

BIOLOGY UF ONLINE

The online Biology major prepares undergraduates for careers in the biological sciences, advanced study in 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 botany, zoology, or other specialized biological sciences majors.

About this Program

- **College:** Liberal Arts and Sciences (<http://catalog.ufl.edu/UGRD/colleges-schools/UGLAS/>)
- **Degree:** Bachelor of Arts
- **Credits for Degree:** 120
- **Contact:** 1.855.99GATOR
- **More Info**

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

Department Information

The Department of Biology studies life at all levels from molecules to the biosphere to understand the evolution, structure, maintenance and dynamics of biological systems. The department's teaching and research provide the integrative and conceptual foundations of the life sciences.

Website (<https://biology.ufl.edu/>)

CONTACT

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Map (<http://campusmap.ufl.edu/#/index/0747>)

Curriculum

- Biology UF Online
- Biology | CALS
- Biology | CLAS
- Botany Minor
- Botany | CALS
- Botany | CLAS
- Combination Degrees
- Zoology
- Zoology Minor

The biology major develops fundamental knowledge of animals, plants, and microorganisms. The Bachelor of Arts in biology is a flexible degree that is best suited for students interested in a career in education, the allied health professions, and interdisciplinary fields such as environmental or biotechnology law, science journalism, and bioscience management. This degree is not recommended for students seeking admission into professional schools such as medicine, dentistry, or veterinary medicine. Please contact an academic advisor for more information.

Coursework for the Major

All coursework for the major must be completed with minimum grades of C.

Code	Title	Credits
Required Foundation Coursework		
<i>General Biology</i>		
BSC 2010 & 2010L	Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1	4
BSC 2011 & 2011L	Integrated Principles of Biology 2 and Integrated Principles of Biology Laboratory 2	4
<i>Chemistry</i>		
Select one option: Option A		6-8

CHM 1030 & CHM 1031	Basic Chemistry Concepts and Applications 1 and Basic Chemistry Concepts and Applications 2	
Option B		
CHM 2045 & 2045L	General Chemistry 1 and General Chemistry 1 Laboratory	
CHM 2046 & 2046L	General Chemistry 2 and General Chemistry 2 Laboratory	
Mathematics		
Select one: 4-5		
MAC 1147	Precalculus Algebra and Trigonometry	
MAC 1114 & MAC 1140	Trigonometry and Precalculus Algebra	
A higher math course		
Physics		
Select one option: 8-10		
Option A		
PHY 2004 & 2004L	Applied Physics 1 and Laboratory for Applied Physics 1	
PHY 2005 & 2005L	Applied Physics 2 and Laboratory for Applied Physics 2	
Option B		
PHY 2048 & 2048L	Physics with Calculus 1 and Laboratory for Physics with Calculus 1	
PHY 2049 & 2049L	Physics with Calculus 2 and Laboratory for Physics with Calculus 2	
Option C		
PHY 2053 & 2053L	Physics 1 and Laboratory for Physics 1	
PHY 2054 & 2054L	Physics 2 and Laboratory for Physics 2	
Statistics		
STA 2023	Introduction to Statistics 1	3
Required Core Coursework		
Select at least one biology distribution course from three of five groups: ^{1,2} 9-13		
Molecular Biology, Cellular Biology and Genetics		
AGR 3303	Genetics	
BCH 3023	Elementary Organic and Biological Chemistry ³	
PCB 3023	Essential Cell Biology	
PCB 3063	Genetics	
PCB 3134	Eukaryotic Cell Structure and Function	
PCB 4522	Molecular Genetics	
PCB 4553	Population Genetics	
Organismal Biology		
BOT 3503 & 3503L	Physiology and Molecular Biology of Plants and Physiology and Molecular Biology of Plants Laboratory ³	
BSC 3096	Human Physiology	
MCB 2000 & 2000L	Microbiology and Microbiology Laboratory	
MCB 3020 & 3020L	Basic Biology of Microorganisms and Laboratory for Basic Biology of Microorganisms ³	
PCB 3134	Eukaryotic Cell Structure and Function ³	
PCB 3713C	Cellular and Systems Physiology ³	
PCB 4712	Comparative Biomechanics ³	
PCB 4723C	Physiology and Molecular Biology of Animals ³	
ZOO 3603C	Evolutionary Developmental Biology	
ZOO 3713C	Functional Vertebrate Anatomy	
Ecology		
BSC 3307C	Climate Change Biology	
PCB 3601C	Plant Ecology	
PCB 4043C	General Ecology	
Evolution and Diversity		
BOT 2011C	Plant Diversity	

BOT 2710C	Practical Plant Taxonomy	
BOT 3151C	Local Flora of North Florida	
PCB 4674	Evolution ³	
ZOO 3513C	Animal Behavior	
ZOO 4205C	Invertebrate Biodiversity	
ZOO 4307C	Vertebrate Biodiversity	
Biology and Society		
AGG 3501	Environment, Food and Society	
ALS 4162/6935	Consequences of Biological Invasions	
BOT 2800C	Plants in Human Affairs	
PLP 2000	Plants, Plagues and People	
PLP 2060	Fungus among Us: Mushrooms, Molds and Civilization	
PSB 3002	Physiological Psychology	
VEC 2100	World Herbs and Vegetables	
<i>BA Electives</i>		
Additional biology distribution courses or approved biological science courses. At least nine credits of BA electives must be taken at UF.		15
<i>Capstone</i>		
BSC 4936	Critical Analysis of Biological Research	2
Total Credits		55-64

- ¹ This major requires a minimum of 30 credits in core courses. At least 18 of the 30 credits of the required core coursework must be taken at UF. Any additional credits remaining after completion of required coursework must be met by taking courses from the approved additional life sciences electives. Any additional credits remaining after completion of the required core coursework must be met by taking courses from the approved BA electives in the biological sciences.
- ² At least two Biology Distribution Courses must be taken at UF. Only one 2000-level course may be applied to the Biology Distribution Course requirement. Students must complete at least one course from three of the five following group. Courses vary from 3-5 credits in each category.
- ³ Course has specific prerequisites; students should consult the course description when planning their programs to ensure they may select this course.

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.

For degree requirements outside of the major, refer to CLAS Degree Requirements: Structure of a CLAS Degree.

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 1 of the following: BSC 2010 and BSC 2010L; or CHM 1025 or CHM 1030 or CHM 2045 and CHM 2045L; or MAC 1147 or equivalent or higher math course
- 2.0 UF GPA required

Semester 2

- Complete CHM 1030 or CHM 2045 and CHM 2045L and one of the following: BSC 2010 and BSC 2010L or MAC 1147 or equivalent or higher MAC course
- 2.0 UF GPA required

Semester 3

- Complete BSC 2010 and BSC 2010L and MAC 1147 or equivalent or higher MAC course
- 2.0 UF GPA required

Semester 4

- Complete CHM 1031 or CHM 2046 and CHM 2046L; BSC 2011 and BSC 2011L; and MAC 1147 or equivalent or higher MAC course with a 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 5

- Complete at least 1 biology distribution course
- 2.5 GPA required for all critical-tracking courses
- 2.0 UF GPA required

Semester 6

- Complete a minimum of 2 of the remaining Biology major 3000/4000 level required core courses

Semester 7

- Complete a minimum of 2 of the remaining Biology major 3000/4000 level required core courses

Semester 8

- Complete BSC 4936 (Capstone)
- Complete all remaining Biology major 3000/4000 level required core courses

Model Semester Plan

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.

Course	Title	Credits
Semester One		
Quest 1 (Gen Ed Humanities)		3
Select one:		3-4
CHM 1030	Basic Chemistry Concepts and Applications 1 (Critical Tracking)	
CHM 2045 & 2045L	General Chemistry 1 and General Chemistry 1 Laboratory (Critical Tracking ; Gen Ed Physical Sciences)	
MAC 1147	Precalculus Algebra and Trigonometry (Critical Tracking ; State Core Gen Ed Mathematics)	4
State Core Gen Ed Composition (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Credits		13-14
Semester Two		
Select one:		3-4
CHM 1031	Basic Chemistry Concepts and Applications 2 (Critical Tracking)	
CHM 2046 & 2046L	General Chemistry 2 and General Chemistry 2 Laboratory (Critical Tracking)	
STA 2023	Introduction to Statistics 1 (Gen Ed Mathematics)	3
Gen Ed Composition (Writing Requirement)		3
State Core Gen Ed Social and Behavioral Sciences (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)		3
Electives		4
Credits		16-17
Semester Three		
BSC 2010 & 2010L	Integrated Principles of Biology 1 and Integrated Principles of Biology Laboratory 1 (Critical Tracking ; State Core Gen Ed Biological Sciences)	4
Gen Ed Social and Behavioral Sciences		3
Foreign language		5
Elective		3
Credits		15
Semester Four		
BSC 2011 & 2011L	Integrated Principles of Biology 2 and Integrated Principles of Biology Laboratory 2 (Critical Tracking ; Gen Ed Biological Sciences)	4

State Core Gen Ed Humanities (http://catalog.ufl.edu/UGRD/academic-programs/general-education/#genedcoursestext)	3
Gen Ed Social and Behavioral Sciences	3
Foreign language	5
Credits	15
Semester Five	
Quest 2	3
Select one:	4-5
PHY 2004 & 2004L	Applied Physics 1 and Laboratory for Applied Physics 1
PHY 2053 & 2053L	Physics 1 and Laboratory for Physics 1
Biology distribution courses (Critical Tracking)	6
Elective (3000 level or above, not in major)	3
Credits	16-17
Semester Six	
Select one:	4-5
PHY 2005 & 2005L	Applied Physics 2 and Laboratory for Applied Physics 2
PHY 2054 & 2054L	Physics 2 and Laboratory for Physics 2
Gen Ed Humanities	3
Biology distribution course	3
Elective (3000 level or above; not in major)	3
Elective	3
Credits	16-17
Semester Seven	
Approved Biology electives	9
Electives (3000 level or above, not in major)	6
Credits	15
Semester Eight	
BSC 4936	Critical Analysis of Biological Research (Critical Tracking)
Approved Biology electives	6
Electives (3000 level or above, not in major)	6
Credits	14
Total Credits	120

Approved Electives

Code	Title	Credits
ALS 3153	Agricultural Ecology	3
ALS 4162	Consequences of Biological Invasions ¹	3
ANS 3006	Introduction to Animal Science	3
ANT 3514C	Introduction to Biological Anthropology	4
ANT 3515	Human Evolutionary Anatomy	3
ANT 3520	Skeleton Keys: Forensic Identification	3
APK 2100C	Applied Human Anatomy with Laboratory	4
BCH 3023	Elementary Organic and Biological Chemistry	3
BCH 4024	Introduction to Biochemistry and Molecular Biology	4
BOT 2011C	Plant Diversity	4
BSC 2862	Global Change Ecology and Sustainability	3
BSC 3096	Human Physiology ¹	3
BSC 3307C	Climate Change Biology	4
ENY 3005 & 3005L	Principles of Entomology and Principles of Entomology Laboratory	3
ENY 3007C	Life Science	3
ENY 4161	Insect Classification	3
ENY 4210	Insects and Wildlife	3
ENY 4660 & 4660L	Medical and Veterinary Entomology and Medical and Veterinary Entomology Laboratory	3
GLY 3603C	Paleontology	4

MCB 2000	Microbiology	3
MCB 3020	Basic Biology of Microorganisms	3
MCB 4304	Genetics of Microorganisms	3
MCB 4320C	The Microbiome	3
MCB 4403	Prokaryotic Cell Structure and Function	3
MCB 4503	General Virology	3
PCB 3023	Essential Cell Biology ¹	3
PCB 3063	Genetics ¹	4
PCB 3134	Eukaryotic Cell Structure and Function	3
PCB 4043C	General Ecology ¹	4
PCB 4233	Immunology	3
PCB 4522	Molecular Genetics ¹	3
PCB 4674	Evolution ¹	4
PSB 3002	Physiological Psychology ¹	3
SWS 4223	Environmental Biogeochemistry	3
ZOO 3603C	Evolutionary Developmental Biology ¹	4
ZOO 3713C	Functional Vertebrate Anatomy ¹	4
ZOO 4232	Human Parasitology ¹	3
ZOO 4403C	Marine Biology	4
ZOO 4926	Special Topics in Zoology	1-4

¹ Cannot be counted as both an elective and a Biology Distribution Course.

Academic Learning Compact

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

I = Introduced; R = Reinforced; A = Assessed

Courses	SLO 1	SLO 2	SLO 3	SLO 4
AGR 3303 or PCB 3063 or PCB 4522	R	R		R
ANS 3319C or BOT 3503 or HOS 4304 or PCB 3713C or PCB 4723C	R	R		R
BSC 1920	I		I	I
BSC 2010	I	I	I	
BSC 2011	I	I	I	
BSC 4936	A	A	A	A
MCB 3020 and 3020L, or PCB 3134 or PCB 4674	R	R		R

Assessment Types

- Major field test for biology
 - Bioethics module
 - Scientific literacy paper
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