



## Bachelor of Science ENVIRONMENTAL SCIENCE

In order to be considered for acceptance to this major, you must first have been admitted to Northern, satisfying all requirements for regular status. Second, you must meet the following departmental requirements: 1) have earned a cumulative grade point average of 2.50 for courses to be accepted into the program, which includes up to 35 credits in general education; 2) completion of 24 credits of the GECC Laboratory Science requirements; 3) completion of ES 112, ES 112L, and ES 113; and 4) submission of a personal essay and two letters of recommendation to the Environmental Science program director.

### GENERAL EDUCATION (58 crs)

COMPLETED

Planned Timeline  
(By Semester)

#### Communications (9 crs)

ENG 111 English Composition I (3)

*Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation*

SPCH 130 Public Speaking (3)

*Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation*

#### Choose one of the following:

ENG 116 Technical Writing (3)

*Pre-requisite: ENG 111*

ENG 112 English Composition II (3)

*Pre-requisite: ENG 111*

#### Mathematics (10 crs)

MATH 145 Introduction to Probability and Statistics (3)

*Pre-requisite: MATH 130*

MATH 150 College Algebra (3)

*Pre-requisite: MATH 130*

MATH 162 Calculus I (4)

*Pre-requisites: MATH 150 and MATH 155 or MATH 160*

#### Laboratory Sciences (24 crs)

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

*Pre-requisites: BIOL 201 and 201L*

BIOL 203/L Ecology and Evolution with lab (4)

*Pre-requisites: BIOL 202 and MATH 130*

BIOL 210/L Microbiology with lab (4)

*Pre-requisite: CHEM 110 and 110L*

CHEM 121/L General Chemistry I with lab (4)

*Pre-requisite: MATH 130*

CHEM 210/L Integrated Organic &amp; Biochemistry with lab (4)

*Pre-requisite: CHEM 110/L or CHEM 121/L*

ES 201L Environmental Physical and Chemical Processes with lab (4)

*Pre-requisites: BIOL 201/L and CHEM 121/L*

CHEM 122/L General Chemistry II with lab (4)

#### Social/Behavioral Sciences (6-9 crs)\*

***Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation***

Select courses from **at least two different discipline areas** from the following list:

ANTH 101/L Physical Anthropology w/Lab (4)

ANTH 102 Introduction to Social and Cultural Anthropology (3)

ANTH 110 Indian Culture of the Southwest (3)

ANTH 207 Cultures of New Mexico (3)

ECON 200 Macroeconomics (3)

ECON 201 Microeconomics (3)

GEOG 111 World Geography (3)

PSCI 110 The Political World (3)

PSCI 120 Contemporary Political Issues (3)

PSCI 200 American Politics (3)

PSCI 210 State and Local Government (3)

PSCI 212	The American Presidency (3)	_____	_____
PSY 105	General Psychology (3)	_____	_____
PSY 210	Theories of Personality (3)	_____	_____
PSY 229	Adolescent Psychology (3)	_____	_____
PSY 230	Psychology of Adjustment (3)	_____	_____
PSY 232	Abnormal Behavior (3)	_____	_____
PSY 270	Social Psychology (3)	_____	_____
PSY 290	Developmental Psychology (3)	_____	_____
SOC 101	Introductions to Sociology (3)	_____	_____
SOC 213	Deviant Behavior (3)	_____	_____
SOC 216	Ethnic and Intercultural Relations (3)	_____	_____
SOC 220	Social Problems (3)	_____	_____
SOC 225	Marriage and the Family (3)	_____	_____

*Plus topic courses with student advisor's approval*

**Humanities and Fine Arts (6-9 crs)\***

***Pre-requisite: ENG 109 or adequate score on the Course Placement Evaluation***

PHIL 220	Ethics (3)	_____	_____
Select <b>two</b> courses from <i>at least two different discipline areas</i> from the following list:			
ART 105	Introduction to Art (3)	_____	_____
ART 107	History of Art I (3)	_____	_____
ART 211	History of Art II (3)	_____	_____
DANC 240	Dance Appreciation (3)	_____	_____
ENG 262	Southwest Literature (3)	_____	_____
ENG 265	Native American Literature I (3)	_____	_____
ENG 266	Native American Literature II (3)	_____	_____
ENG 270	Children's Literature (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 the U.S. to 1877 (3)	_____	_____
HIST 162	History of the 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 US (3)	_____	_____
HIST 250	American Indian History (3)	_____	_____
HIST 260	History of New Mexico (3)	_____	_____
HUM 105	Humanities and the Southwest (3)	_____	_____
HUM 311	Why Social Sciences Matter (4)	_____	_____
HUM 414	Humanity and Creativity (4)	_____	_____
HUM 421	History, Literature, Art & Philosophy (4)	_____	_____
MUS 102	Music Theory I (3)	_____	_____
MUS 105	Music Appreciation (3)	_____	_____
MUS 240	Music History (3)	_____	_____
PHIL 110	Introduction to Philosophical Problems (3)	_____	_____
PHIL 111	History of Philosophy (3)	_____	_____
PIS 200	Introduction to Pueblo Indian Studies (3)	_____	_____
THE 120	Introduction to Theatre I (3)	_____	_____

*Plus topic courses with student advisor's approval*

\* You must complete at least 15 credits between these two areas, maintaining at least two disciplines in each area.

**HEALTH, PHYSICAL EDUCATION & RECREATION (1 crs)**

Electives (1)	_____	_____	_____
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**PROGRAM REQUIREMENTS (36 crs)**

ES 112/L	Introduction to Environmental Sciences I with lab (4)	_____	_____
ES 125	Principles of Physical Hydrology (3)	_____	_____
<i>Pre-requisites: ES 112/L</i>			
ES 203	Introduction to GIS/GPS and Cartography (2)	_____	_____
<i>Pre-requisite: Permission of instructor</i>			

- ES 307 Atmospheric Science (3)  
*Pre-requisites: ES 112/L and BIOL 203, CHEM 121/L and MATH 162*
- ES 320 Environmental Ethics (3)
- ES 338 Environmental Law and Regulations (3)  
*Pre-requisites: ES 112/L*
- ES 350 Watershed Hydrology and Management (3)  
*Pre-requisites: ES 112/L, ES 123, BIOL 203/L and CHEM 121/L*
- ES 401 Community Participation in Environmental Planning (3)  
*Pre-requisites: ES 112/L, ES 320, BIOL 203/L and SPCH 130*
- ES 412 Environmental Health and Toxicology (3)  
*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*
- ES 415 Energy and Resource Development (3)
- ES 480 Senior Capstone - Field Experience (3)

You must **choose one** of the following concentrations:

**Agriculture (34 crs)**

- BIOL 360/L Botany with lab (4)  
*Pre-requisite: BIOL 204/L*
- ES 225 Principles of Agricultural Ecology (3)  
*Pre-requisites: ES 112/L and BIOL 203/L*
- ES 308 Invasive Species (3)  
*Pre-requisites: ES 112/L and BIOL 203/L*
- ES 311 Plant Pathology (3)  
*Pre-requisites: ES 112/L and BIOL 203/L*
- ES 340 Principles in Crop Production (3)  
*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*
- ES 365 Principles of Sustainable Agriculture (3)  
*Pre-requisites: ES 112/L and BIOL 203/L*
- ES 410/L Soil Testing and Interpretation (3)  
*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*
- ES 411 Soil Management and Fertility (3)  
*Pre-requisite: ES 410/L*
- ES 416 Irrigation and Drainage (3)  
*Pre-requisites: ES 112/L and MATH 162*
- ES 457\* Economics, Food, and Agriculture in Industrial Development (3)  
*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*
- Electives (3 hrs) Upper-division courses as approved by department advisor

**Environmental Science (34 crs)**

- ES 121 Environmental Air Monitoring (3)  
*Pre-requisites: ES 112/L*
- ES 336 Environmental Lab Instrumentation (3)  
*Pre-requisites: ES 112/L, ES 134, ES 201/L or CHEM 122/L, MATH 145 and BIOL203/L*
- ES 330 Principles of Environmental and Occupational Health (3)  
*Pre-requisites: ES 112/L and BIOL 203/L and CHEM121/L*
- RAD 234L Introduction to Radiation Science and Technology (4)  
*Pre-requisite: Permission of instructor*
- ES 315\* Technology and the Environment (3)  
*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*
- ES 333 Radiation Biology (3) (Spring)  
*Pre-requisite: Permission of instructor*
- ES 336 Environmental Sampling and Instrumentation (3)  
*Pre-requisites: ES 112/L, ES 134, ES 201/L or CHEM 122/L, MATH 145 and BIOL 203/L*
- ES 400 Environmental Management (3)  
*Pre-requisites: ES 112/L and BIOL 203*
- ES 402 Environment, Economics, and Sustainability (3)  
*Pre-requisites: ES 112/L, ES 320 and BIOL 203/L*
- ES 411 Soil Testing and Interpretation (3)  
*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*
- Electives (3 hrs) Upper-division courses as approved by department advisor

**Forestry (33 crs)**

ES 102 Overview of Forest Measurement (3)

*Pre-requisite: FOR 113*

ES/FOR 101 Introduction to Forestry (3)

FOR 113 Dendrology (3)

ES 310 Mensuration and Biometrics (3)

*Pre-requisites: ES/FOR 101, ES 112/L and BIOL 203/L*

ES 317 Rangeland Management (3)

*Pre-requisites: ES 112/L, ES 120 and BIOL 203*

ES 318 Silviculture (3)

*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*

ES 404 Forest Health, Restoration, and Management (3)

*Pre-requisites: ES 112/L, ES 201/L and BIOL 203*

ES 410/L Soil Testing and Interpretation (3)

*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*

ES 411 Soil Management and Fertility (3)

*Pre-requisite: ES 410/L*

ES 414 Wild and Fire Management (3)

*Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L*

Electives (3 hrs) Upper-division courses as approved by department advisor

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**TOTAL CREDIT HOURS 128**

\* The courses are equivalent

# Educational Planning Form (Semester)

Name \_\_\_\_\_ Date \_\_\_\_\_

Major \_\_\_\_\_ Student ID \_\_\_\_\_

<b>Fall Semester</b>	<b>Spring Semester</b>	<b>Summer</b>
<b>Total Units</b>	<b>Total Units</b>	<b>Total Units</b>
<b>Fall Semester</b>	<b>Spring Semester</b>	<b>Summer</b>
<b>Total Units</b>	<b>Total Units</b>	<b>Total Units</b>
<b>Fall Semester</b>	<b>Spring Semester</b>	<b>Summer</b>
<b>Total Units</b>	<b>Total Units</b>	<b>Total Units</b>

**Advisor's Signature** \_\_\_\_\_

**Student Signature** \_\_\_\_\_

