Plant science is a diverse major offered collaboratively by the departments of Agronomy, Entomology and Nematology, Environmental Horticulture, Plant Pathology, and Soil and Water Sciences. Students may earn B.S. or B.A. degrees, depending on their specialization. B.S. specializations include Native Plant Conservation, General Plant Science, Greenhouse and Landscape Industries, Plant Breeding and Genetics, Plant Health and Protection, Soil Management and Plant Productivity, Sustainable Crop Production and Turfgrass Science. The B.A. specialization is Community Food Systems.

About this Program

- **College:** Agricultural and Life Sciences
- **Degrees:** Bachelor of Arts | Bachelor of Science
- **Credits for Degree:** 120
- **Specializations:** Community Food Systems | General Plant Science | Greenhouse and Landscape Industries | Native Plant Conservation | Plant Breeding and Genetics | Plant Health and Protection | Soil Management and Plant Productivity | Sustainable Crop Production | Turfgrass Science
- **Additional Information**
- **Related Plant Science Programs**

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

The plant science degree offers diverse specializations that provide a wide range of professional opportunities. The specializations provide students with an interdisciplinary perspective of these areas and pursue coursework that tracks them into a variety of job opportunities.

The University of Florida offers some of the specializations in this major to transfer students who have the appropriate credentials through the statewide programs at the Fort Lauderdale Research and Education Center in Ft. Lauderdale, the Mid-Florida Research and Education Center in Apopka, or the West Florida Research and Education Center in Milton.

Course Requirements

The B.S. degree is designed for students with different professional objectives. All students, regardless of degree or specialization, are required to take an introductory plant science course, an introductory statistics course, an economics course, a technical writing course, a speech course, a soil science course, a plant physiology course, a plant pathology course, a professional development course, and a capstone experience course. All students must also complete an internship related to their area of interest.

The B.A. degree is designed for students who want to learn about contemporary food systems from an interdisciplinary perspective. All students are required to take an introductory plant science course, a capstone experience course, and must complete an internship related to their area of interest.

Each specialization has a specific set of required core courses and a number of upper-division electives to choose from that represent important interdisciplinary topic areas. Core courses provide students with the knowledge and fundamental concepts essential to the specialization. Upper-division electives are designed to build knowledge, competency and skills applicable to professional development.

Students should meet with an advisor as early as possible in their academic careers to choose their specialization and to plan their course of study.

Related Plant Science Programs

- Environmental Horticulture minor
- Golf and Sports Turf Management minor
- Plant Science minor
- Environmental Horticulture Management certificate

Bachelor of Science: Soil Management and Plant Productivity

This specialization closely integrates the study of soil science core disciplines with production agriculture and horticulture. Coursework focuses on foundational principles related to soil health, productivity, and fertility in relation to sustainable plant growth and agricultural practices. Among the principal outcomes of the program is to prepare students for certification as both Associate Professional Soil Scientists and Certified Crop Advisors to better position graduates for employment in related fields.

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:
  - BOT 2010C or BSC 2010/BSC 2010L; CHM 2045/CHM 2045L; CHM 2046/CHM 2046L; ECO 2013; MAC 1147
  - 2.0 GPA required for all critical-tracking courses
  - 2.0 UF GPA required

Semester 2

- Complete 1 additional critical-tracking course, excluding labs
  - 2.0 GPA required for all critical-tracking courses
  - 2.0 UF GPA required

Semester 3

- Complete 2 additional critical-tracking courses, excluding labs
  - 2.0 GPA required for all critical-tracking courses
  - 2.0 UF GPA required

Semester 4

- Complete all critical-tracking courses, excluding labs
  - 2.0 GPA required for all critical-tracking courses
  - 2.0 UF GPA required
### Semester 5

- Complete all critical-tracking courses, including labs
- 2.0 GPA required for all critical-tracking courses
- 2.0 UF GPA required

#### Model Semester Plan

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 Title</th>
<th>Credits</th>
</tr>
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<tbody>
<tr>
<td><strong>Semester One</strong> Select one:</td>
<td></td>
</tr>
<tr>
<td>BOT 2010C Introductory Botany <em>(Critical Tracking; State Core Gen Ed Biological Sciences and Physical Sciences)</em></td>
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</tr>
<tr>
<td>BSC 2010 &amp; 2010L Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 <em>(Critical Tracking; State Core Gen Ed Biological Sciences and Physical Sciences)</em></td>
<td></td>
</tr>
<tr>
<td>ENC 1101 Expository and Argumentative Writing <em>(State Core Gen Ed Composition; Writing Requirement: 6,000 words)</em></td>
<td>3</td>
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<tr>
<td>MAC 1147 Precalculus Algebra and Trigonometry <em>(Critical Tracking; State Core Gen Ed Mathematics)</em></td>
<td>4</td>
</tr>
<tr>
<td>MUL 2010 Experiencing Music <em>(State Core Gen Ed Humanities and International)</em></td>
<td>3</td>
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<tr>
<td><strong>Credits</strong></td>
<td>13-14</td>
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<tr>
<td><strong>Semester Two</strong></td>
<td></td>
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<tr>
<td>CHM 2045 &amp; 2045L General Chemistry 1 and General Chemistry 1 Laboratory <em>(Critical Tracking; State Core Gen Ed Biological and Physical Sciences)</em></td>
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<tr>
<td>ENC 2210 Technical Writing <em>(Gen Ed Composition; Writing Requirement)</em></td>
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<tr>
<td>IUF 1000 What is the Good Life <em>(Gen Ed Humanities)</em></td>
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<tr>
<td>STA 2023 Introduction to Statistics 1 <em>(Gen Ed Mathematics)</em></td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Semester Three</strong></td>
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<tr>
<td>AEC 3030C or SPC 2608 Effective Oral Communication or Introduction to Public Speaking</td>
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<tr>
<td>AMH 2020 United States Since 1877 <em>(Gen Ed Social and Behavioral Sciences and Diversity)</em></td>
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</tr>
<tr>
<td>CHM 2046 &amp; 2046L General Chemistry 2 and General Chemistry 2 Laboratory <em>(Critical Tracking; Gen Ed Biological Sciences and Physical Sciences)</em></td>
<td>4</td>
</tr>
<tr>
<td>ECO 2013 Principles of Macroeconomics <em>(Critical Tracking; State Core Gen Ed Social and Behavioral Sciences)</em></td>
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<td><strong>Credits</strong></td>
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<tr>
<td><strong>Semester Four</strong></td>
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<tr>
<td>PHY 2004 &amp; 2004L Applied Physics 1 and Laboratory for Applied Physics 1 <em>(Gen Ed Biological and Physical Sciences)</em></td>
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<tr>
<td>SWS 3022 &amp; 3022L Introduction to Soils in the Environment and Introduction to Soils in the Environment Laboratory <em>(Gen Ed Biological and Physical Sciences)</em></td>
<td>4</td>
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<tr>
<td><strong>Approved electives</strong></td>
<td>6</td>
</tr>
<tr>
<td><strong>Summer After Semester Four</strong></td>
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<tr>
<td>Approved elective</td>
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<tr>
<td>Elective <em>(Writing Requirement: 6,000 words)</em></td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Semester Five</strong></td>
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<tr>
<td>PLP 3002C Fundamentals of Plant Pathology</td>
<td>4</td>
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<tr>
<td>PLS 3004C Principles of Plant Science</td>
<td>3</td>
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<tr>
<td>SWS 4116 Environmental Nutrient Management</td>
<td>3</td>
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<td><strong>Approved elective</strong></td>
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<td><strong>Credits</strong></td>
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<tr>
<td><strong>Summer After Semester Six</strong></td>
<td></td>
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<td>Approved elective</td>
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<tr>
<td><strong>Credits</strong></td>
<td>3</td>
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<tr>
<td><strong>Semester Six</strong></td>
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<tr>
<td>AGR 4214C Applied Field Crop Production</td>
<td>3</td>
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<tr>
<td>SWS 4303C Soil Microbial Ecology</td>
<td>3</td>
</tr>
<tr>
<td>SWS 4715C Environmental Pedology</td>
<td>4</td>
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<tr>
<td><strong>Approved electives</strong></td>
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</tr>
<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Semester Eight</strong></td>
<td></td>
</tr>
<tr>
<td>AEB 4126 Agricultural and Natural Resource Ethics <em>(Gen Ed Humanities or Social and Behavioral Sciences; Writing Requirement: 6,000 words)</em></td>
<td>3</td>
</tr>
<tr>
<td>AGR 4512 Physiology and Ecology of Crops or Horticultural Physiology</td>
<td>3</td>
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<tr>
<td>ORH 4933 Professional Seminar in Environmental Horticulture</td>
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<tr>
<td>PLS 4950 Plant Science Capstone</td>
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<td><strong>Approved elective</strong></td>
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<tr>
<td><strong>Credits</strong></td>
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<tr>
<td><strong>Total Credits</strong></td>
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</table>

### Approved Electives

#### Minimum 27 Credits

Choose courses from each focus area; minimum credits for each area listed below. Students must consult with their advisor for assistance in selecting the designated listed electives in order to take applicable and appropriate courses for the students’ job and career aspirations. Consult an advisor for other options, which may include study abroad courses.
Soils, Agriculture, and the Environment: Minimum 6 Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>ALS 4154</td>
<td>Global Agroecosystems</td>
<td>3</td>
</tr>
<tr>
<td>SWS 4207</td>
<td>Sustainable Agricultural and Urban Land Management</td>
<td>3</td>
</tr>
<tr>
<td>SWS 4231C</td>
<td>Soil, Water and Land Use</td>
<td>3</td>
</tr>
<tr>
<td>SWS 4233</td>
<td>Soil and Water Conservation</td>
<td>3</td>
</tr>
<tr>
<td>SWS 4720C</td>
<td>GIS in Soil and Water Science</td>
<td>3</td>
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</table>

Plant Pests, Disease, and Pathology: Minimum 6 Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>AOM 3333</td>
<td>Pesticide Application Techniques</td>
<td>3</td>
</tr>
<tr>
<td>ENY 3005 &amp; 3005L</td>
<td>Principles of Entomology and Principles of Entomology Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>IPM 3022</td>
<td>Fundamentals of Pest Management</td>
<td>3</td>
</tr>
<tr>
<td>NEM 3002</td>
<td>Principles of Nematology</td>
<td>3</td>
</tr>
<tr>
<td>PLP 3103C</td>
<td>Control of Plant Diseases</td>
<td>3</td>
</tr>
<tr>
<td>PLP 4242C</td>
<td>Introduction to Plant Bacteriology</td>
<td>3</td>
</tr>
<tr>
<td>PLS 4601C</td>
<td>Principles of Weed Science</td>
<td>3</td>
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</table>

Production Agriculture and Management: Minimum 6 Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AGR 4231C</td>
<td>Forage Science and Range Management</td>
<td>4</td>
</tr>
<tr>
<td>AGR 4320</td>
<td>Plant Breeding</td>
<td>3</td>
</tr>
<tr>
<td>AGR 4932</td>
<td>Agronomy Topics (Tropical Cropping Systems)</td>
<td>3</td>
</tr>
<tr>
<td>AOM 3734</td>
<td>Irrigation Principles and Practices in Florida</td>
<td>3</td>
</tr>
<tr>
<td>AOM 4434</td>
<td>Precision Agriculture</td>
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</tr>
<tr>
<td>AOM 4455</td>
<td>Agricultural Operations and Systems</td>
<td>3</td>
</tr>
<tr>
<td>HOS 4341</td>
<td>Advanced Horticultural Physiology</td>
<td>3</td>
</tr>
<tr>
<td>ORH 4256</td>
<td>Nutritional Management of Nursery Crops</td>
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Organic and Alternative Agriculture: Minimum 3 Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>AGR 4212</td>
<td>Alternative Cropping Systems</td>
<td>3</td>
</tr>
<tr>
<td>HOS 3281C</td>
<td>Organic and Sustainable Crop Production</td>
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</tr>
<tr>
<td>HOS 4283C</td>
<td>Advanced Organic and Sustainable Crop Production</td>
<td>3</td>
</tr>
<tr>
<td>HOS 4905</td>
<td>Independent Study in Horticultural Science (Organic Weed Management)</td>
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</table>

Agribusiness: Minimum 3 Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AEB 3122</td>
<td>Financial Planning for Agribusiness</td>
<td>3</td>
</tr>
<tr>
<td>AEB 3133</td>
<td>Principles of Agribusiness Management</td>
<td>3</td>
</tr>
<tr>
<td>AEB 4342</td>
<td>Agribusiness and Food Marketing Management</td>
<td>3</td>
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</tbody>
</table>

Assessment Types

- Standardized post-test
- Capstone and individual projects
- Final grades

Before Graduating Students Must

- Complete a research paper and an oral presentation with satisfactory faculty evaluation.
- Achieve minimum grades of C in AEC 3030C and AEC 3033C. These courses are graded using rubrics developed by a faculty team.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes (SLOs)

Content

1. Describe plant growth and development in terms of plant morphology and physiology and evaluate the abiotic and biotic factors that impact plant growth and management.
2. Recommend practices that growers and managers can implement to address the abiotic and biotic components of their cropping system.

Critical Thinking

3. Analyze and apply science-based data to solve problems in plant production, distribution and/or utilization.
4. Design and evaluate a project that addresses a problem or challenge related to their area of interest.

Communication

5. Create, interpret and analyze written text and multimedia presentations.
6. Communicate effectively through oral and multimedia presentations.

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>
<th>SLO 4</th>
<th>SLO 5</th>
<th>SLO 6</th>
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<tbody>
<tr>
<td>AEC 3030C</td>
<td>I, R, A</td>
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<td>AEC 3033C</td>
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<td>PLS 3004Q</td>
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<td>PLS 4932 A</td>
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<tr>
<td>PLS 4941 R</td>
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<td>R</td>
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<td>R</td>
</tr>
</tbody>
</table>

Academic Learning Compact

The plant science major, offered jointly by the departments of Agronomy and Plant Pathology, enables students to apply principles associated with production and improvement of agronomic crops. Students will acquire knowledge about the scientific fundamentals of plant growth of field and forage crops. They will acquire knowledge about fungi, bacteria and viruses, as well as environmental factors that cause plant disease. This program prepares students to work in the lab and field settings and to develop applied skills for research and extension.