Biology (BA)

This program is offered by the College of Arts & Sciences/Biological Sciences Department.

Program Description
The bachelor of arts degree is designed for students who seek a broad education in biology. This degree is suitable preparation for a diverse range of careers including health science, science education, and ecology-related fields.

Students can earn the BA in biology alone, or with one of three emphases: health science, education, or biodiversity.

Learning Outcomes
Students who complete any of the bachelor of arts in biology will be able to:

- Describe biological, chemical, and physical principles as they relate to the natural world in writings and presentations to a diverse audience.
- Place scientific knowledge into an ethical context, including how biology can contribute to the resolution of ethical, social, and environmental issues around the globe.
- Apply the methods of scientific inquiry, including observation, hypothesis testing, data collection and analysis for laboratory research.

Degree Requirements
A minimum of 128 credit hours consisting of the following:

- 54 credit hours BA in biology core coursework
- 12 additional credit hours in BIOL or CHEM at the 3000-4000 level
  - or required emphasis courses (see below)
- Applicable University Global Citizenship Program hours, with accommodations for the biology BA
- Electives

Global Citizenship Program for Biology BA
Requirements are modified to allow MATH 1430 to satisfy both a requirement of the major and also the GCP Quantitative Literacy requirement.

Curriculum
All of the bachelor of arts in biology degree options require the same 54 credit hours of core coursework:

Core Courses
- BIOL 1550, 1551 Essentials of Biology I (5 hours)
- BIOL 1560, 1561 Essentials of Biology II (5 hours)
- BIOL 2010 Evolution (3 hours)
- BIOL 2050, 2051 Genetics (4 hours)
- BIOL 2020, 2021 Ecology (4 hours)
- BIOL 4400 Research Methods (3 hours)
- BIOL 4420 BA Senior Thesis (4 hours)
- CHEM 1100, 1101 General Chemistry I (4 hours)
- CHEM 1110, 1111 General Chemistry II (4 hours)
- CHEM 2100, 2101 Organic Chemistry I (4 hours)
- MATH 1430 College Algebra (3 hours)
- MATH 2200 Statistics (3 hours)
  - or PSYC 2750 Statistics (3 hours)
- PHYS 1710, 1711 College Physics I (4 hours)
- PHYS 1720, 1721 College Physics II (4 hours)

BA in Biology (66 hours)
The general degree offers the greatest flexibility, allowing students to select 12 hours of electives from any of our 3000+ level BIOL or CHEM courses in addition to the 54 credits of core coursework in biology listed above.

Emphasis in Health Science (72 hours)
The emphasis in health science features upper-level courses that apply to health-related fields. Students can take advantage of this emphasis to help prepare for a career in health sciences.

Emphasis-Specific Learning Outcomes
In addition to the general learning outcomes, students who complete the emphasis in health science will be able to:

- Discuss basic principles of human anatomy and physiology and how they apply to health and medicine.

Required Courses for the Emphasis in Health Science
In addition to the 54 credit hours of core coursework in biology, the following courses are required for the emphasis in health science:

- BIOL 3010, 3011 Human Anatomy and Physiology I (4 hours)
- CHEM 3100, 3101 Organic Chemistry I (4 hours)

A minimum of 4 credit hours selected from the following:

- BIOL 3020, 3021 Human Anatomy and Physiology II (4 hours)
- BIOL 3120, 3121 Microbiology (4 hours)
- CHEM 2110, 2111 Organic Chemistry II (4 hours)

A minimum of 6 credit hours selected from the following:

- BIOL 3150 Nutrition (3 hours)
- BIOL 3800 Medical Terminology (3 hours)
- BIOL 4300 Immunology (3 hours)
- PHIL 2340 Bioethics (3 hours)
- BIOL 3600 Topics in Biology* (3-4 hours)
- CHEM 3600 Topics in Chemistry* (3-4 hours)

*Only approved Topics courses can count towards this emphasis

Emphasis in Education (72 hours)
The emphasis in education is designed for students interested in science education. Those students pursuing a Biology/Education double major can take advantage of this emphasis to help satisfy some of the requirements for their Certification in Secondary Education. Interested students should contact the Office of Teacher Certification for applications and copies of current admission requirements.

Emphasis-Specific Learning Outcomes
In addition to the general learning outcomes, students who complete the emphasis in education will be able to:

- Plan a path towards teaching certification in Unified Science when double-majoring in Education.

Required Courses for the Emphasis in Education
In addition to the 54 credit hours of core coursework in biology, the following courses are required for the emphasis in education:

- BIOL 3010, 3011 Human Anatomy and Physiology I (4 hours)
- BIOL 3120, 3121 Microbiology (4 hours)
- PHIL 2330 Philosophy and Technology (3 hours)
- SCIN 1470, 1471 Earth and Universe (4 hours)
- SCIN 1510 Global Climate Change (3 hours)
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Emphasis in Biodiversity (70 hours)
The emphasis in biodiversity is designed for those students that have an interest in understanding the variety and biology of life forms on our planet, and how humans fit into global ecosystems. This emphasis is focused on applying fundamental principles of biology to ecological issues.

Emphasis-Specific Learning Outcomes
In addition to the general learning outcomes, students who complete the emphasis in biodiversity will be able to:

• Describe the global challenges in supporting biodiversity and conservation.

Required Courses for the Emphasis in Biodiversity
In addition to the 54 credit hours of core coursework in biology, the following courses are required for the emphasis in biodiversity:

• BIOL 2400 Zoology (3 hours)
• BIOL 3700, 3701 Plant Physiology (4 hours)
• PHIL 2360 Environmental Ethics (3 hours)

A minimum of 3 hours selected from the following:

• BIOL 1200 Stream Ecology (4 hours)
• BIOL 2200 Biological Basis of Animal Behavior (3 hours)
• SCIN 1510 Global Climate Change (3 hours)
• SCIN 1520, 1521 Environment (4 hours)

A minimum of 3 hours selected from the following:

• BIOL 3120, 3121 Microbiology (4 hours)
• BIOL 4050 Gene Expression (3 hours)
• BIOL 3600 Topics in Biology* (3-4 hours)

*Only approved Topics courses can count towards this emphasis