Bachelor of Science
BIOLOGY

This program prepares you to pursue a graduate degree in biology or to go on to professional schools in the health sciences. Training in biology also prepares you for a wide variety of career choices, including careers in research in academic, government, and private research laboratories, science teaching, positions in the biomedical, biotechnology, and pharmaceutical industries, and other related fields. While many positions are open to those holding a BS degree, some may only be open to those holding advanced graduate degrees.

Matriculation into this program is dependent upon:
1) your having been granted final regular admission to Northern;
2) your having a cumulative grade point average of at least 2.50 in all coursework attempted at Northern and/or other institutions;
3) your having completed 48 credits of college-level work, including the following required courses: BIOL 110/L, BIOL 201/L, BIOL 202/L, BIOL 203/L, and BIOL 204/L, CHEM 121/L, CHEM 122/L, and MATH 150; and
4) submission of a personal statement to the program director in which you outline your interest in biology and your career goals.

GENERAL EDUCATION (38 CR) SEE PAGES 26-29.
Courses listed under each area are specific requirements for the BS in Biology that also fulfill the requirements for General Education. See pages 26-29 in the Course Catalog for additional courses to meet the required credits in each area.

Area I. Communications (9 cr)
ENG 111 English Composition I (3)
SPCH 130 Public Speaking (3)

Area II. Mathematics (3 cr)
MATH 150 College Algebra (3)

Area III. Laboratory Sciences (8 cr)
BIOL 110/L Current Topics in Biology with lab (4)
CHEM 110/L Introduction to Chemistry with lab (4)

Area IV. Social/Behavioral Sciences (6-9 cr)
Area V. Humanities and Fine Arts (6-9 cr)
PHIL 220 Ethics (3)

* You must complete at least 15 credits between areas IV and V, Social/Behavioral Science and Humanities/Fine Arts, maintaining at least two disciplines in each area.

Area VI. First Year Experience (3 cr)
FYE 101 First Year Experience (3)

PROGRAM REQUIREMENTS (86 CR)

Biology Core Curriculum (20 cr)
BIOL 201/L Introduction to Molecular and Cell Biology with Lab (4)
BIOL 202/L Principles of Genetics with Lab (4)
BIOL 203/L Ecology and Evolution with Lab (4)
BIOL 204/L Plant and Animal Form and Function with Lab (4)
BIOL 329 Cellular and Molecular Biology (4)

Seminar and Research Experience (7 cr)
BIOL 392 Undergraduate Research Experience (3)
BIOL 472 Undergraduate Seminar in Biology (1)
BIOL 492 Biology Capstone Project (3)

Supportive Courses in Math, Chemistry, and Physics (35 cr)

Mathematics (11 cr)
- MATH 145 Introduction to Probability and Statistics (3)
- MATH 155 Trigonometry and Pre-Calculus (4)
- MATH 162 Calculus I (4)

Chemistry (16 cr)
- CHEM 121/L General Chemistry I with lab (4)
- CHEM 122/L General Chemistry II with lab (4)
- CHEM 301/L Organic Chemistry I with lab (4)
- CHEM 421/L Biochemistry with lab (4)

Physics (8 cr)
- PHYS 121/L Applied Physics I with lab (4)
- PHYS 122/L Applied Physics II with lab (4)

Additional Program Requirements (24)
The remaining 24 credit hours MUST be upper division (300-400). Please seek departmental advisement to tailor your course selections to your individual career objectives. The following courses are suggestions from each discipline. Note: Course selection must be approved by BIOL program advisor and Chair of the department.

Suggested Areas of Concentration:

Cellular and Molecular Biology
- BIOL 410 Bioinformatics (3)
- BIOL 412/L Developmental Biology with lab (4)
- BIOL 416/L Cells and Tissues with lab (4)
- BIOL 425 Molecular Genetics (4)
- BIOL 426/L Neurobiology with lab (4)
- BIOL 431 Drugs and Their Actions (3)
- BIOL 456 Immunology (4)
- MATH 345 Elements of Mathematical Statistics and Probability Theory (3)

Ecology and Evolution
- BIOL 371/L Invertebrate Biology with lab (4)
- BIOL 360/L Plant Biology with lab (4)
- BIOL 386 Vertebrate Biology (4)
- BIOL 406 Stream Ecology and Field Methods (4)
- BIOL 451/L General Ecology with lab (4)
- BIOL 467 Evolutionary Plant Ecology (3)
- ES 308 Invasive Species (3)
- ES 420 Ecology and Hydrology of the Southwest (3)
- MATH 345 Elements of Mathematical Statistics and Probability Theory (3)

Supportive Courses in Math, Chemistry, and Physics
- CHEM 302/L Organic Chemistry II with lab (4)
- CHEM 311 Physical Chemistry (3)
- PHYS 302 Optics (3)
- PHYS 330 Introduction to Modern Physics (3)
- PHYS 331 Thermodynamics and Statistical Mechanics (3)
- PHYS 405 Electricity and Magnetism (3)
MATH 345 Elements of Mathematical Statistics and Probability Theory (3)

TOTAL CREDITS: 124