Scheme:** Letter Grade

Introduces insects and their interactions with humans and the environment.

**ENY 3222C Biology and Identification of Urban Pests 3 Credits**

**Grading Scheme:** Letter Grade

Biology, behavior, ID and damage recognition of insect and vertebrate pests.

**Prerequisite:** ENY 3005 and ENY 3005L.

**ENY 3225C Principles of Urban Pest Management 3 Credits**

**Grading Scheme:** Letter Grade

Methods of controlling household, structural and occasional pests with emphasis placed on cockroaches, termites and fleas.

**Prerequisite:** ENY 3005 and ENY 3005L.

**ENY 3228 Urban Vertebrate Pest Management 2 Credits**

**Grading Scheme:** Letter Grade

The biology, ecology, health risks, exclusions and control of vertebrate pests in the urban environment.

**ENY 3451C Insect Behavior 3 Credits**

**Grading Scheme:** Letter Grade

Provides a theoretical and empirical overview of insect behavior, ranging from physiology underlying behavior to the evolution of behavioral diversity. Focuses on recent and current research on insect behavior, the diversity of approaches for studying it, and how this knowledge can be applied to solve human challenges.

**Prerequisite:** ENY 1001 or ENY 2040 or ENY 3005 or BSC 2005 or BSC 2010, or instructor permission.

**ENY 3510C Turf and Ornamental Entomology 3 Credits**

**Grading Scheme:** Letter Grade

Biology, identification and management of arthropods that infect turfgrass and ornamental plants in urban landscape and in nurseries and greenhouses.

**ENY 3563 Introduction to Tropical Entomology 3 Credits****Grading Scheme:** Letter Grade

Natural history, ecology and behavior of tropical insects in natural and agroecosystems. Designed for students without previous experience in tropics.

**Prerequisite:** ENY 3005 and ENY 3005L.**ENY 3564L Tropical Entomology Field Laboratory 2 Credits****Grading Scheme:** Letter Grade

A 10-day trip to a tropical country to study the insect faunas of natural and agroecosystems. Each student is assigned a field project.

**Prerequisite:** ENY 3563.**ENY 3830 Spider Biology 2 Credits****Grading Scheme:** Letter Grade

Introduces the biology of spiders and their relatives, with an emphasis on their ecology, behavior, and evolution. Learn to identify the members of approximately 20 common spider families as well as several common Florida species.

**Prerequisite:** sophomore standing.**ENY 3830L Spider Biology Lab 1 Credit****Grading Scheme:** Letter Grade

Provides practical experience working with spiders, including field collection techniques, identification and curation of spider specimens, and observing spider behavior. Requires spider collection.

**Prerequisite:** Sophomore standing or above.**Corequisite:** ENY 3830 or ZOO 4926.**ENY 4161 Insect Classification 3 Credits****Grading Scheme:** Letter Grade

Classification of major families of adult insects with emphasis on their identification, habitat and niche. A properly curated collection is required. (B)

**Prerequisite:** ENY 3005 and ENY 3005L.**Attributes:** General Education - Biological Science**ENY 4201 Insect Ecology 3 Credits****Grading Scheme:** Letter Grade

This course is an introduction to ecological concepts with emphasis on insects. The relationships of insects with their biotic and physical environments, along with the roles of insects in nature, will be emphasized. The basics of ecological research will be covered.

**Prerequisite:** BSC 2005 with a minimum grade of C or BSC 2010 with a minimum grade of C.**ENY 4201L Insect Ecology Lab 1 Credit****Grading Scheme:** Letter Grade

Introduces ecological methods and analysis with an emphasis on insects. Emphasizes methods to explore relationships of insects with their biotic and physical environments, along with the roles of insects in nature. Also covers the basics of ecological research.

**Prerequisite:** (BSC 2005 and BSC 2005L) or (BSC 2010 and BSC 2010L), all with minimum grades of C.**Corequisite:** ENY 4201.**ENY 4202 Ecology of Vector-Borne Disease 2 Credits****Grading Scheme:** Letter Grade

Introduces critical components of vector-borne disease systems and basic concepts inherent to disease ecology. Focuses on vector-borne diseases of humans and wildlife and how aspects of the environment and host/vector biology influence disease transmission. Topics include epidemiology, transmission models, and emerging diseases.

**Prerequisite:** BSC 2010 or equivalent.**ENY 4208 Ecology and Conservation of Pollinators 3 Credits****Grading Scheme:** Letter Grade

Examines interactions between animals and the plants that they pollinate, current threats to pollinator populations, and the conservation of pollinators worldwide; explore these topics through readings, discussion, and a field research project.

**Prerequisite:** BSC 2010 and BSC 2010L or equivalents with minimum grades of C-, and junior standing or higher.**ENY 4210 Insects and Wildlife 3 Credits****Grading Scheme:** Letter Grade

Introduces insects and other arthropods and their relationships with wild vertebrate animals.

**Prerequisite:** BSC 2005 or BSC 2010.**ENY 4221 Termite Biology and Control 2 Credits****Grading Scheme:** Letter Grade

Taxonomy, identification, behavior, ecology and methods of control for the economically important termites in the New World.

**ENY 4230 Urban Pesticide Application 1-6 Credits****Grading Scheme:** Letter Grade

Practical work experience in urban pesticide application; study pest management problems on campus and in residences.

**Prerequisite:** ENY 3005 and ENY 3005L.

**ENY 4453 Behavioral Ecology and Systematics 3 Credits**

**Grading Scheme:** Letter Grade

Introduces behavioral ecology and systematics of insects. (B)

**Prerequisite:** ENY 3005 and ENY 3005L.

**Attributes:** General Education - Biological Science

**ENY 4455C Social Insects 3 Credits**

**Grading Scheme:** Letter Grade

Provides an overview of social insect biology in the context of comparative social evolution. Topics include the diversity of social behaviors in insects, evolutionary origins of sociality, kin recognition, caste systems, communication in social groups, and impacts of social insects.

**Prerequisite:** BSC 2005 or BSC 2010 or equivalent with a minimum grade of C.

**ENY 4571 Honey Bee Biology 3 Credits**

**Grading Scheme:** Letter Grade

Provides an in-depth look into the fascinating world of honey bee biology. Explore topics including honey bee sociality, taxonomy, biogeography, behavior, anatomy, physiology, reproduction, nutrition and genetics. Additionally, these topics will be discussed via the paradigm of the honey bee superorganism.

**Prerequisite:** BSC 2005 or BSC 2010.

**ENY 4573 Beekeeping I 3 Credits**

**Grading Scheme:** Letter Grade

Examines the biology of honey bees and the craft of apiculture by exploring the life cycle of honey bees, biogeography, and evolution of beekeeping. Discusses equipment, techniques, management practices, pollination ecology, economic practices, and current issues within beekeeping.

**Prerequisite:** BSC 2005 or BSC 2010.

**ENY 4574 Beekeeping II 3 Credits**

**Grading Scheme:** Letter Grade

Provide more depth on topics introduced in ENY 4573, including beekeeping styles, colony stressors, and yearly management. Also explores issues affecting the beekeeping industry including integrated pest management, pests/diseases, African bees, commercial pollination, queen production, bee removals, and pesticides.

**Prerequisite:** ENY 4573.

**ENY 4590C Mosquito Identification 3 Credits**

**Grading Scheme:** Letter Grade

Intensive, hands-on training on morphological features and the identification of adult and larval mosquito species that occur in North America.

**Prerequisite:** junior standing or higher.

**ENY 4592 Mosquito Biology 3 Credits**

**Grading Scheme:** Letter Grade

This modular course covers six critical areas of mosquito biology; classification, natural history and ecology, physiology, population dynamics, mosquito-borne diseases and control of mosquitoes. Students will understand the fundamental processes governing mosquitoes and mosquito-borne diseases.

**Prerequisite:** junior standing or higher.

**ENY 4660 Medical and Veterinary Entomology 2 Credits**

**Grading Scheme:** Letter Grade

Presents the major insect, mite, and tick vectors of disease to humans and animals. Topics includes arthropod-transmitted diseases, the interaction between pathogens and the arthropod vector, and the mechanical damage that a parasite inflicts on its host.

**Prerequisite:** ENY 3005 and ENY 3005L.

**Attributes:** General Education - Biological Science

**ENY 4660L Medical and Veterinary Entomology Laboratory 1 Credit**

**Grading Scheme:** Letter Grade

Identifying mosquitoes, ticks, lice, fleas and other disease vectors. Insect collection required. (B)

**Corequisite:** ENY 4660.

**Attributes:** General Education - Biological Science

**ENY 4701 Forensic Entomology 3 Credits**

**Grading Scheme:** Letter Grade

The role of arthropods in decomposition, in criminal and civil investigations and the increasing importance of science on society. Material and discussions deal with death and some may consider course images and concepts disturbing.

**ENY 4823 Molecular Biology of Insects and Nematodes 3 Credits**

**Grading Scheme:** Letter Grade

Provides foundation knowledge of molecular biology, with emphasis on scientific discoveries from insects and nematodes. Presents information on the current innovations and trends of molecular technologies (e.g. high throughput sequencing, different types of omics, genome editing by CRISPR).

**Prerequisite:** BSC 2005, BSC 2010, ABE 2062, AGR 3303, ANS 3006, BCH 4024, ENY 2040, ENY 3005 or equivalent, or instructor permission.

**ENY 4900 Supervised Extension Experience in Entomology and Nematology 0-3 Credits****Grading Scheme:** S/U

Firsthand, authentic extension experiences in entomology and nematology under the supervision of a faculty member. Projects may involve program planning, development, implementation, and evaluation.

**ENY 4905 Problems in Entomology 1-5 Credits****Grading Scheme:** Letter Grade

Problems in any field of specialization in entomology and nematology.

**Prerequisite:** ENY 3005 and the basic course in selected specialization.

**ENY 4911 Supervised Research in Entomology 0-3 Credits****Grading Scheme:** Letter Grade

Firsthand, authentic research in entomology under the supervision of a faculty member. Projects may involve inquiry, design, investigation, scholarship, discovery or application.

**ENY 4915 Honors Thesis Research in Entomology 0-3 Credits****Grading Scheme:** S/U

Independent research in entomology leading to an honors thesis. Student will be mentored by a faculty member. Projects may involve inquiry, design, investigation, scholarship, discovery or application.

**Prerequisite:** junior standing, upper division GPA of 3.75 or higher and completed honors thesis proposal on file.

**ENY 4932 Special Topics in Entomology and Nematology 1-3 Credits****Grading Scheme:** Letter Grade

Special topics in Entomology and Nematology.

**Prerequisite:** Sophomore standing or higher.

**IPM 3022 Fundamentals of Pest Management 3 Credits****Grading Scheme:** Letter Grade**IPM 4114 Insect Pest and Vector Management 3 Credits****Grading Scheme:** Letter Grade

Covers the principles and practices used in pest and vector management, and also emphasizes the arthropod pests affecting crop and ornamental plants, humans and livestock.

**Prerequisite:** Introductory course in entomology.

**IPM 4254 Landscape Integrated Pest Management: Ornamentals and Turf 3 Credits****Grading Scheme:** Letter Grade

Landscape pest pressure is influenced by many factors. The development of sound integrated pest management plans for landscapes focuses on identification of abiotic factors, weeds, insects, mites, pathogens and nematodes that occur on Florida landscape ornamentals, turfgrass and palms.

**Prerequisite:** ENY 3005 or NEM 3002 or PLP 3002C.

**NEM 3002 Principles of Nematology 3 Credits****Grading Scheme:** Letter Grade

Introduces nematology, including studies of morphology, life histories and control of the major nematode parasites of plants. Also includes studies of the bionomics of certain soil nematodes and nematode parasites of vertebrates and arthropods. (B)

**Attributes:** General Education - Biological Science

**NEM 4905 Problems in Nematology 1-4 Credits****Grading Scheme:** Letter Grade

Selected problems for study, research or discussion in nematology.

**NEM 4911 Supervised Research in Nematology 0-3 Credits****Grading Scheme:** S/U

Firsthand, authentic research in nematology under the supervision of a faculty member. Projects may involve inquiry, design, investigation, scholarship, discovery or application.

**NEM 4915 Honors Thesis Research in Nematology 0-3 Credits****Grading Scheme:** S/U

Independent research in nematology leading to an honors thesis. Student will be mentored by a faculty member. Projects may involve inquiry, design, investigation, scholarship, discovery or application.

**Prerequisite:** junior standing, upper division GPA of 3.75 or higher and completed honors thesis proposal on file.

**PMA 4570C Field Techniques in IPM 2 Credits****Grading Scheme:** Letter Grade

**Prerequisite:** IPM 3022.