

Biology

The Department of Science offers multiple degrees and programs of study related to the biological sciences. Below are all of the degrees we offer.

The Bachelor of Arts (BA) in Biology is designed for those students who desire to go to professional schools of medicine, dentistry, optometry, chiropractic, physical, and occupational therapy, mortuary science, and veterinary medicine or who wish to pursue graduate work in biology. The BA in Biology is also designed for those students who desire employment in the biomedical industry, environmental sciences, or wildlife management, though we also will be offering a Bachelor of Science (BS) in Environmental Science and a Bachelor of Science (BS) in Biomedical Sciences beginning the Fall of 2025, which will allow students to specialize further if desired.

We offer a Bachelor of Science (BS) in Bioinformatics and Computational Biology, which is designed for students interested in data science, data analytics, or statistics with direct relation to biological data (e.g., genetic sequencing, sports analytics, etc.). This degree is a balance of biology and computer science courses. For more information, please see here (<http://catalog.minotstateu.edu/undergraduate/academicprograms/bioinformatics/>).

We also offer a Bachelor of Science (BS) in Medical Lab Sciences. This degree is for students interested in medicine that do not wish to pursue an advanced degree. Students in this major spend three years at Minot State University and then do a professional year and internship through the University of North Dakota. At the end of the program, they can take an accreditation test to become a Medical Lab Technologist as soon as they graduate. For more information, please see here (<http://catalog.minotstateu.edu/undergraduate/academicprograms/medicallabscience/>).

For all degrees in Biology, a minimum GPA of 2.50 is required for graduation.

In addition to the degrees, biology also directs several pre-professional programs (pre-medical, pre-dental, pre-veterinary, pre-mortuary, etc.) and provides courses required for professional degrees in nursing, medical technology, radiologic technology, social work, criminal justice, physical education, elementary education, and special education. Biology also offers a number of general education courses that fulfill the natural science and technology for general education. We also offer multiple courses for those who wish to obtain a teaching degree in Composite Science (BSEd).

Biology's Mission:

The mission of the Biology program is to equip students with a broad and substantive knowledge of biology. We actively promote the development of critical thinking skills and an ingrained sense of the scientific method among our students. By actively mentoring students in the classroom and in our research labs, we seek to develop the skills that enable them to apply their newfound knowledge in a research setting and advance the frontiers of biology.

Biology Program Goals:

The goals of the Biology program are:

- to provide research opportunities for our students so that they may contribute meaningfully to the study of Biology;
- to prepare students for advanced study in Biological Sciences and Health Sciences;
- to prepare students for biological careers in teaching, government, business, and industry;
- to enrich the General Education of students with Biology courses;
- to support the University and larger community with faculty and student service.

BA Biology Student Learning Goals and Outcomes

Student Learning Goals	Student Learning Outcomes
1. Biology majors demonstrate a broad background in fundamental principles of biology.	1.1 Biology majors recall biological processes and concepts.
	1.2 Biology majors explain biological processes and concepts.
	1.3 Biology majors apply biological processes and concepts to specific biological topics.
2. Biology majors demonstrate knowledge and experience in the basic methods, instrumentation, and quantitative analytical skills used to conduct scientific research.	2.1 Biology majors practice conducting experiments.
	2.2 Biology majors analyze results of experiments.
	2.3 Biology majors draw conclusions from experimental results.
3. Biology majors will develop critical reasoning and communication skills.	3.1 Biology majors engage in original research.
	3.2 Biology majors produce critical reviews of research.
	3.3 Biology majors present to local, regional, or national audiences

Bachelor of Arts with a Major in Biology

Two introductory courses (8 cr.) must be completed prior to enrolling in 300+ courses required for the degree.

Students must take:

BIOL 151	General Biology II	4
BIOL 150	General Biology I	4

200 level Required Courses

BIOL 215	Genetics	4
BIOL 240	Biometry	4

300 and 400 level Courses

Select 6 Biol prefix courses of 300-400 level. Excludes BIOL 492		18-24
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Remaining Coursework

Students take elective Biol courses and/or directed research (BIOL 492) to equal 8 additional credits. BIOL 111, BIOL 115, BIOL 127, and BIOL 202 are NOT acceptable).		8
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CHEM 121	General Chemistry I	5
CHEM 122	General Chemistry II	5
CHEM 240	Fundamentals of Organic Chemistry	5
or CHEM 341	Organic Chemistry I	
PHYS 211	College Physics I	8-10
& PHYS 212	and College Physics II	
or PHYS 251	University Physics I	
& PHYS 252	and University Physics II	

General Education Coursework		38
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Minor/Concentration(s)--Students earn two minors (physical science and chemistry) with required coursework. A minor or 3rd concentration may be earned to reach 120 credits required for graduation.

Total Hours		103-111
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Biology Minor (Teaching and Non-Teaching)

Students must take:

BIOL 150	General Biology I	4
BIOL 215	Genetics	4

Select two of the following:		8
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BIOL 151	General Biology II	
BIOL 154	Introduction to Botany	
BIOL 202	Introductory Microbiology	

Choose three 300 or 400 level courses		12
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Total Hours		28
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Biology Concentration

Students must take:

BIOL 150	General Biology I	4
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Select two of the following:		8
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BIOL 151	General Biology II	
BIOL 154	Introduction to Botany	
BIOL 202	Introductory Microbiology	
BIOL 215	Genetics	

Total Hours		12
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