

# Cover Sheet: Request 12381

## Basic Science

### Info

Process	Specialization New/Modify/Close Ugrad
Status	Pending at PV - University Curriculum Committee (UCC)
Submitter	Andrea Lucky alucky@ufl.edu
Created	3/9/2018 11:34:34 AM
Updated	9/6/2018 2:18:33 PM
Description of request	modify specialization

### Actions

Step	Status	Group	User	Comment	Updated
Department	Approved	CALS - Entomology and Nematology 514914000	Heather Mcauslane		3/9/2018
ENY specialization_Biological Science electives.docx					3/9/2018
College	Approved	CALS - College of Agricultural and Life Sciences	Joel H Brendemuhl	Approved at the CALS CC on 4/13/18.	4/19/2018
No document changes					
Associate Provost for Undergraduate Affairs	Approved	PV - Associate Provost for Undergraduate Affairs	Angela Lindner		9/6/2018
ENY_Specialization change_catalog copy_track changes.docx					5/9/2018
University Curriculum Committee	Pending	PV - University Curriculum Committee (UCC)			9/6/2018
No document changes					
Office of the Registrar					
No document changes					
Student Academic Support System					
No document changes					
Catalog					
No document changes					
College Notified					
No document changes					

# Specialization|Modify for request 12381

## Info

**Request:** Basic Science  
**Description of request:** modify specialization  
**Submitter:** Andrea Lucky alucky@ufl.edu  
**Created:** 3/9/2018 11:13:32 AM  
**Form version:** 1

## Responses

### Specialization Name

*Enter the name of the specialization.*

Response:  
Basic Science

### Specialization Code

*Enter the two or three letter code for the specialization.*

Response:  
BSC

### Effective Term

*Enter the term (semester and year) at which the modification should be effective.*

Response:  
Earliest Available

### Effective Year

Response:  
Earliest Available

### Is this an Undergraduate Innovation Academy Program

Response:  
No

### Current Curriculum for Specialization

Response:  
please see attached

### Proposed Changes

*Describe the proposed changes to the specialization.*

Response:

A name change from 'Basic Science' to 'Biological Science of Insects' is proposed. Modifications to the specialization include more flexibility in selecting electives.

### **Pedagogical Rationale/Justification**

*Describe the rationale for the proposed changes to the specialization.*

Response:

We are reducing the number of college-approved specializations from 5 to 3 by terminating the specializations Ecotourism and Biosecurity, and modifying the specialization Basic Science, to be named more descriptively, Biological Science of Insects. This eliminates inconsistent requirements across specializations and allows more flexibility for students to choose focus areas. This change will better serve our majors' diverse interests and streamline administration.

### **Impact on Other Programs**

*Describe any potential impact on other programs or departments, including increased need for general education or common prerequisite courses, or increased need for required or elective courses outside of the existing program.*

Response:

No major impacts are expected. Our program is relatively small (approx 40-50 majors), and changes in approved electives should not burden other programs.

### **Assessment Data Review**

*Describe the Student Learning Outcomes and/or program goal data that was reviewed to support the proposed changes.*

Response:

No changes to current SLOs

### **Academic Learning Compact and Academic Assessment Plan**

*Describe the modifications to the Academic Learning Compact (for undergraduate programs) and Academic Assessment Plan that result from the proposed change.*

Response:

No modifications to the ALC and AAP.

## EY-Biological Science of Insects Approved Elective Options

### Entomology Electives

#### **2000-level**

Insect Research and Scientific Engagement (ENY 2890 [live])

#### **3000-level**

Agricultural Ecology (ALS 3513, [web])

Insect Behavior (ENY 3451, [live and web])

Insect Field biology (ENY 3030, [live])

Invertebrate Field Biology (ENY 3163, [live])

Introduction to Tropical Entomology (ENY 3563 [live])

PC Use in Agriculture (ALS 3203 [web])

Fundamentals of Plant-Pest Management (IPM 3022 [web])

Turf and Ornamental Entomology (ENY 3510, [web])

Biology and ID of Urban Pests (ENY 3222, [web])

Principles of Urban Pest Management (ENY 3225, [web])

Urban Vertebrate Pest Management (ENY 3228, [web])

#### **4000-level**

Insects and Wildlife (ENY 4210, [web])

Field Techniques in IPM (PMA 4570, [live])

Consequences of Biological Invasions (ALS 4162, [web])

Spider Biology (ENY 4905, [live])

Beekeeping/Advanced Apiculture (ENY 4573, [web])

Social Insects (ENY 4455 [live])

Behavioral Ecology and Systematics (ENY 4453 [live])

Mosquito Biology (ENY 4592, [web])

Mosquito Identification (ENY 4590, [live])

Ecology of Vector-Borne Disease (ENY 4202, [web])

Termite Biology and Control (ENY 4221, [live])

Exotic Species and Biosecurity Issues (ALS 4161, [live and web])

Challenges in Plant Resource Protection (ALS 4163)

Insect/Pest/Vector management (ENY 4905, [web])

Feasts and Famine study abroad, (ALS 4404 [Live])

Landscape IPM: Ornamentals and Turf (IPM 4254 [web])

Spider Biology (ENY 4905, [live])

Forensic Entomology (ENY 4701 [live], [web])

Ecology of Vector-Borne Disease (ENY 4202, [web])

Blood Feeding Insects (ENY 4905, [web])

Urban Pesticide Application (ENY 4230 [live])

#### **5000-level**

Insect Molecular Genetics (ENY 5820)

## **Outside Electives**

AEC 3414 Leadership Development in Agriculture and Natural Resources (Fall & Spring)  
AEB 2451 Economics of Resource Use (Fall)  
AEB 3450 Introduction to Natural Resource and Environmental Economics (Fall)  
BOT 2011C - Plant Diversity taught Spring semester only  
BOT 2710 - Practical Plant Taxonomy taught Fall semester only  
BOT 3151C - Local Flora of North Florida taught Fall and Summer A semesters only  
BOT 4926 Scientific Illustration  
BOT 4621 Plant Geography  
BSC 2862 Global Change Ecology and Sustainability  
BSC 3307C Climate Change Biology  
BSC 4812C Evolutionary Biogeography  
ECP 3302 Environmental Economics and Resource Policy (Fall & Spring)  
EES 4050 Environmental Planning and Design  
FNR 3131C - Dendrology/Forest Plants taught Fall semester only  
FNR 4070C - Environmental Education Program  
FNR 4623C Integrated Natural Resource Management (Fall)  
FNR 4661 Spatial Models and Decision Analysis  
FNR 4660C Natural Resource Policy and Administration (Fall)  
FOR 3202 - Society and Natural Resources taught Spring semester only  
FOR 4934 Florida Forest Communities  
FOR 3200C Foundations of Natural Resources and Conservation  
FOR 4664 - Sustainable Ecotourism Development taught Fall semester only  
FOR 4070C Environmental Education Program Development (Fall)  
FOR 3434C - Forest Resources Information Systems taught Summer B semester only  
FOR 4541 Forest Economics  
FOR 4621 Forest Economics and Management  
FOR 4060 Global Forests  
FOR 4090C Urban Forestry  
GIS 3072C (formerly SUR 3393 & 3393L) - Geographic Information Systems & Lab taught Fall semester only  
GIS 3043 - Foundations of Geographic Information Systems taught every Fall, Spring and Summer A semester  
ORH 3513C - Environmental Plant Identification and Use taught Fall and Summer C semesters only  
PCB 4674 Evolution  
PUP 3203 Environmental Law and Policy (Fall)  
SCE 4342 Environmental Education Methods and Materials  
SWS 4180 Earth System Analysis  
URP 4273 - Survey of Planning Information Systems taught every Fall, Spring and Summer A semester  
VME 4906 Aquatic Animal Conservation  
WIS 3434 Tropical Wildlife  
WIS 4523 - Human Dimension of Natural Resource Conservation taught Fall semester only  
ZOO 3513C Animal Behavior  
ZOO 3603C Evolutionary Developmental Biology  
ZOO 4307C Vertebrate Biodiversity  
ZOO 4403C Marine Biology

# Entomology and Nematology

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

## About this Major

- **College:** [Agricultural and Life Sciences](#)
  - **Degree:** Bachelor of Science
  - **Credits for Degree:** 120
  - **Specializations:**
    - [Basic Science](#); [Biosecurity](#); [Ecotourism](#); [Plant Protection](#)[Biological Science of Insects](#); [Preprofessional](#); [Urban Pest Management](#)
  - [Academic Learning Compact](#)
  - [Additional Information](#)
- [Related Entomology and Nematology Programs](#)
- To graduate with this major, students must complete all university, college, and major requirements.*

## Overview

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.

## ~~Basic Science~~ [Biological Science of Insects](#)

### [Critical Tracking Model Semester Plan](#)

This option prepares students for entry to entomological careers and to graduate school. Except with undergraduate coordinator permission, students are expected to complete ENY 3005, ENY 3005L, ENY 4161, ENY 4660 and ENY 4660L on campus; other ENY courses can be taken online.

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

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 2010/2010L or BOT 2010C, BSC 2011/2011L, CHM 2045/2045L, CHM 2046/2046L, MAC 2233
- 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

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### Model Semester Plan

All entomology majors in the [basic science track](#) **Biological Science of Insects** must take three credits of ENY 4905 [or 4911](#) Undergraduate Research Mentoring. See advisor for details.

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.*

**Commented [AL1]:** New name of specialization

Semester 1	Credits
<b>BSC 2010 Integrated Principles of Biology 1</b> , 3 credits, and <b>BSC 2010L Integrated Principles of Biology Laboratory 1</b> , 1 credit, (GE-B) OR <b>BOT 2010C Introductory Botany</b> , 3 credits, (State Core GE-B)	<b>3-44</b>
ENC 1101 Expository and Argumentative Writing or	3

ENC 2210 Technical Writing or ENC 3254 Professional Writing in the Discipline ( <i>State Core GE-C; WR</i> )	
<del>IUF 1000 What is the Good Life</del> <del>GE-H</del>	<del>3</del>
<b>MAC 2233 Survey of Calculus 1</b> <i>State Core GE-M</i>	<b>34</b>
Social and Behavioral Sciences <del>State Core GE-S</del> <i>State Core GE-H</i>	3
Total	<del>15-</del> <b>16</b> <del>14</del>

**Commented [AL2]:** Moved to semester 2

**Commented [AL3]:** Change to:  
MAC1147 Precalc, Algebra & Trig. or  
MAC 2311 Calculus

**Commented [AL4]:** Humanities (State Core GE-H) moved from semester 2

**Semester 2 Credits**

<del>IUF 1000 What is the Good Life</del> <del>GE-H</del>	<del>3</del>
AEB 2014 Economic Issues, Food and You, <i>3 credits, or</i> AEB 3103 Principles of Food and Resource Economics, <i>4 credits, (GE-S) or</i> ECO 2023 Principles of Microeconomics, <i>4 credits</i>	3-4
<b>BSC 2011 Integrated Principles of Biology 2</b> , <i>3 credits, and</i> <b>BSC 2011L Integrated Principles of Biology Laboratory 2</b> , <i>1 credit</i> <i>GE-B</i>	<b>4</b>
STA 2023 Introduction to Statistics 1 <i>GE-M</i>	3
<del>Humanities</del> <del>State Core GE-H</del>	<del>3</del>
Social and Behavioral Sciences <i>GE-S</i>	3
Total	16-17

**Commented [AL5]:** Moved from semester 1

**Commented [AL6]:** Moved to semester 1

**Semester 3 Credits**

<del>AEC 3030C Effective Oral Communication</del>	<del>3</del>
<del>AEC 3033C Research and Business Writing in Agricultural and Life Sciences</del>	<del>3</del>
<b>ENY 3005 Principles of Entomology, 2 credits</b> <b>ENY 3005L Principles of Entomology Lab, 1 credit</b> <i>GE-B: both courses must be taken on campus.</i>	<b>3</b>

**Commented [AL7]:** Moved from semester 4

**Commented [AL8]:** Moved to semester 5

**Commented [AL9]:** Moved from semester 5



<b>CHM 2045 General Chemistry 1, 3 credits, and CHM 2045L General Chemistry 1 Laboratory, 1 credit</b> <i>State Core GE-B/P</i>	4
<del>PHY 2004 Applied Physics 1, 3 credits, and PHY 2004L Laboratory for Applied Physics 1, 1 credit</del> <i>GE-P</i>	4
Elective <i>Not-D</i>	4
<u>Composition (GE-C),</u>	3
<u>International (GE-I)</u>	3
Humanities <i>GE-H</i>	3
Total	1516

**Commented [AL10]:** Moved to Semester 4

Semester 4	Credits
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<del>AEC 3030C Effective Oral Communication</del>	<del>3</del>
<b>CHM 2046 General Chemistry 2, 3 credits, and CHM 2046L General Chemistry 2 Laboratory, 1 credit</b> <i>GE-P</i>	4
<del>PHY 2004 Applied Physics 1, 3 credits, and PHY 2004L Laboratory for Applied Physics 1, 1 credit</del> or PHY 2020 Introduction to Principles of Physics <i>GE-P</i>	4
<del>PHY 2005 Applied Physics 2, 3 credits, and PHY 2005L Laboratory for Applied Physics 2, 1 credit</del> <i>GE-P</i>	4
<u>ENY 4161 Insect Classification, 3 credits</u> <i>Must be taken on campus</i>	3
<u>ENY 4453 Behavioral Ecology and Systematics of Insects or ALS 3153 Agricultural Ecology or WIS 3401 Wildlife Ecology and Management or PCB 4043C General Ecology or ENY 4202 Ecology of Vector Born Disease or ENY 3451 Insect Behavior</u>	3-4

**Commented [AL11]:** Moved to semester 3

**Commented [AL12]:** Moved from Semester 3 and added option for PHY2020

**Commented [AL13]:** Ecology Electives

Composition <i>GE-C</i>	3
Total	14,15

<b>Semester 5</b>	<b>Credits</b>
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<a href="#">AEC 3033C Research and Business Writing in Agricultural and Life Sciences</a>	<u>3</u>
<a href="#">AGR 3303 Genetics</a>	<u>3</u>
<a href="#">CHM 2200 Fundamentals of Organic Chemistry, 3 credits, and</a> <a href="#">CHM 2200L Fundamentals of Organic Chemistry Laboratory, 1 credit</a>	<u>4</u>
<a href="#">ENY 3005 Principles of Entomology, 2 credits, and</a> <a href="#">ENY 3005L Principles of Entomology Laboratory, 1 credit</a> <i>GE-B; both courses must be taken on campus</i>	<u>3</u>
Approved electives <i>Pre-vet majors need appropriate animal science requirements as electives</i>	6
<a href="#">ENY 4660 Medical and Veterinary Entomology, 2 credits, and</a> <a href="#">ENY 4660L Medical and Veterinary Entomology Laboratory, 1 credit</a> <i>Must be taken on campus</i>	<u>3</u>
<a href="#">IPM 3022 Fundamentals of Plant Pest Management or</a> <a href="#">PMA 4570C Field Techniques in IPM</a>	<u>3</u>
<a href="#">ALS 4161 Exotic Species and Biosecurity Issues or</a> <a href="#">ALS 4162 Consequences of Biological Invasions or</a> <a href="#">PCB 2441 Biological Invaders</a>	<u>3</u>
<a href="#">MCB 3020 Basic Biology of Microorganisms, 3 credits, and</a> <a href="#">MCB 3020L Laboratory for Basic Biology of Microorganisms Laboratory, 1 credit</a> <i>OR</i> <a href="#">MCB 2000 Microbiology, 3 credits, and</a> <a href="#">MCB 2000L Microbiology Laboratory, 1 credit</a> <i>GE-B</i>	<u>4</u>
Total	16

<b>Semester 6</b>	<b>Credits</b>
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<a href="#">ALS 3153 Agricultural Ecology, 3 credits, or</a> <a href="#">PCB 3601C Plant Ecology, 3 credits, or</a> <a href="#">PCB 4043C General Ecology, 4 credits</a>	3-4
<a href="#">ENY 4905 Problems in Entomology</a>	3

**Commented [AL14]:** Moved from semester 3

**Commented [AL15]:** Moved to semester 6

**Commented [AL16]:** No longer required

**Commented [AL17]:** Moved to semester 3

**Commented [AL18]:** Moved from semester 7

**Commented [AL19]:** Moved from semester 6

**Commented [AL20]:** Moved to semester 4

**Commented [AL21]:** Moved to semester 7

<a href="#">MCB 3020 Basic Biology of Microorganisms, 3 credits, and</a> <a href="#">MCB 3020L Laboratory for Basic Biology of Microorganisms Laboratory, 1 credit</a> OR <a href="#">MCB 2000 Microbiology, 3 credits, and</a> <a href="#">MCB 2000L Microbiology Laboratory, 1 credit</a> GE-B	4
Approved electives <i>Pre-vet majors need appropriate animal science requirements as electives</i>	4
<a href="#">AGR 3303 Genetics or</a> <a href="#">PCB 3063 Genetics or</a> <a href="#">PCB 4674 Evolution</a>	<u>3-4</u>
<a href="#">ENY 4573 Beekeeping or</a> <a href="#">ENY 4455 Social Insects or</a> <a href="#">ENY 4210 Insects and Wildlife</a>	<u>3</u>
<a href="#">ENY 3510C Turf and Ornamental Entomology or</a> <a href="#">ALS 4163 Challenges in Plant Resource Protection or</a> <a href="#">ENY 3225C Principles of Urban Pest Management</a>	<u>3</u>
Diversity (GE-D)	<u>3</u>
Social and Behavioral Science (GE-S)	<u>3</u>
Total	<u>4415-</u> <u>4516</u>
<b>Semester 7</b>	<b>Credits</b>
<a href="#">ENY 4161 Insect Classification</a> <i>Must be taken on campus</i>	<u>3</u>
<a href="#">ENY 4660 Medical and Veterinary Entomology, 2 credits, and</a> <a href="#">ENY 4660L Medical and Veterinary Entomology Laboratory, 1 credit</a> <i>Must be taken on campus</i>	<u>3</u>
<a href="#">NEM 3002 Principles of Nematology</a>	<u>3</u>
Approved electives <i>Pre-vet majors need appropriate animal science requirements as electives</i>	6
<a href="#">ENY 4911 Undergraduate Research or</a> <a href="#">ENY 4905 Special Topics in Entomology or</a> <a href="#">ENY 4941 Practical Work Experience in Entomology</a>	<u>3</u>

**Commented [AL22]:** Moved to semester 5

**Commented [AL23]:** Moved to semester 4

**Commented [AL24]:** Moved to semester 5

**Commented [AL25]:** Moved to semester 8

<a href="#">PLP 3002C Fundamentals of Plant Pathology or PLS 3004C Principles of Plant Sciences or PLS 4601C Principles of Weed Science</a>	3
<a href="#">Entomology Electives</a>	2-3
Total	14-15
<b>Semester 8</b>	
<del><a href="#">ENY 4453 Behavioral Ecology and Systematics, 3 credits, or PCB 4043C General Ecology, 4 credits, or ALS 3153 Agricultural Ecology, 3 credits</a></del>	<del>3-4</del>
<del><a href="#">ENY 4455C Social Insects, 3 credits, or ENY 4573 Beekeeping, 3 credits, or ZOO 4205C Invertebrate Biodiversity, 4 credits</a></del>	<del>3-4</del>
Approved electives <i>Pre-vet majors need appropriate animal science requirements as electives</i>	96
<del><a href="#">ENY 4911 Undergraduate Research or ENY 4905 Special Topics in Entomology or ENY 4941 Practical Work Experience in Entomology</a></del>	<del>3</del>
<del><a href="#">NEM 3002 Principles of Nematology</a></del>	<del>3</del>
<del><a href="#">Entomology Electives</a></del>	<del>2-3</del>
Total	<del>15- 17</del> 15

Commented [AL26]: Moved to semester 4

Commented [AL27]: Moved to Semester 6