Morris Campus

Biology B.A.

Division of Science & Mathematics - Adm

Division of Science and Mathematics

- Program Type: Baccalaureate
- Requirements for this program are current for Fall 2021
- Required credits to graduate with this degree: 120
- Required credits within the major: 61 to 62
- Degree: Bachelor of Arts

The biology curriculum is designed to provide students with biological knowledge and to develop scientific skills as part of their liberal arts education. Included in those skills are the abilities to conduct and interpret scientific research and to successfully communicate scientific information both verbally and in writing. The faculty believes these objectives can best be attained through a balanced core curriculum in biology and a diverse array of elective coursework, both of which include active lab and field experiences. The biology major prepares students for graduate or professional programs and for careers such as secondary biology education, government service, or private sector employment. The biology discipline also offers a variety of 10XX courses that are designed specifically for students seeking to fulfill general education requirements in science.

Objectives
The biology discipline is designed to:
Provide students a broad base of fundamental biological knowledge in evolution, genetics, cell and molecular biology, the diversity of life, and ecology.
Provide students in our upper-level electives detailed knowledge in specific sub-disciplines including experience collecting and interpreting data in both the field and laboratory.
Advance student skills in written and oral communication of biological information.
Prepare and encourage students to conduct undergraduate research at UMM or at other institutions.
Prepare students for postgraduate education in biological research and health-related programs, and/or a variety of careers in biology, including secondary education.
Provide discipline-specific courses for non-majors to serve UMMs general education requirements.

Learning Outcomes
The curriculum is designed to ensure that students in biology will:
Have sufficiently broad training to apply biological knowledge in a wide range of professional and research settings.
Recognize evolution as the unifying theme for all of biology and be able to view biological information and questions in an evolutionary context.
Be able to apply knowledge of chemistry, statistics, and mathematics to biological systems.
Understand the global nature of biological issues while cultivating a sense of place through the study of regional species and ecological systems.
Be able to seek answers to biological questions through developing and executing scientific inquiry in the field or laboratory setting and by querying biological literature.
Be able to synthesize and clearly articulate scientific information via written and oral communication.
Be aware of ethical considerations related to biological research and have the necessary training to conduct work in a safe and sustainable manner.

Teacher Preparation Requirements
Students seeking teaching licensure in life sciences 9-12 should refer to the Education, Secondary (GenEd) section of this catalog.

Program Delivery

This program is available:

- via classroom (the majority of instruction is face-to-face)

Admission Requirements

For information about University of Minnesota admission requirements, visit the Office of Admissions website.

General Requirements

All students are required to complete general University and college requirements. For more information, see the general education requirements.

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Program Requirements

Students are required to take 2 semester(s) of any second language.

Courses may not be taken S-N unless offered S-N only. Up to 5 credits of coursework with a grade of D or D+ may be used to meet the major requirements if offset by an equivalent number of credits of A or B in the major. A minimum GPA of 2.00 is required in the major in order to graduate. The GPA includes all, and only, University of Minnesota coursework. Grades of "F" are included in GPA calculation until they are replaced.

Biology majors are advised to complete their chemistry and mathematics requirements as early as possible. All majors should have their programs approved by a biology advisor by the beginning of their junior year.

Required Courses

BIOL 1111 - Fundamentals of Genetics, Evolution, and Development [SCI] (3.0 cr)
BIOL 2101 - Evolution of Biodiversity [SCI-L] (4.0 cr)
BIOL 2111 - Cell Biology [SCI-L] (4.0 cr)
BIOL 3121 - Molecular Biology [SCI-L] (4.0 cr)
BIOL 3131 - Ecology [ENVT] (4.0 cr)
BIOL 3700 - Biological Communication I (1.0 cr)
BIOL 3701W - Biological Communication II (1.0 cr)
BIOL 4901 - Senior Seminar (1.0 cr)
CHEM 1101 - General Chemistry I [SCI-L] (5.0 cr)
CHEM 1102 - General Chemistry II [SCI-L] (5.0 cr)
CHEM 2301 - Organic Chemistry I [SCI] (4.0 cr)
CHEM 2311 - Organic Chemistry Lab I (1.0 cr)
MATH 1021 - Survey of Calculus [M/SR] (4.0 cr)
or MATH 1101 - Calculus I [M/SR] (5.0 cr)
STAT 1601 - Introduction to Statistics [M/SR] (4.0 cr)
or STAT 2601 - Statistical Methods [M/SR] (4.0 cr)

Elective Courses

Take 16 or more credit(s) from the following:

Organismal Electives

Take 4 or more credit(s) from the following:

- BIOL 4111 - Microbiology (4.0 cr)
- BIOL 4121 - Herpetology (4.0 cr)
- BIOL 4131 - Vertebrate Natural History (4.0 cr)
- BIOL 4151 - Entomology (4.0 cr)
- BIOL 4172 - Plant Systematics (4.0 cr)
- BIOL 4301 *{Inactive}*(4.0 cr)
- GEOL 3111 - Introduction to Paleontology [SCI-L] (4.0 cr)

Non-Organismal Electives

Take 0 or more credit(s) from the following:

- BIOL 4003 *{Inactive}*(4.0 cr)
- BIOL 4103 - Cancer Biology (4.0 cr)
- BIOL 4104 - Cell Signaling Mechanisms (4.0 cr)
- BIOL 4105 *{Inactive}*(4.0 cr)
- BIOL 4161 - Evolution (4.0 cr)
- BIOL 4181 - Developmental Biology (4.0 cr)
- BIOL 4182 - Ecological Developmental Biology (4.0 cr)
- BIOL 4191 - Freshwater Biology (4.0 cr)
- BIOL 4211 - Biochemistry (4.0 cr)
- BIOL 4231 - Immunology (4.0 cr)
- BIOL 4241 *{Inactive}*(4.0 cr)
- BIOL 4302 - Plant Physiology (4.0 cr)
- BIOL 4312 - Genetics (4.0 cr)
- BIOL 4321 - Animal Physiology (4.0 cr)
- BIOL 4333 *{Inactive}*(4.0 cr)
- BIOL 4335 - Ecology of Agriculture (4.0 cr)
- BIOL 4351 - Conservation Biology (4.0 cr)
- BIOL 4611 - Biochemistry Lab (1.0 cr)

Other Electives

Take 0 - 5 credit(s) from the following:

- ANTH 3704 *{Inactive}*[SCI] (4.0 cr)
- CHEM 4351 *{Inactive}*(2.0 cr)
- CHEM 4355 - Biochemistry of Carbohydrates and Glycoconjugates (4.0 cr)
- CHEM 4357 *{Inactive}*(2.0 cr)

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•PSY 3201 - Comparative Psychology [SCI-L] (4.0 cr)
•PSY 3211 - Biological Psychology [SCI-L] (4.0 cr)
•STAT 4601 - Biostatistics (4.0 cr)

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