PLANT SCIENCE

Plant scientists sustain and improve the current and future world as they work with foods, fibers, fuel, flowers, pharmaceuticals, urban forests, soil health, plant pests, and natural ecosystems. Plant Science students study horticulture, agronomy, biology, chemistry, entomology, soil and water sciences, genetics, plant morphology and physiology, plant identification, plant pathology, plant propagation, and environmental horticulture.

About this Program

• **College:** Agricultural and Life Sciences (http://catalog.ufl.edu/UGRD/colleges-schools/UGAGL/)
• **Degree:** Bachelor of Science
• **Credits for Degree:** 120

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

Related Programs

• Combination Degrees
• Environmental Horticulture Management Certificate
• Environmental Horticulture Minor
• Golf and Sports Turf Management Minor

The plant science degree provides students with an interdisciplinary perspective on the science of plant production and its applications for managing plants in human and natural systems. Students work with faculty advisors to craft a plan of study that helps them gain expertise in a wide array of potential topics, such as sustainable and organic crop production, plant breeding, and genetics, biotechnology, greenhouse and landscape industries, native plant conservation, plant health, and protection, soil management and productivity, and turfgrass.

This major is offered to both incoming freshmen as well as transfer students who have the appropriate credentials through the statewide programs at Gainesville's main campus, the Fort Lauderdale Research and Education Center, the Mid-Florida Research and Education Center in Apopka, or the West Florida Research and Education Center in Milton.

Course Requirements

Courses for the major include introductory statistics, biology, chemistry, mathematics, economics, communications, humanities, Quest courses, and Civic Literacy. Students take a no-cost placement test upon entry into the junior year, and additional courses may be recommended or required based on exam results and individual advising. All students are required to take an introductory plant science course to explore the range of career options and opportunities offered by the major (PLS 3004C). Upper-division requirements include courses in soil science, pests and diseases, natural ecosystems or agroecosystems, physiology, genetics, production and propagation, lab skills, and a capstone experience. All students must also complete a guided internship or high impact practice (HIP) related to their area of interest.

Courses in the major provide students with the knowledge and fundamental concepts essential to the degree, and upper-division requirements and electives are designed to build knowledge, competency, and skills applicable to professional development. The lab skills, high impact practice, and capstone courses help students gain real-world experience in their chosen field.

Students should meet with both their academic advisor and a faculty mentor as early as possible in their academic programs, to explore their interests and receive guidance on appropriate courses to plan their course of study.

Critical Tracking

Critical Tracking records each student's progress in courses that are required for progress toward 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 (https://cpm.flvc.org/advance-search/) 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 course, 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
- Complete PLS 3004C
- 2.0 GPA required for all critical-tracking courses
- 2.0 upper-division GPA required
- 2.0 UF GPA required

**SEMESTER 6**
- Complete AGR 4512 or HOS 4304
- 2.0 upper-division GPA required
- 2.0 UF GPA required

**SEMESTER 7**
- Complete PLS 3223 and PLS 3223L and approved elective in major
- Complete HOS 4918
- 2.0 upper-division GPA required
- 2.0 UF GPA required

**SEMESTER 8**
- Complete Plant Science capstone
- 2.0 upper-division GPA required
- 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</th>
<th>Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Semester One</td>
<td>Select one:</td>
<td></td>
</tr>
<tr>
<td>BOT 2010C</td>
<td>Introductory Botany (<a href="#">Critical Tracking</a>; State Core Gen Ed Biological Sciences and Physical Sciences)</td>
<td>3-4</td>
</tr>
<tr>
<td>BSC 2100 &amp; 2100L</td>
<td>Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (<a href="#">Critical Tracking</a>; State Core Gen Ed Biological Sciences and Physical Sciences)</td>
<td></td>
</tr>
<tr>
<td>Course Code</td>
<td>Course Title</td>
<td>Credits</td>
</tr>
<tr>
<td>-------------</td>
<td>------------------------------------------------------------------------------</td>
<td>---------</td>
</tr>
<tr>
<td>ENC 1101</td>
<td>Expository and Argumentative Writing (State Core Gen Ed Composition)</td>
<td>3</td>
</tr>
<tr>
<td>MAC 1147</td>
<td>Precalculus Algebra and Trigonometry (Critical Tracking)</td>
<td>4</td>
</tr>
<tr>
<td>MUL 2010</td>
<td>Experiencing Music (State Core Gen Ed Humanities and International)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Semester Two

**Quest 1 (Gen Ed Humanities)**

Select one:

- BOT 2011C Plant Diversity (Critical Tracking; Gen Ed Biological Sciences) 4
- BSC 2011 Integrated Principles of Biology 2
  
- & 2011L and Integrated Principles of Biology Laboratory 2 (Critical Tracking; Gen Ed Biological Sciences)
- ENC 2210 Technical Writing (Gen Ed Composition; Writing Requirement: 6,000 words) 3
- STA 2023 Introduction to Statistics 1 (Gen Ed Mathematics) 3

**Credits** 13-14

### Semester Three

**Quest 2 (Gen Ed Social and Behavioral Sciences and Diversity)**

- AEC 3030C Effective Oral Communication 3
- CHM 2045 General Chemistry 1
  
- & 2045L and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological and Physical Sciences) 4
- ECO 2013 Principles of Macroeconomics (Critical Tracking; State Core Gen Ed Social and Behavioral Sciences) 4

**Credits** 13

### Semester Four

- ENY 3005 Principles of Entomology and Principles of Entomology Laboratory 3
- SWS 3022 Introduction to Soils in the Environment
  
- & 3022L and Introduction to Soils in the Environment Laboratory (Gen Ed Biological and Physical Sciences) 4

**Approved electives** 6

**Credits** 13

### Summer After Semester Four

- ORH 3513 Environmental Plant Identification and Use and Environmental Plant Identification and Use Laboratory 3
- Elective (Writing Requirement: 6,000 words) 3

**Credits** 6

### Semester Five

- AEB 4126 Agricultural and Natural Resource Ethics (Gen Ed Humanities or Social and Behavioral Sciences; Writing Requirement: 6,000 words) 3
- ALS 3153 Agricultural Ecology 3
- BCH 3023 Elementary Organic and Biological Chemistry 3
- PLP 3002C Fundamentals of Plant Pathology 4
- PLS 3004C Principles of Plant Science (Critical Tracking; Gen Ed Biological and Physical Sciences) 3

**Credits** 16

### Semester Six

- AGR 4512 Physiology and Ecology of Crops (Critical Tracking) or Horticultural Physiology
  
- or HOS 4304 Nutrition of Horticultural Crops 3

**Approved elective (Critical Tracking)** 3

**Approved electives** 6

**Credits** 15

### Summer After Semester Six

- PLS 4941 Practical Work Experience 2-3

**Credits** 2-3

### Semester Seven

- AGR 3303 Genetics 3
- ALS 3200C AI in Agricultural and Life Sciences 3
- HOS 4918 Capstone Planning in Horticultural Sciences 1
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.

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 affect 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>
</tr>
</thead>
<tbody>
<tr>
<td>AEC 3030C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I, R, A</td>
<td></td>
</tr>
<tr>
<td>AEC 3033C</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>I, R, A</td>
<td></td>
</tr>
<tr>
<td>PLS 3004C</td>
<td>I</td>
<td>I</td>
<td>I</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PLS 4932</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
<td>A</td>
</tr>
<tr>
<td>PLS 4941</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
<td>R</td>
</tr>
</tbody>
</table>

Assessment Types

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