The botany curriculum provides a broad background in the biology of plants, from the molecular to the organismic level. Students who major in botany will take courses in anatomy, ecology, genetics, physiology, taxonomy and molecular biology of plants and biochemistry.

About this Program
- **College:** Agricultural and Life Sciences
- **Degree:** Bachelor of Science
- **Credits for Degree:** 120
- **Specializations:** General Botany | Botanical Research
- **Additional Information**
- **Related Botany Programs**

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

Small classes are taught by faculty who have a commitment to undergraduate education. Students participate in mentored research, assisting faculty with research projects on campus and abroad. The major prepares students for careers in industry and government agencies, for graduate and professional schools, and for teaching jobs in high schools.

The **general botany** specialization is for students who may not intend to pursue a graduate degree but are interested in a career in plant biology. This specialization provides some flexibility in tailoring the courses needed in order to pursue specific interests. Students are encouraged to consult with an advisor and botany faculty member when deciding on which courses to take.

The **botanical research** specialization is for students who intend to pursue a graduate degree and requires research with a faculty member. This specialization provides some flexibility in tailoring the courses needed in order to pursue specific interests. Students are encouraged to consult with an advisor and botany faculty member when deciding on which courses to take.

Coursework for the Major

Required coursework is dependent upon the specialization. Coursework for each specialization can be found below under Critical Tracking and Model Semester Plan.

Relevant Minors and/or Certificates

Students majoring in botany can minor in most other disciplines, and this is a good way to organize students’ electives around areas of interest. Note that botany majors cannot minor in biology, nor can biology majors minor in botany (the curricula for the botany and biology majors are too similar).

UF Teach Program

More Info

There is a severe shortage of qualified secondary science teachers in Florida and nationwide. Students interested in becoming part of this high-demand profession should see a botany advisor or the UF Teach advisor.

UF Teach students complete the UF Teach minor in science teaching with their B.S. in botany and have the coursework and preparation for professional teacher certification in Florida when they graduate.

Research

More Info

Botany majors are strongly encouraged to participate in research, and research is required for the Botanical Research specialization. Research experience is valuable on many levels: it diversifies the college experience; it teaches students how scientists apply the knowledge gained in the classroom to real world questions; it provides the opportunity to work with and get to know researchers who are the best in their field; it introduces students to cutting edge scientific questions and techniques; it can enhance a student’s resume/CV when applying to graduate or professional school; and finally it is essential in helping students determine if science is a good career choice.

CALS botany majors may participate in research for course credit, as a scholar (e.g., University Scholar, Science for Life Scholar, Beckman Scholar), as a volunteer, or, in rare cases, as a paid research assistant. Please visit Undergraduate Research for information regarding course credit. Students who plan to enroll for course credit must contact potential research mentors, develop a project, and turn in the required application and proposal no later than the week before drop/add. If the window is missed, students should still contact potential research mentors, if only to discuss upcoming opportunities.

Related Botany Programs
- **Combined Degree**
- **Bachelor of Science in Botany, CLAS**
- **Botany minor**

Botanical Research

This option provides a strong background in the basic sciences and research, and is intended for students who plan to attend graduate school. Minimum grades of C are required in the foundation and botany major requirements.

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<thead>
<tr>
<th>Code</th>
<th>Title</th>
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<td>Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1</td>
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<td>Option A:</td>
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<tr>
<td>CHM 2210 &amp; CHM 2211</td>
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<td>CHM 2211L</td>
<td>Organic Chemistry Laboratory</td>
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Option B:
CHM 3217  Organic Chemistry/Biochemistry 1 & CHM 3218 and Organic Chemistry/Biochemistry 2
CHM 2211L  Organic Chemistry Laboratory
MAC 2311  Analytic Geometry and Calculus 1

Select one of the following: 3
STA 2023  Introduction to Statistics 1
COP 2800  Computer Programming Using JAVA (or equivalent)
COP 3275  Computer Programming Using C (or equivalent)

BSC 2891  Python Programming for Biology

Select one of the following options: 8-10
Option A:

PHY 2053  Physics 1 & 2053L  and Laboratory for Physics 1
PHY 2054  Physics 2 & 2054L  and Laboratory for Physics 2

Option B:

PHY 2048  Physics with Calculus 1 & 2048L  and Laboratory for Physics with Calculus 1
PHY 2049  Physics with Calculus 2 & 2049L  and Laboratory for Physics with Calculus 2

Required Courses for the Botanical Research Specialization
AGR 3303  Genetics 3-4
or PCB 3063  Genetics
PCB 4674  Evolution 4
BOT 2710C  Practical Plant Taxonomy 3
BOT 3503  Physiology and Molecular Biology of Plants & 3503L  and Physiology and Molecular Biology of Plants Laboratory
BOT 4911  Undergraduate Research in Botany 3
BSC 3911  Entering Research in Biology 2
BSC 4936  Critical Analysis of Biological Research 2

Ecology and Florida Biodiversity
Select two of the following: 6-8
PCB 4043C  General Ecology
PCB 3601C  Plant Ecology
BOT 3151C  Local Flora of North Florida
BSC 3307C  Climate Change Biology 4

Cells and Tissues
Select one of the following: 3-4
BOT 4935/5225C  Special Topics (Plant anatomy)
PCB 3023  Essential Cell Biology
BCH 4024  Introduction to Biochemistry and Molecular Biology

Biodiversity Breadth
Select one of the following: 3-4
BOT 2011C  Plant Diversity
ZOO 4307C  Vertebrate Biodiversity
ZOO 4926  Special Topics in Zoology (Mammalogy)
ZOO 4205C  Invertebrate Biodiversity
ENY 3005  Principles of Entomology & 3005L  and Principles of Entomology Laboratory
WIS 4934  Topics in Wildlife Ecology and Conservation (Mammalogy)
PLP 3002C  Fundamentals of Plant Pathology
PLP 4653C  Basic Fungal Biology
MCB 2000  Microbiology & 2000L  and Microbiology Laboratory

MCB 3020  Basic Biology of Microorganisms & 3020L  and Laboratory for Basic Biology of Microorganisms

Total Credits 76-88

1 Students who choose BOT 2011C to fulfill the foundation breadth requirements may not use BOT 2011C to fulfill the biodiversity breadth requirements for the major.
2 Must be taken concurrently with BOT 4911.

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 1 of 5 critical-tracking courses, including lab:
  BSC 2010/BSC 2010L or BOT 2010C, BSC 2011/BSC 2011L or BOT 2011C, CHM 2045/CHM 2045L, CHM 2046/CHM 2046L, MAC 2311
• 2.0 UF GPA required

Semester 2
• Complete 1 additional critical-tracking course, including labs
• 2.0 UF GPA required

Semester 3
• Complete 1 additional critical-tracking course, including labs, with a 2.5 GPA required for all critical-tracking courses
• 2.0 UF GPA required

Semester 4
• Complete 1 additional critical-tracking course, including labs, with a 2.5 GPA required for all critical-tracking courses
• 2.0 UF GPA required

Semester 5
• Complete all 5 critical-tracking courses, including labs, with a 2.5 GPA required for all critical-tracking courses
• 2.0 UF GPA required

Students are expected to complete the writing requirement while in the process of taking the courses below. Students are also expected to complete the general education international (GE-N) and diversity (GE-D) requirements concurrently with another general education requirement (typically, GE-C, H or S).

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.
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<tr>
<th>Course</th>
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<td><strong>Semester One</strong></td>
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<td>General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological and Physical Sciences)</td>
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<td>IUF 1000</td>
<td>What is the Good Life (Gen Ed Humanities)</td>
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<td>Analytic Geometry and Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics)</td>
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<td>BSC 1920</td>
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<td>Principles of Food and Resource Economics (Gen Ed Social and Behavioral Sciences)</td>
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<td>or PCB 3063</td>
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<td>&amp; BSC 3911</td>
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<td><strong>Total Credits</strong></td>
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</table>

1  Gen Ed Mathematics; if COP 2800 taken for computational requirement; or elective.

The botany major is offered by both the College of Liberal Arts and Sciences and the College of Agricultural and Life Sciences. This major provides a foundation in the life sciences with emphasis on plant systems. Students will learn the diversity of life, the structure of organisms and ecosystems and how they function (i.e., the acquisition, flow, organization and uses of information, energy and nutrients in living systems). Students will learn the scientific method and how it facilitates the discovery of new knowledge in botany and biology, including how to critically evaluate hypotheses and conclusions.
Before Graduating Students Must

- Achieve acceptable performance in all required botany courses.
- Complete requirements for the baccalaureate degree, as determined by faculty.

Students in the Major Will Learn to

Student Learning Outcomes (SLOs)

Content
1. Identify, describe and explain the basic terminology, concepts, methodologies and theories used within the biological sciences.

Critical Thinking
2. Analyze biological information and develop reasoned solutions to problems using the processes and applications of scientific inquiry.
3. Discriminate ethical behavior from unethical behavior in scientific research.

Communication
4. Communicate knowledge, ideas and reasoning clearly and effectively in written or oral forms appropriate to the biological sciences.

Curriculum Map

<table>
<thead>
<tr>
<th>Courses</th>
<th>SLO 1</th>
<th>SLO 2</th>
<th>SLO 3</th>
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<td>BOT 2710C</td>
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Assessment Types

- Major field test for biology
- Bioethics quiz
- Scientific paper