PLANT SCIENCE | SUSTAINABLE CROP PRODUCTION

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: Sustainable Crop Production

This specialization prepares students for professions related to crop production and management. Students will explore and understand production practices that meet present world food needs without compromising quality of life for future generations. Courses emphasize crop ecosystem function, aquatic and terrestrial weed management, the importance of insects to crops and optimizing management techniques including energy utilization, nutrient management, and soil and water conservation.

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; BOT 2011C or BSC 2011/BSC 2011L; CHM 2045/CHM 2045L; 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.

Course Title Credits
Semester One
Select one:
BOT 2010C Introductory Botany (Critical Tracking; Gen Ed Biological Sciences and Physical Sciences) 3-4
BSC 2010 & 2010L Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (Critical Tracking; Gen Ed Biological Sciences and Physical Sciences) 4
ENC 1101 Expository and Argumentative Writing (State Core Gen Ed Composition; Writing Requirement: 6,000 words) 3
MAC 1147 Precalculus Algebra and Trigonometry (Critical Tracking; State Core Gen Ed Mathematics) 4
MUL 2010 Experiencing Music (State Core Gen Ed Humanities and International) 3
Credits 13-14

Semester Two
Select one:
BOT 2011C Plant Diversity (Critical Tracking; State Core Gen Ed Biological Sciences and Physical Sciences) 4
BSC 2011 & 2011L Integrated Principles of Biology 2 and Integrated Principles of Biology Laboratory 2 (Critical Tracking; State Core Gen Ed Biological Sciences and Physical Sciences) 4
ENC 2210 Technical Writing (Gen Ed Composition; Writing Requirement: 6,000 words) 3
IUF 1000 What is the Good Life (Gen Ed Humanities) 3
STA 2023 Introduction to Statistics 1 (Gen Ed Mathematics) 3
Credits 13

Semester Three
AEC 3030C or SPC 2608 Effective Oral Communication or Introduction to Public Speaking 3
AMH 2020 United States Since 1877 (Gen Ed Social and Behavioral Sciences and Diversity) 3
CHM 2045 & 2045L General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological and Physical Sciences) 4

Semester Four
ECO 2013 Principles of Macroeconomics (Critical Tracking; State Core Gen Ed Social and Behavioral Sciences) 4
Approved elective 3
Credits 14

Summer After Semester Four
Approved elective 3
Elective (Writing Requirement: 6,000 words) 3
Credits 6

Semester Five
BCH 3023 Elementary Organic and Biological Chemistry 3
PLP 3002C Fundamentals of Plant Pathology (Gen Ed Biological and Physical Sciences) 4
PLS 3004C Principles of Plant Science 3
Approved elective 3
Credits 13

Summer After Semester Six
PLS 4941 Practical Work Experience 3
Credits 3

Semester Six
AGG 3501 Environment, Food and Society 3
AGR 4214C Applied Field Crop Production 3
Approved electives 8
Credits 14

Semester Seven
PLS 3223 & 3223L Plant Propagation and Plant Propagation Laboratory 3
PLS 4601C Principles of Weed Science 3
Approved electives 9
Credits 15

Semester Eight
AEB 4126 Agricultural and Natural Resource Ethics (Gen Ed Humanities or Social and Behavioral Sciences; Writing Requirement: 6,000 words) 3
AGR 4212 Alternative Cropping Systems 3
AGR 4512 or HOS 4304 Physiology and Ecology of Crops or Horticultural Physiology 3
ORH 4933 Professional Seminar in Environmental Horticulture 1
PLS 4950 Plant Science Capstone 3
Approved elective 3
Credits 16
Total Credits 120

Approved Electives

Minimum 29 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.
### Plant Production and Management: Minimum 6 Credits

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credits</th>
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<tbody>
<tr>
<td>AGR 4231C</td>
<td>Forage Science and Range Management</td>
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<tr>
<td>AGR 4932</td>
<td>Agronomy Topics (Tropical Cropping Systems)</td>
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<td>AOM 3734</td>
<td>Irrigation Principles and Practices in Florida</td>
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<td>AOM 4434</td>
<td>Precision Agriculture</td>
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<td>AOM 4455</td>
<td>Agricultural Operations and Systems</td>
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<td>HOS 3281C</td>
<td>Organic and Sustainable Crop Production</td>
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<tr>
<td>HOS 4283C</td>
<td>Advanced Organic and Sustainable Crop Production</td>
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### Management and Sales: Minimum 6 Credits

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<tbody>
<tr>
<td>AEB 3122</td>
<td>Financial Planning for Agribusiness</td>
<td>3</td>
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<tr>
<td>AEB 3133</td>
<td>Principles of Agribusiness Management</td>
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<tr>
<td>AEB 3300</td>
<td>Agricultural and Food Marketing</td>
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<td>AEB 3341</td>
<td>Selling Strategically</td>
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<tr>
<td>AEB 4424</td>
<td>Human Resources Management in Agribusiness</td>
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<td>FIN 3403</td>
<td>Business Finance</td>
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<tr>
<td>MAR 3231</td>
<td>Introduction to Retailing Systems and Management</td>
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### Plant Pest Management: Minimum 6 Credits

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<td>ENY 3005 &amp; 3005L</td>
<td>Principles of Entomology and Principles of Entomology Laboratory</td>
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<td>ENY 4905</td>
<td>Problems in Entomology</td>
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<tr>
<td>HOS 4905</td>
<td>Independent Study in Horticultural Science (Organic Weed Management)</td>
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<tr>
<td>NEM 3002</td>
<td>Principles of Nematology</td>
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### Ecology and the Environment: Minimum 6 Credits

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<tr>
<td>ALS 3133</td>
<td>Agricultural and Environmental Quality</td>
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<td>ALS 3153</td>
<td>Agricultural Ecology</td>
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<td>ALS 4154</td>
<td>Global Agroecosystems</td>
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<td>EES 4103</td>
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<td>EVS 3000</td>
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<td>FOR 3153C</td>
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<td>FOR 4090C</td>
<td>Urban Forestry</td>
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<td>ORH 3815C</td>
<td>Florida Native Landscaping</td>
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<td>SWS 4244</td>
<td>Wetlands</td>
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<td>WIS 3401</td>
<td>Wildlife Ecology and Management</td>
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<td>WIS 3402</td>
<td>Wildlife of Florida</td>
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<td>WIS 4203C</td>
<td>Landscape Ecology and Conservation</td>
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### Ethical and Social Issues: Minimum 5 Credits

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<tr>
<td>AEB 4123</td>
<td>Agricultural and Natural Resource Law</td>
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<td>IDS 2154</td>
<td>Facets of Sustainability</td>
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<td>PHM 3032</td>
<td>Ethics and Ecology</td>
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<td>POT 3503</td>
<td>Environmental Ethics and Politics</td>
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### Before Graduating StudentsMust

- 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

<table>
<thead>
<tr>
<th>SLO 1</th>
<th>SLO 2</th>
<th>SLO 3</th>
<th>SLO 4</th>
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### Assessment Types

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

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**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.