

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 the 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.

<b>GENERAL EDUCATION REQUIREMENTS (39 crs)</b>	<b>COMPLETED</b>	<b>Planned Timeline (By Semester)</b>
<b><u>Area I: Communications (9 crs)</u></b>		
<b><u>Required</u></b>		
ENG 111 English Composition I (3) <small>Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation</small>	_____	_____
SPCH 130 Public Speaking (3) <small>Pre-requisite: ENG 109</small>	_____	_____
<b><u>Elective</u></b>		
ENG 112 English Composition II (3) <small>Pre-requisite: ENG 111</small>	_____	_____
ENG 116 Technical Writing (3)	_____	_____
<b><u>Area II: Mathematics (3 crs)</u></b>		
<b><u>Elective</u></b>		
MATH 145 Introduction to Probability & Statistics (3) <small>Pre-requisite: MATH 130 or adequate score on the Course Placement Evaluation</small>	_____	_____
MATH 150 College Algebra (3)	_____	_____
MATH 151 Conceptual Mathematics *	_____	_____
MATH 155 Trigonometry	_____	_____
MATH 162 Calculus I	_____	_____
MATH 163 Calculus II	_____	_____
MATH 264 Calculus III	_____	_____
<small>* Conceptual Mathematics will satisfy the mathematics requirement for all AA/BA/BBA/NM degrees.</small>		
<b><u>Area III: Laboratory Sciences (8)</u></b>		
BIOL 201/L Introduction to Molecular and Cell Biology with lab (4)	_____	_____
BIOL 202/L Principles of Genetics with lab (4)	_____	_____
<b><u>Area IV: Social and Behavioral Sciences (6 – 9)*</u></b>		
ANTH 101/L Physical Anthropology with Lab	_____	_____
ANTH 102 Intro to Social/Cultural Anthropology	_____	_____
ANTH 110 Indian Culture of the Southwest	_____	_____
ANTH 207 Cultures of New Mexico	_____	_____
ECON 200 Macroeconomics	_____	_____
ECON 201 Microeconomics	_____	_____
GEOG 111 World Geography	_____	_____
HSS/HUM311 Readings in the Social Sciences **	_____	_____

HSS/HUM414	Humanity and Creativity **	_____	_____
HSS/HUM421	History, Literature, Art & Philosophy **	_____	_____
PSCI 110	The Political World	_____	_____
PSCI 120	Contemporary Political Issues	_____	_____
PSCI 200	American Politics	_____	_____
PSCI 210	State and Local Government	_____	_____
PSCI 212	The American Presidency	_____	_____
PSY 105	General Psychology	_____	_____
PSY 210	Theories of Personality	_____	_____
PSY 229	Adolescent Psychology	_____	_____
PSY 230	Psychology of Adjustment	_____	_____
PSY 232	Abnormal Behavior	_____	_____
PSY 270	Social Psychology	_____	_____
PSY 290	Developmental Psychology	_____	_____
SOC 101	Introduction to Sociology	_____	_____
SOC 213	Deviant Behavior	_____	_____
SOC 216	Ethnic and Intercultural Relations	_____	_____
SOC 220	Social Problems	_____	_____
SOC 225	Marriage and the Family	_____	_____

\*\* Students in associate degree programs are advised that upper-division courses used to satisfy any of these requirements are not covered under financial aid.

**Area V: Humanities and Fine Arts (6 – 9)\***

PHIL 220	Ethics (3)	_____	_____
HUM 100	FYE: History and Culture of Northern New Mexico (3)	_____	_____

**Elective** (3) You must select courses from **one other discipline area** from Area V courses.

ART 105	Introduction to Art (3)	_____	_____
ART 107	History of Art I (3)	_____	_____
ART 208	History of NM Art & Arch. I (3)	_____	_____
ART 211	History of Art II (3)	_____	_____
DANC 240	Dance Appreciation (3)	_____	_____
ENG 270	Children's Literature (3)	_____	_____
ENG 262	Literature of the Southwest (3)	_____	_____
ENG/PIS 265	Native American Literature I(3)	_____	_____
ENG/PIS 266	Native American Literature II(3)	_____	_____
ENG 280	Readings in Literature(3)	_____	_____
ENG 290	Study of Literature (3)	_____	_____
ENG 294	Mythology (3)	_____	_____
HIST 101	Western Civilization I (3)	_____	_____
HIST 102	Western Civilization II (3)	_____	_____
HIST 161	History of U.S. to 1877 (3)	_____	_____
HIST 162	History of U.S. from 1877 (3)	_____	_____
HIST 200	History of World Religions (3)	_____	_____
HIST 220	Southwestern Women's History (3)	_____	_____
HIST 230	Chicano Experience in the U.S. (3)	_____	_____
HIST 250	American Indian History (3)	_____	_____
HIST 260	History of New Mexico (3)	_____	_____
HUM 101	Humanities I (3)	_____	_____
HUM 102	Humanities II (3)	_____	_____
HUM 105	Humanities and the Southwest (3)	_____	_____
HUM/HSS311	Readings in the Social Sciences ** (3)	_____	_____
HUM/HSS414	Humanity and Creativity ** (3)	_____	_____
HSS/HUM421	History, Literature, Art & Philosophy ** (3)	_____	_____
MUS 103	Music Hist & Lit I (3)	_____	_____
MUS 105	Music Appreciation (3)	_____	_____
MUS 218	Music Hist & Lit II (3)	_____	_____

PHIL 110	Intro to Philosophical Problems (3)	_____	_____
PHIL 111	History of Philosophy (3)	_____	_____
PHIL 150	Critical Thinking (3)	_____	_____
PHIL 220	Ethics (3)	_____	_____
PIS 200	Introduction to Pueblo Indian Studies (3)	_____	_____
THE 120	Introduction to Theatre I (3)	_____	_____
THE 130	History of Theater (3)	_____	_____
Plus, topic courses with student advisor's approval		_____	_____
_____		_____	_____
_____		_____	_____

(\*\*) Students in associate degree programs are advised that upper-division courses used to satisfy any of these requirements are not covered under financial aid.

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

**Area VI Library Technology (1)**

LT 101	Library Research Skills (1)	_____	_____
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**Area VII Foreign Language (3)**

3 credits		_____	_____
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**PROGRAM REQUIREMENTS (74 crs)**

**Biology Core Curriculum (12)**

BIOL 151/L	Science and Society with lab (4)	_____	_____
BIOL 203/L	Ecology and Evolution with lab (4)	_____	_____
BIOL 204/L	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 371L	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)**

Minors concentrations are not required, but you may choose one of the following minor concentrations (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 133**