Biology (BA)

This program is offered by the College of Arts & Sciences/Biological Sciences Department, and is only available at the St. Louis home campus.

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, CHEM or PHYS at the 2000+ 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 Essentials of Biology I (4 hours)
  and BIOL 1551 Essentials of Biology I: Lab (1 hour)
- BIOL 1560 Essentials of Biology II (4 hours)
  and BIOL 1561 Essentials of Biology II: Lab (1 hour)
- BIOL 2010 Evolution (3 hours)
- BIOL 3050 Genetics (3 hours)
  and BIOL 3051 Genetics: Lab (1 hour)
- BIOL 3200 Ecology (3 hours)
  and BIOL 3201 Ecology: Lab (1 hour)
- BIOL 4400 Research Methods (3 hours)
- BIOL 4420 BA Senior Thesis (4 hours)
- CHEM 1100 General Chemistry I (3 hours)
  and CHEM 1101 General Chemistry I: Lab (1 hour)
- CHEM 1110 General Chemistry II (3 hours)
  and CHEM 1111 General Chemistry II: Lab (1 hour)
- CHEM 2100 Organic Chemistry I (3 hours)
  and CHEM 2101 Organic Chemistry I: Lab (1 hour)
- MATH 1430 College Algebra (3 hours)
- MATH 2300 Statistics (3 hours)

or STAT 3100 Inferential Statistics (3 hours)
or PSYC 2750 Introduction to Measurement and Statistics (3 hours)
- PHYS 1710 College Physics I (3 hours)
  and PHYS 1711 College Physics I: Lab (1 hour)
- PHYS 1720 College Physics II (3 hours)
  and PHYS 1721 College Physics II: Lab (1 hour)

BA in Biology (66 hours)
The general degree offers the greatest flexibility, allowing students to select 12 hours of electives from any of our 2000+ level BIOL, CHEM or PHYS courses in addition to the 54 credits of core coursework in biology listed above. (Up to 3 credit hours of BIOL 4700/CHEM 4700/PHYS 4700 can be used towards these 12 credit hours.)

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 Human Anatomy & Physiology I (3 hours)
  and BIOL 3011 Human Anatomy & Physiology I: Lab (1 hour)
- CHEM 3100 Biochemistry I (3 hours)
  and CHEM 3101 Biochemistry I: Lab (1 hour)
- An additional 10 credit hours of 2000+ level BIOL, CHEM or PHYS electives. (Up to 3 credit hours of BIOL 4700/CHEM 4700/PHYS 4700 can be used towards these 10 credit hours.)

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 Human Anatomy & Physiology I (3 hours)
  and BIOL 3011 Human Anatomy & Physiology I: Lab (1 hour)
- BIOL 3120 Microbiology (3 hours)
  and BIOL 3121 Microbiology: Lab (1 hour)
- PHIL 2330 Philosophy and Technology (3 hours)
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- SCIN 1470 Earth and Universe (3 hours)
  and SCIN 1471 Earth and Universe: Lab (1 hour)
- SCIN 1510 Global Climate Change (3 hours)

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 Plant Physiology (3 hours)
  and BIOL 3701 Plant Physiology: Lab (1 hour)
- PHIL 2360 Environmental Ethics (3 hours)
- An additional 6 credit hours of 2000+ level BIOL, CHEM or PHYS electives. (Up to 3 credit hours of BIOL 4700/CHEM 4700/PHYS 4700 can be used towards these 6 credit hours.)