BIOLOGY | BIOTECHNOLOGY

The biology major combines the faculty and resources of two UF colleges to prepare undergraduates for careers in the biological sciences, advanced study in professional or graduate schools, productive citizenship and leadership, and lifelong learning. The program is comprehensive and flexible, emphasizing the diverse forms, processes and systems of life. Students in the program complete required and elective courses that promote critical thinking through the investigation and understanding of principles and unifying themes that govern living systems. The biology major offers a broader approach to biology than is available through a major in animal sciences, botany, microbiology, plant science, zoology or other specialized biological sciences.

About this Program

• College: Agricultural and Life Sciences
• Degree: Bachelor of Science
• Credits for Degree: 120
• Specializations: Applied Biology | Biotechnology | Natural Science | Preprofessional
• Additional Information
• Related Biology Programs

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

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 CHM 2045/CHM 2045L or MAC 2311
• 2.5 GPA required for all critical-tracking courses
• 2.0 UF GPA required

Semester 2

• Complete CHM 2045/CHM 2045L and MAC 2311
• 2.5 GPA required for all critical-tracking courses
• 2.0 UF GPA required

Semester 3

• Complete BSC 2010/BSC 2010L and CHM 2046/CHM 2046L
• 2.5 GPA required for all critical-tracking courses
• 2.0 UF GPA required

Semester 4

• Complete BSC 2011/BSC 2011L
• 2.5 GPA required for all critical-tracking courses
• 2.0 UF GPA required

Semester 5

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

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
CHM 2045 & 2045L General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking; State Core Gen Ed Biological and Physical Sciences) 4
IUF 1000 What is the Good Life (Gen Ed Humanities) 3
State Core Gen Ed Composition; Writing Requirement 3
Elective 2
State Core Gen Ed Social and Behavioral Sciences 3
Credits 15

Semester Two
Select one:
AEB 2014 Economic Issues, Food and You (Gen Ed Social and Behavioral Sciences) 3-4
AEB 3103 Principles of Food and Resource Economics (Gen Ed Social and Behavioral Sciences) 3-4
ECO 2013 Principles of Macroeconomics (Gen Ed Social and Behavioral Sciences) 3-4
ECO 2023 Principles of Microeconomics (Gen Ed Social and Behavioral Sciences) 3-4
CHM 2046 & 2046L General Chemistry 2 and General Chemistry 2 Laboratory (Critical Tracking; Gen Ed Biological Sciences and Physical Sciences) 4
MAC 2311 Analytic Geometry and Calculus 1 (Critical Tracking; State Core Gen Ed Mathematics) 4
State Core Gen Ed Humanities 3
Credits 15-17

Semester Three
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
CHM 2210 or CHM 3217 Organic Chemistry 1 or Organic Chemistry/Biochemistry 1 3-4
STA 2023 or MAC 2312 Introduction to Statistics 1 (Gen Ed Mathematics) or Analytic Geometry and Calculus 2 3-4
Gen Ed Composition; Writing Requirement 3
Elective 2
Credits 15-17

Semester Four
BSC 2011 & 2011L Integrated Principles of Biology 2 and Integrated Principles of Biology Laboratory 2 (Critical Tracking; Gen Ed Biological Sciences) 4
Biology is the study of the many diverse forms, processes and systems of life. These studies range across all levels of the biological hierarchy, from the simplest to the most complex life forms, across all environments on the earth and across recent and evolutionary time that interconnects ancestors to their descendants.

To understand this vast diversity, the field of biology correspondingly relies on integrative and comparative approaches for the resolution of the general processes, principles and unifying themes that govern living systems. Biology is therefore very interdisciplinary and biologists rely on knowledge from the physical sciences and mathematics, as well as from across the disciplines and subdisciplines of biology for advances and breakthroughs.

The biology major is administered jointly by the College of Agricultural and Life Sciences and the College of Liberal Arts and Sciences.

### Before Graduating Students Must
- Achieve a passing score for all content subsections of the Major Field Test for Biology. Content subscore areas are molecular biology and genetics, organismal biology, evolution, ecology and population biology.
- Achieve a passing score on the analytical skills assessment indicator of the Major Field Test for Biology.
- Achieve a passing score on the bioethics module quiz in BSC 4936. The content of the module and quiz are reviewed and approved by a faculty committee.
- Achieve a passing score on the scientific literacy paper assignment given in BSC 4936. This paper is graded using a faculty-developed rubric.
- 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 for All Specializations except CALS Biotechnology

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<th>SLO 4</th>
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1 Not required if CHM 3218 was taken.
Assessment Types
- Major field test for biology
- Bioethics module
- Scientific literacy paper

Curriculum Map for CALS Biotechnology

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<th>Courses</th>
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Assessment Types
- Major field test for biology
- Bioethics module
- Scientific literacy paper