

## **BIOLOGICAL SCIENCES**

Biological sciences is a comprehensive field of biology that prepares students for a variety of careers in human health, environmental science, conservation, and plant and animal biology. Students in biological sciences earn degrees in medical and biomedical fields, continue as conservation or wildlife biologists, and are well prepared for graduate school in biology. The program provides firsthand experience in biological research and focuses on student experience and interests. This represents an exciting, rewarding area of sciences, which requires an especially strong academic background and an ability to think both analytically and comprehensively.

### **Career Opportunities**

Growing human populations and 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. 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. These fields are growing and our students finish their degrees well prepared to excel in these careers.

This option provides an excellent foundation for a variety of careers. It also leaves a student well-prepared to continue into 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 also can provide a broad understanding of the complex relationship between the living and nonliving world. Students will be able to choose a research-based course in biology that focuses on antibiotics or wild life ecology and conservation.

### **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 Natural Resources Management Club, the Pre-Med Club, the Student Chapter of the Wildlife Society 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.

<b>Sample Curriculum</b>	
<b>Credits</b>	<b>General Education Requirements</b>
	Communication
3	COMM 110 - Fundamentals of Public Speaking
3	ENGL 110 - College Composition I
3	ENGL 120 - College Composition II
3	Upper Division Writing
	Quantitative Reasoning
4	MATH 146 - Applied Calculus I or MATH 165 - Calculus I
10	Science & Technology
6	Humanities & Fine Arts
6	Social & Behavioral Sciences
2	Wellness
-	Cultural Diversity
-	Global Perspective
<b>39</b>	<b>TOTAL</b>
<b>Credits</b>	<b>College and Department Requirements</b>
6	Hum/Soc. Science Electives (B.S. Degree)
12	Hum/Soc. Science Electives (B.A. Degree)
<b>6-12</b>	<b>TOTAL</b>
<b>Credits</b>	<b>Major Requirements</b>
4	BIOL 150, 150L - General Biology I and Lab
4	BIOL 151, 151L - General Biology II and Lab
3	BIOL 252 - Plant and Animal Diversity
3	BIOL 270 - Antibiotic Drug Discovery or BIOL 271 - Wildlife Ecology and Conservation
4	BIOL 315, 315L - Genetics and Lab
3	BIOL 359 - Evolution
3	BIOL/ZOO 364 - General Ecology or ZOO 370 - Cell Biology
2	BIOL 491 - Seminar
15	Major Electives
<b>41</b>	<b>TOTAL</b>
<b>Credits</b>	<b>Additional Requirements</b>
4	CHEM 121, 121L - General Chemistry I and Lab
4	CHEM 122, 122L - General Chemistry II and Lab
3 or 8	CHEM 240 - Survey of Organic Chemistry or CHEM 341, 341L - Organic Chemistry I and Lab and CHEM 342, 342L - Organic Chemistry II and Lab
3 or 8	PHYS 120 - Fundamentals of Physics or PHYS 211, 211L - College Physics I and Lab and PHYS 212, 212L - College Physics II and Lab
<b>14-24</b>	<b>TOTAL</b>
<b>122</b>	<b>Minimum Degree Credits to Graduate</b>

<b>For Further Information</b>
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This sample curriculum is not intended to serve as a curriculum guide for current students, but rather an example of course offerings for prospective students. For the curriculum requirements in effect at the time of entrance into a program, consult with an academic advisor or with the Office of Registration and Records.  
<https://bulletin.ndsu.edu/undergraduate/programs/>

### **Transferring Credits**

View NDSU equivalencies of transfer courses at:  
[www.ndsu.edu/transfer/equivalencies](http://www.ndsu.edu/transfer/equivalencies)