ENTOMOLOGY AND NEMATOLOGY | BIOSECURITY

Entomology and nematology are biological sciences dealing with insects, mites, ticks, spiders, and nematodes.

About this Program

• College: Agricultural and Life Sciences
• Degree: Bachelor of Science
• Credits for Degree: 120
• Specializations: Basic Science | Biosecurity | Ecotourism | Plant Protection | Preprofessional | Urban Pest Management

Additional Information

• Related Entomology and Nematology Programs

To graduate with this major, students must complete all university, college, and major requirements.

The Department of Entomology and Nematology offers the major. Faculty within the department cover areas in systematics, ecology, medically significant arthropods, social insects, insect management, physiology, behavior, evolution and natural ecosystem cycles. The department has a long tradition of sending students to medical, veterinary and dental school. Graduate school prospects are also high and employment options using entomology are versatile.

Related Entomology and Nematology Programs

• Combined Degree
• Entomology and Nematology minor

Biosecurity

In this specialization, students receive instruction in biosecurity emphasizing areas of entomology, nematology, plant pathology and weed science. The curriculum focuses on the study of invasive species, including their detection, identification, exclusion, regulation and management. Emphasis is placed on understanding the impacts nonindigenous species can have on financial, legal, political and social systems.

Students will find employment in agribusiness or government agencies concerned with biosecurity, agro-terrorism, pest management, crop production and environmental protection. This specialization is excellent preparation for graduate study in the University of Florida Plant Medicine Program (PMP), a professional doctoral program leading to the Doctor of Plant Medicine (D.P.M.).

Except with undergraduate coordinator permission, students are expected to complete the following courses on campus; other ENY courses can be taken online:

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ENY 3005</td>
<td>Principles of Entomology</td>
<td>2</td>
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<tr>
<td>ENY 3005L</td>
<td>Principles of Entomology Laboratory</td>
<td>1</td>
</tr>
<tr>
<td>ENY 4161</td>
<td>Insect Classification</td>
<td>3</td>
</tr>
<tr>
<td>ENY 4660</td>
<td>Medical and Veterinary Entomology Laboratory</td>
<td>2</td>
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Minimum grades of C are required for all core courses. Students must maintain a 2.0 cumulative GPA for specialization electives with no individual course grade less than C.

Critical Tracking records each student's progress in courses that are required for entry to each major. Please note the critical-tracking requirements below on a per-semester basis.

Equivalent critical-tracking courses as determined by the State of Florida Common Course Prerequisites may be used for transfer students.

Semester 1

• Complete 2 of 5 critical-tracking courses, excluding labs:
  BSC 2010/BSC 2010L, BSC 211/BSC 211L, CHM 2045/CHM 2045L, CHM 2046/CHM 2046L, MAC 1147
• 2.5 GPA on math and science courses
• 2.0 UF GPA required

Semester 2

• Complete 1 additional critical-tracking course, excluding labs
• 2.5 GPA on math and science courses
• 2.0 UF GPA required

Semester 3

• Complete 1 additional critical-tracking course, excluding labs
• 2.5 GPA on math and science courses
• 2.0 UF GPA required

Semester 4

• Complete 1 additional critical-tracking course, excluding labs
• 2.5 GPA on math and science courses
• 2.0 UF GPA required

Semester 5

• Complete all critical-tracking courses, including labs
• 2.5 GPA on math and science courses
• 2.0 UF GPA required

To remain on track, students must complete the appropriate critical-tracking courses, which appear in bold. These courses must be completed by the terms as listed above in the Critical Tracking criteria.

This semester plan represents an example progression through the major. Actual courses and course order may be different depending on the student's academic record and scheduling availability of courses. Prerequisites still apply.

<table>
<thead>
<tr>
<th>Course</th>
<th>Semester One</th>
<th>Title</th>
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<tr>
<td>ENY 4660L</td>
<td>Medical and Veterinary Entomology Laboratory</td>
<td>2</td>
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Select one:

| ENC 1101 | Expository and Argumentative Writing       | 3       |
| ENC 2210 | Technical Writing                          | 3       |
### Semester One

- **ENY 3222C**: Fundamentals of Pest Management
- **ENY 3223C**: Principles of Entomology
- **ENY 3224C**: Principles of Nematology

**Credits**: 3

### Semester Two

- **STA 2023**: Introduction to Statistics 1 (Gen Ed Mathematics)
- **STA 2011L**: General Chemistry 1 Laboratory
- **PHY 2020**: Introduction to Principles of Physics (Gen Ed Physical Sciences)

**Credits**: 3

### Semester Three

- **STA 2023**: Introduction to Statistics 1 (Gen Ed Mathematics)
- **STA 2011L**: General Chemistry 1 Laboratory
- **BSC 2011 & 2011L**: Integrated Principles of Biology 2 and Integrated Principles of Biology Laboratory 2 (Critical Tracking; Gen Ed Biological Sciences)

**Credits**: 4

### Semester Four

- **AEC 3033C**: Research and Business Writing in Agricultural and Life Sciences
- **CHM 2045 & 2045L**: General Chemistry 2 and General Chemistry 2 Laboratory (Critical Tracking; Gen Ed Physical Sciences)
- **STA 2011L**: General Chemistry 1 Laboratory

**Credits**: 3

### Semester Five

- **PLP 3002C**: Fundamentals of Plant Pathology
- **PLS 3004C**: Principles of Plant Science or Principles of Horticulture Crop Production
- **IPM 3022**: Fundamentals of Pest Management

**Credits**: 3

### Semester Six

- **ENY 4660**: Medical and Veterinary Entomology
- **NEM 3002**: Principles of Nematology
- **PLP 3103C**: Control of Plant Diseases
- **IPM 3022**: Fundamentals of Pest Management
- **ENY 3510C**: Turf and Ornamental Entomology

**Credits**: 3

### Law and Policy Elective: Select One

- **AEB 4242**: Agricultural and Natural Resource Law
- **AEB 4085**: Agricultural Risk Management and the Law
- **ECO 3704**: International Trade
- **FNR 4660**: Natural Resource Policy and Economics

**Credits**: 3

### Geographic Information Systems Elective: Select One

- **FOR 3434C**: Forest Resources Information Systems
- **URP 4273**: Survey of Planning Information Systems

**Credits**: 3

### Approved Electives: 15 Credits

- **ENC 3254**: Professional Writing in the Discipline (State Core Gen Ed Composition; Writing Requirement)
- **IUF 1000**: What is the Good Life (Gen Ed Humanities)
- **MAC 1147**: Preparatory Algebra and Trigonometry (Critical Tracking; State Core Gen Ed Mathematics)

**Credits**: 14
The entomology and nematology curriculum develops an excellent knowledge base and an understanding of concepts and fundamental practices. Through formal courses, laboratory experimentation and individual research experience, students will learn how the scientific method is applied to the biological world at the whole organism and population levels. Students will learn to evaluate hypotheses, to acquire and interpret experimental data, and to communicate results effectively in appropriate styles. Special focus will be placed on insect identification, morphology, behavior, physiology and ecology.

Before Graduating Students Must
- Pass the entomology and nematology competency exam, which will be tailored to individual specializations.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes (SLOs)

Content
1. Identify insects and describe and explain insect morphology, physiology and behavior.

Critical Thinking
2. Acquire, analyze and synthesize entomological information.

Communication
3. Communicate proficiently in the sciences in oral and written forms.

Curriculum Map

I = Introduced; R = Reinforced; A = Assessed

<table>
<thead>
<tr>
<th>Courses</th>
<th>SLO 1</th>
<th>SLO 2</th>
<th>SLO 3</th>
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</thead>
<tbody>
<tr>
<td>AEC 3030C</td>
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<td>AEC 3033C</td>
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<td>R, A</td>
<td>R, A</td>
<td></td>
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Assessment Types
- Assignments
- Exams
- Course grades
- Research collection