

Biological Sciences

Department Information

- **Department Location:**
Stevens Hall
- **Department Phone:**
701-231-7087
- **Department Web Site:**
www.ndsu.edu/biology/ (<http://www.ndsu.edu/biology/>)
- **Credential Offered:**
B.S.; B.A.
- **Official Program Curriculum:**
bulletin.ndsu.edu/undergraduate/program-curriculum/biological-sciences/ (<http://bulletin.ndsu.edu/undergraduate/program-curriculum/biological-sciences/>)

Biological sciences is a comprehensive field that prepares students for a variety of careers. Growing human populations, the increasing impacts associated with human activities, and heightened expectations of health and environmental quality are resulting in new career opportunities in the Biological Sciences. These fields are growing, and our students finish their degrees well prepared to excel in these careers. The program provides hands-on experience in biological research and focuses on student experience and interests. This represents an exciting, rewarding area of science, which requires an especially strong academic background and an ability to think both analytically and comprehensively.

CAREER Opportunities

A major in Biological Sciences provides an excellent foundation for a variety of careers. Our students continue on for careers as medical doctors, optometrists, dentists, genetic counselors, state and federal wildlife biologists, naturalists, wildlife rehabilitators, directors of zoological parks, conservation biologists, environmental consultants, teachers, and researchers. Students leave well-prepared to continue in graduate degree programs that require a solid background in the biological sciences. In fact, most professional scientists can anticipate graduate education as being essential for career advancement.

High School Preparation

High school students should take year-long courses in biology, chemistry, physics, algebra, advanced algebra, geometry and trigonometry. If available, an advanced science course and pre-calculus are encouraged. There should be an above-average performance in such course work, as well as in the student's overall high school program. An ACT composite score of 24 or higher also is suggested.

The Program

With its many areas of emphasis, the program integrates studies in zoology, botany, and biological sciences and offers students the flexibility to customize their field of study to align course selection with educational and professional goals. The program integrates broad-based biology foundation classes with specializations, such as biomedical science or conservation biology, in later years. With appropriate course selection, the biological sciences degree provides a broad understanding of the complex relationship between the living and nonliving world. Students choose a research-based course in biology that focuses on antibiotics, wild-life ecology and conservation, STEM education, or genomics. Students also have the option to choose an emphasis in Biomedical Science, Ecology and Conservation Science, or Environmental Science. Students planning to enter a health-professional program, such as medical school, should refer to the plan of study for the Biomedical Science emphasis.

Related Experiences

Career opportunities are enhanced by work experiences and extra-curricular involvement. Part-time, science-related work experiences are available in several North Dakota State University departments, as well as at the nearby U.S. Department of Agriculture laboratories. Off-campus work, such as summer employment with public agencies or private organizations, is especially valuable and has sometimes been the entry point for a first permanent position after graduation. NDSU offers many extra-curricular activities, including science-related organizations such as the Pre-Med Club, the Student Chapter of the Wildlife Society, the Natural Resources Management Club, and the Range Science Club.

Accelerated Program

The Department of Biological Sciences now offers an Accelerated Bachelor and Master of Science program. The program allows students to begin thesis research during their junior year and simultaneously pursue their Bachelor of Science and Master of Science degrees in biological sciences. Students will work closely with a faculty member in our department who will serve as a mentor. The program is designed to produce a research-based master's degree. Students must be at junior standing with a minimum cumulative GPA of 3.5.

Emphases Available

A Biological Sciences degree is available in a traditional broad-based sequence or with an emphasis on Biomedical Science, Ecology and Conservation Science, or Environmental Science. There are also minors available in Biological Sciences, Zoology, and Botany.

Sample Program Guide

Please note this is a sample program guide and not an official curriculum. Actual student schedules for each semester will vary depending on start year, education goals, applicable transfer credit, and course availability. Once admitted, students are encouraged to work with their assigned academic advisor on a regular basis to review degree progress.

First Year			
Fall	Credits	Spring	Credits
BIOL 189		1 BIOL 151 & 151L	4
BIOL 150 & 150L		4 CHEM 122 & 122L	4
CHEM 121 & 121L		4 ENGL 120	3
ENGL 110		3 MATH 146 or 165	4
MATH 103		3	
		15	15
Second Year			
Fall	Credits	Spring	Credits
BIOL 315 & 315L		4 PHYS 120 or 211 <i>and</i> 211L <i>and</i> 212 <i>and</i> 212L	3
BIOL 270, 271, 272, 273, 274, or 275		3 BIOL 364 or 370	3
CHEM 240, 341 <i>and</i> 341L, or 342 <i>and</i> 342L		3-4 Social & Behavioral Sciences Gen Ed	3
COMM 110		3 Wellness Gen Ed	2
STAT 330		3 BIOL 359	3
		Free elective	3
		16-17	17
Third Year			
Fall	Credits	Spring	Credits
BIOL 300-400 Elective		3 BIOL 300-400 Elective	3
ENGL 324		3 Free Elective	6
Free Elective		6 CSM requirement	3
Humanities & Fine Arts/Cultural Diversity Gen Ed		3 Social & Behavioral Science/Global Diversity Gen Ed	3
		15	15
Fourth Year			
Fall	Credits	Spring	Credits
BIOL 300-400 Elective		6 BIOL 300-400 Elective	3
Free Elective		6 Free Elective	6
Humanities & Fine Arts Gen Ed		3 CSM requirement	3
		15	12
Total Credits: 120-121			

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biomedical science emphasis

First Year			
Fall	Credits	Spring	Credits
BIOL 189		1 BIOL 151	3
BIOL 150		3 BIOL 151L	1
BIOL 150L		1 CHEM 122	3
CHEM 121		3 CHEM 122L	1
CHEM 121L		1 MATH 146	4
MATH 103		3 ENGL 120	3
ENGL 110		3	
		15	15
Second Year			
Fall	Credits	Spring	Credits
BIOL 315		3 BIOL 270 or 274	3
BIOL 315L		1 CHEM 342	3
BIOL 370		3 CHEM 342L	1
CHEM 341		3 PSYC 111 (Soc/Beh Gen Ed)	3
CHEM 341L		1 SOC 110 (Soc/Beh Gen Ed)	3
COMM 110		3 Free elective	3
STAT 330		3	
		17	16
Third Year			
Fall	Credits	Spring	Credits
PHYS 211		3 BIOL 359	3
PHYS 211L		1 PHYS 212	3
BIOC 460		3 PHYS 212L	1
ENGL 324		3 Recommended Pre-Requisite	3
Wellness Gen Ed		2 Humanities and Fine Arts/Cultural Diversity Gen Ed	3
BIOL 300-400		3	
		15	13
Fourth Year			
Fall	Credits	Spring	Credits
BIOL 300-400 Elective		6 BIOL 300-400 Elective	6
Recommended pre-requisite		3 Recommended Pre-Requisite	6
Humanities and Fine Arts/Global Perspective Gen Ed		3 College Requirement	3
College Requirement		3	
		15	15
Total Credits: 121			

Sample Program Guide

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ecology and conservation emphasis

First Year			
Fall	Credits	Spring	Credits
BIOL 189		1 BIOL 151	3
BIOL 150		3 BIOL 151L	1
BIOL 150L		1 CHEM 122	3
MATH 103		3 CHEM 122L	1
CHEM 121		3 MATH 146	4
CHEM 121L		1 ENGL 120	3
ENGL 110		3	
		15	15
Second Year			
Fall	Credits	Spring	Credits
CHEM 240		3 PHYS 120	3
BIOL 271 or 275		3 BIOL 359	3
BIOL 315		3 Free elective	3
BIOL 315L		1 General Education Social	3
STAT 330		3 General Education Humanities	3
COMM 110		3	
		16	15
Third Year			
Fall	Credits	Spring	Credits
BIOL 364		3 BIOL 300-400 Elective	3
BIOL 475 or 476		3 ENGL 324	3
General Education Social		3 CSM Social/Humanities Requirement	3
General Education Wellness		3 General Education Global	3
Free elective		3 Free elective	3
		15	15
Fourth Year			
Fall	Credits	Spring	Credits
BIOL 300-400 Elective		3 BIOL 300-400 Elective	3
BIOL 300-400 Elective		3 General Education Humanities	3
General Education Cultural		3 Free elective	9
CSM Social/Humanities requirement		3	
Free elective		3	
		15	15

Total Credits: 121

Sample Program Guide

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environmental science emphasis

First Year			
Fall	Credits	Spring	Credits
BIOL 189		1 BIOL 151	3
BIOL 150		3 BIOL 151L	1
BIOL 150L		1 MATH 146	4
MATH 103		3 CHEM 122	3
CHEM 121		3 CHEM 122L	1
CHEM 121L		1 ENGL 120	3
ENGL 110		3	
		15	15
Second Year			
Fall	Credits	Spring	Credits
BIOL 315		3 BIOL 359	3
BIOL 315L		1 BIOC 260	4
CHEM 240		3 SOIL 210	3
COMM 110		3 General Education Wellness	2-3
STAT 330		3 General Education Humanities	3
BIOL 271, 270, 272, 273, 274, or 275		3	
		16	15-16
Third Year			
Fall	Credits	Spring	Credits
BIOL 364		3 BIOL 480 ^{Spring even years}	3
GEOL 105		3 BIOL 300-400 Elective	3
GEOL 105L		1 GEOL 106	3
PHYS 211		3 GEOL 106L	1
PHYS 211L		1 PHYS 212	3
BIOL Plant course requirement from list		3 PHYS 212L	1
General Education Humanities/ Cultural Diversity		3 General Education Social	3
		17	17
Fourth Year			
Fall	Credits	Spring	Credits
BIOL 300-400 Elective		3 BIOL 300-400 Elective	3
BIOL 300-400 Elective		3 SOIL 410	3
GEOL 428 or CHEM 431 <i>and</i> CHEM 431L		3 CSM Social/Humanities Elective	3
ENGL 324		3 General Education Social	3

CSM Social/Humanities
Requirement

3

15

12

Total Credits: 122-123