BIOLOGY BACHELOR OF SCIENCE

Program Overview

Biology is the study of life and all its remarkable forms and processes. Drake University's biology program uses an inquiry-based and integrated approach throughout the curriculum. This modern approach engages students in scientific methods and research from the first year of study, giving students a jump-start on developing skills in research, critical thinking, scientific communication, and data analysis.

Coursework toward a Bachelor of Arts or Bachelor of Science in Biology exposes students to microscopic cells, complex ecosystems, and everything in between (and beyond). Drake's biology curriculum is designed to provide students with a strong foundation of biological understanding in four core subject areas. Students also can delve more deeply into disciplines of their choosing in preparation for graduate and professional programs, careers in the health sciences, or other areas in the biological sciences. We are committed to supporting all Drake students in their pursuit to better understand life on earth and build a roadway to success in their own lives after Drake.

The department's diverse and dedicated faculty provide students access to more than 50 different courses, covering biological content from molecules to ecosystems, examining microbes, invertebrates, vertebrates or plants, and covering an array of topics from ethnobotany to kinesiology, histology to animal behavior, and nature photography to experimental design and data analysis. Drake's affiliations with Iowa Lakeside Laboratory and the Gulf Coast Research Laboratory in Mississippi provides opportunities for Drake students to earn credit towards a Biology degree while taking specialized courses such as soil genesis, watershed hydrology, prairie ecology, marine biology and ecology, marine mammals and ichthyology, coastal herpetology and oceanography.

B.S. Degree Requirements

Students who earn a B.S. degree in biology and who meet the entrance requirements may apply to schools of medicine, dentistry, optometry, podiatry, chiropractic medicine, veterinary medicine, physical therapy, or other health related programs. Further opportunities include advanced study in graduate school or career positions with industry, government or private agencies in biologically related fields such as biotechnology, conservation biology and resource management, food science and agriculture, environmental education, and forensic science.

The B.S. in Biology requires a minimum of 34 credit hours in biology which includes courses as outlined below, chemistry, physics, and math courses outlined below, an average GPA of 2.0 or higher in biology courses, at least 6 biology courses having laboratory experiences (courses with "L" designations).

The B.S. degree program in Biology is designed to provide significant experience in biological research by engaging students in genuine scientific investigations similar to those students will encounter in their future careers. Additional requirements for the B.S. degree program include:

- Collaboration with a faculty advisor in a significant research investigation (minimum of two semesters)
- Research proposal submitted to the Biology department for approval before senior year
- An oral presentation to the department
- Research paper and oral presentation submitted to the department

Restrictions for Biology credits that can be used to fulfill the required 34:

- A maximum of 16 Biology transfer credits
- BIO 015 INTRODUCTION TO BIOLOGY cannot be used towards Biology degree requirements

Code	Title	Hours
BIO 012 & 012L	GENERAL/PRE-PROFESSIONAL BIOLOGY I and GENERAL/PRE-PROFESSIONAL BIOLOGY I LAB	4
BIO 013 & 013L	GENERAL/PRE-PROFESSIONAL BIOLOGY II and GENERAL/PRE-PROFESSIONAL BIOLOGY II LAB	4
BIO 140	BIOLOGY RESEARCH AND STATISTICAL METHODS	4
BIO 199	SENIOR CAPSTONE EXPERIENCE	3
Select one course from each of the five core areas:		
Molecular and Cellular Processes		3-4
BIO 105	INTRODUCTION TO GENETICS	
BIO 165	CELL BIOLOGY	
BIO 186	MOLECULAR BIOLOGY	
Biological Diversity		4-5
BIO 019 & 019L	INTRODUCTION TO BOTANY and BOTANY LAB	
BIO 092 & 092L	INTRODUCTION TO ETHNOBOTANY and INTRODUCTION TO ETHNOBOTANY LAB	
BIO 101 & 101L	COMPARATIVE ANATOMY OF VERTEBRATES and Comparative Anatomy Lab	
BIO 103 & 103L	MICROBIOLOGY and MICROBIOLOGY LAB	
BIO 113 & 113L	VERTEBRATE BIOLOGY and VERTEBRATE BIOLOGY LAB	
BIO 123	BIOLOGY OF INVERTEBRATES	
Systems Biology		4-5
BIO 018 & 018L	INTRODUCTION TO ANATOMY AND PHYSIOLOGY and ANATOMY AND PHYSIOLOGY LAB	
BIO 120 & 120L	ECOSYSTEM ECOLOGY and ECOSYSTEM ECOLOGY LAB	
BIO 127 & 127L	HISTOLOGY and HISTOLOGY LAB	
BIO 129 & 129L	MAMMALIAN PHYSIOLOGY and MAMMALIAN PHYSIOLOGY LAB	
Ecology/Evolution		2-4
BIO 114 & 114L	EVOLUTION and EVOLUTION LAB	
BIO 117 & BIO 118L	ECOLOGY and ECOLOGY LAB	
BIO 152 & 152L	FIELD BOTANY and FIELD BOTANY LAB	
Career Specialization		1-6
BIO 021	SPECIAL TOPICS IN BIOLOGY	
BIO 025	ANIMAL BEHAVIOR	

BIO 026L	ETHOLOGICAL METHODS	
BIO 032	WELLNESS AND NUTRITION	
BIO 061	NATURE PHOTOGRAPHY	
BIO 063L	ZOO BIOLOGY LAB	
BIO 095	MEDICAL MICROBIOLOGY	
BIO 098	INTRODUCTION TO PRIMATOLOGY	
BIO 104	VIROLOGY	
BIO 107	BEHAVIOR GENETICS	
BIO 108	INFECTIOUS DISEASES	
BIO 110 & 110L	IOWA NATURAL HISTORY and IOWA NATURAL HISTORY LAB	
BIO 111	EVOLVED FOODWAYS	
BIO 116	BIOINFORMATICS	
BIO 119 & 119L	HERPETOLOGY and HERPETOLOGY LAB	
BIO 122 & 122L	MAMMALOGY and MAMMOLOGY LAB	
BIO 130 & 130L	ORNITHOLOGY and ORNITHOLOGY LAB	
BIO 131 & 131L	BIOCHEMISTRY and BIOCHEMISTRY LAB	
BIO 132	MEDICAL BIOPHYSICS	
BIO 133 & 133L	KINESIOLOGY and KINESIOLOGY LAB	
BIO 134 & 134L	EXERCISE PHYSIOLOGY and EXERCISE PHYSIOLOGY LAB	
BIO 138	MEDICAL ASPECTS OF EXERCISE	
BIO 140	BIOLOGY RESEARCH AND STATISTICAL METHODS	
BIO 145 & 145L	SELECTED TOPICS IN BIOLOGY and SELECTED TOPICS IN BIOLOGY LAB	
BIO 156	BIOLOGY SHORT COURSE	
BIO 167 & 167L	POPULATION AND COMMUNITY ECOLOGY and POPULATION ECOLOGY LAB	
BIO 176 & 176L	NEUROPHYSIOLOGY and NEUROPHYSIOLOGY LAB	
BIO 182 & 182L	IMMUNOLOGY and IMMUNOLOGY LAB	
BIO 185	HUMAN GENETICS	
BIO 188L	STRUCTURAL BIOLOGY LAB	
BIO 189	REGULATORY BIOLOGY	
Select two to four credits, representing a dedicated experiential component to biological study or its application to society, from the following: [1]		2-4
BIO 064	MUSEUM CURATION	
BIO 093L	LAB/FIELD ASSISTANT [2]	
BIO 109	ZOO/GREAT APE PRACTICUM	
BIO 112L	AVIAN WINTER ECOLOGY	
BIO 124L	RESEARCH COLLABORATION	
BIO 159	ZOO/GREAT APE INTERNSHIP	
BIO 187L	APPLIED MOLECULAR BIOLOGY LAB	
BIO 193L	SENIOR LAB ASSISTANT [2]	
BIO 195L	ADVANCED MOLECULAR LIFE LAB	
BIO 196	BIOLOGY INTERNSHIP	
BIO 197 & 197L	UNDERGRADUATE RESEARCH and UNDERGRADUATE RESEARCH	
BIO 198	INDEPENDENT STUDY IN BIOLOGY [2]	
CHEM 001 & CHEM 003	GENERAL CHEMISTRY I and GENERAL CHEMISTRY I LAB	4
CHEM 002 & CHEM 004	GENERAL CHEMISTRY II and GENERAL CHEMISTRY II LAB	4
CHEM 097 & CHEM 098	ORGANIC CHEMISTRY I and ORGANIC CHEMISTRY I LAB	4
CHEM 108 & CHEM 110	ORGANIC CHEMISTRY II and ORGANIC CHEMISTRY II LAB	4
MATH 020	PRE-CALCULUS: ALGEBRA AND TRIGONOMETRY (or higher MATH course)	0-4
PHY 011	GENERAL PHYSICS I (with lab)	4
PHY 012	GENERAL PHYSICS II (with lab)	4
Total Hours		**55-71**

[1] A minimum of 2 credits required, a maximum of 4 credits can be applied to the total requirement of 34.

[2] Subject to approval by the Chair of Biology.

First-year students who plan to major in biology are encouraged to enroll in BIO 015 INTRODUCTION TO BIOLOGY during the fall semester of their first year. BIO 015 INTRODUCTION TO BIOLOGY informs students about the Biology program and the career opportunities in biology; it does not contribute to the 34 required credit hours. Students have the responsibility to develop their program of study and review it with their faculty advisor in biology.

In addition to programmatic requirements, students are responsible for satisfying all requirements of the Drake Curriculum (https://catalog.drake.edu/undergraduate/academic-information/drake-curriculum/), including Areas of Inquiry (AOI)

Student must also satisfy university graduation requirements (https://catalog.drake.edu/undergraduate/academic-information/graduation-requirements/) for all undergraduate students..