

Biology (BA)

This program is offered by the College of Science and Health/ Natural Sciences and Mathematics Department and is available at the St. Louis main campus and select international campuses. Please see the Locations Offering Undergraduate Programs section of this catalog for a list of campuses where this program is offered.

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 four emphases: biodiversity, computational biology, education or health science.

Learning Outcomes

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- Use computational and bioinformatics methods to analyze data for studying biological processes, and relate results back to core principles in biological sciences.

Degree Requirements for the Emphasis in Bioinformatics

- MATH 2200 is the required statistics course for this emphasis, in place of STAT 3100 or PSYC 2750

For students completing a dual degree in mathematics, or a minor in mathematics that requires MATH 2200 Statistics, that will satisfy the statistics requirement for the BA in biology with an emphasis in bioinformatics. If the student drops the mathematics major or minor, the courses will be required and counted toward the BA in biology.

In addition to the 54 credit hours of core coursework in biology, the following courses are required for the emphasis in bioinformatics:

- BIOL 2000 Bioinformatics (3 hours)
- COSC 1800 Python Programming (3 hours)
- CSIS 2500 Introduction to Data Science (3 hours)
- CSIS 3300 R Programming - Data Analytics (3 hours)

*Students planning to enter a graduate program in bioinformatics or a related field involving data analysis after graduation are encouraged to choose from the following courses to fulfill some of their free elective choices:

- 1500+ level COSC courses
- 2000+ level CSIS courses
- 1440+ level MATH electives

Emphasis in Education (72 hours)

The emphasis in education is designed for students interested in science education. Those students pursuing a biology/education dual 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 toward 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 2120 Microbiology (3 hours)
and BIOL 2121 Microbiology Lab (1 hour)
- BIOL 3010 Human Anatomy & Physiology I (3 hours)
and BIOL 3011 Human Anatomy & Physiology I: Lab (1 hour)
- PHIL 2330 Philosophy and Technology (3 hours)
- 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 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: •

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- Psychology Electives (at least 4 hours at the 400-level) 6 hours
- Psychology Concentrations (6 hours)
- 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 3010 Human Anatomy & Physiology I (3 hours)
and BIOL 3011 Human Anatomy & Physiology I: Lab (1 hour)
- BIOL 3020 Human Anatomy & Physiology II (3 hours)
and BIOL 3021 Human Anatomy & Physiology II: Lab (1 hour)
- BIOL 3050 Genetics (3 hours)
and BIOL 3051 Genetics0 -J ET EMC /P b.EMCJ E3 ET EMC /P <</MCID 4>> BDC BT /F1 8 Tf 1 0 [(BIOL 3051 Gen0.843920719cG [] 0 d)] TJ ET EM