



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 151/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 (35 CRS) SEE PAGE 24–27

Area I: Communications (9 crs)

Area II: Math (3 crs)

Area III: Laboratory Sciences (8 crs)

BIOL 201/L Introduction to Molecular and Cell Biology with lab (4)

BIOL 202/L Principles of Genetics with lab (4)

Area IV: Social and Behavioral Sciences (6-9 crs)*

Area V: Humanities and Fine Arts (6-9 crs) *

PHIL 220 Ethics (3)

Elective (3-6) You must select courses from one other discipline area from the Area V courses shown on pages 26-27.

*You must complete at least 15 crs between areas IV and V, maintaining at least two disciplines in each area.

Health, Physical Education & Recreation (1 cr)

Elective (1)

PROGRAM REQUIREMENTS (74 CRS)

Biology Core Curriculum (12)

BIOL 151 Science and Society with Lab (4)

BIOL 203 Ecology and Evolution with Lab (4)

BIOL 204 Plant and Animal Form and Function with Lab (4)

Required Seminar and Research Experience (5)

BIOL 292 Undergraduate Research Experience (3)

or

BIOL 392 Undergraduate Research Experience (3)

BIOL 472 Undergraduate Seminar in Biology (1)

BIOL 492 Biology Capstone Project (1)

300-level courses from the following (8):

- BIOL 329 Cellular and Molecular Biology (4)
- BIOL 349/L Essentials of Anatomy and Physiology with lab (4)
- BIOL 351/L General Microbiology with lab (4)
- BIOL 360/L Plant Biology with lab (4)
- BIOL 371/L Invertebrate Biology with lab (4)
- BIOL 386 Vertebrate Zoology (4)

400-level courses from the following (16)

- BIOL 406 Stream Ecology and Field Methods (3)
- BIOL 410 Bioinformatics (3)
- BIOL 412/L Developmental Biology with lab (4)
- BIOL 416/L Cells and Tissues with lab (4)
- BIOL 418 Conservation Biology (3)
- BIOL 422/L Comparative Vertebrate Anatomy with lab (4)
- BIOL 425 Molecular Genetics (4)
- BIOL 426/L Neurobiology with lab (4)
- BIOL 431 Drugs and Their Actions (3)
- BIOL 435/L Comparative Animal Physiology with lab (4)
- BIOL 451/L General Ecology with lab (4)
- BIOL 456 Immunology (4)
- BIOL 467 Evolutionary Plant Ecology (3)

**REQUIRED SUPPORTIVE COURSES IN MATH,
CHEMISTRY, AND PHYSICS (33 CRS)**

Mathematics (10)

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

Chemistry (15)

- 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 341 Survey of Biochemistry (3)

Physics (8)

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

MINOR CONCENTRATIONS OR ELECTIVE CREDITS (20 CRS)

Minor concentrations are not required, but you may choose one of the following (20 crs):

Mathematics (20)

- MATH 163 Calculus II (4)
- MATH 264 Calculus III (4)

Choose any four additional upper-division (300-400) mathematics courses.

Chemistry and Physics (20)

- CHEM 302/L Organic Chemistry II with lab (4)
- CHEM 311 Physical Chemistry (3)
- PHYS 262/L General Physics with Lab (4)

Choose any 3 of the following:

- PHYS 302 Optics (3)

PHYS 330 Introduction to Modern Physics (3)

PHYS 331 Thermodynamics and Statistical Mechanics (3)

PHYS 405 Electricity and Magnetism (3)

If you do not choose a minor concentration, you must choose 20 additional credit hours of elective coursework in biology, chemistry, physics, mathematics, the humanities or the social sciences. If you took BIOL 292, then at least 7 of these elective credits must be at the upper-division level; if you took BIOL 392, then at least 4 of these elective credits must be at the upper-division level.

TOTAL CREDITS 130