



## 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)**

#### Area I: Communications (9 crs)

ENG 111 English Composition I (3)

*Pre-requisites: 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 two courses:**

ENG 112 English Composition II (3)

*Pre-requisite: ENG 111*

ENG 116 Technical Writing (3)

*Pre-requisite: ENG 111*

#### Area II: 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*

#### Area III: 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 & Biochemistry with lab (4)

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

#### **Choose one of the following:**

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

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

**or**

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

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

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

**You must select courses from *at least two different discipline areas* from the following list:**

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

ANTH 102 Intro to Social & Cultural Anthropology (3) (Fall)

ANTH 111 Language and Culture (3)

ANTH 207 Cultures of New Mexico (3)

ANTH 110 Indian Culture of the Southwest

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 Introduction 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

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

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

- PHIL 220 Ethics (3)

Elective (3-6) \_\_\_\_\_

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You must select courses from one other discipline area from the following::

- ART 105 Introduction to Art (3)
- ART 107 History of Art I (3)
- ART 208 History of NM Art & Architecture (3)
- ART 211 History of Art II (3)
- DANC 240 Dance Appreciation (3)
- ENG 270 Children's Literature (3)
- Pre-requisite ENG 111*
- ENG 262 Literature of the Southwest (3)
- Pre-requisite ENG 112*
- ENG 265 Native American Literature 1 (3)
- Pre-requisite ENG 111*
- ENG 266 Native American Literature II (3)
- Pre-requisite: ENG 111*
- ENG 280 Readings in Literature (3)
- Pre-requisite ENG 111*
- ENG 290 Study of Literature
- Pre-requisite ENG 111*
- ENG 294 Mythology (3)
- Pre-requisite ENG 111*
- 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 the 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 101 Humanities I (3)
- HUM 102 Humanities II (3)
- HUM 105 Humanities of the Southwest (3)
- HUM 311 Why the Social Sciences Matter \*\* (3)
- HUM 414 Humanity and Creativity \*\* (3)
- HUM 421 History, Literature, Art & Philosophy \*\* (3)
- MUS 103 Music History & Literature I (3)
- MUS 105 Music Appreciation (3)

MUS 218 Music History & Literature II (3)  
 PHIL 110 Intro to Philosophical Problems (3)  
 PHIL 111 History of Philosophy (3)  
 PHIL 150 Critical Thinking (3)  
 PIS 200 Introduction to Pueblo Indian Studies (3)  
 THE 120 Introduction to Theatre I (3)  
 THE 130 History of Theatre (3)  
 Plus, topic courses with advisor's approval

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\* If your major is in the area of the Humanities/Fine Arts, unless otherwise regulated by a given department, you should select 9 hrs from Area V and 6 hrs. from Area IV; if in the Social/Behavioral Sciences, you should select 9 hrs from Area IV and 6 hrs from Area V. Consult your major advisor. In any case, you must complete a minimum spread of 15 hrs between Areas IV and V. .

\*\* Students in associate degree programs are advised that upper-division courses are not covered under financial aid.

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

Elective (1) \_\_\_\_\_

**PROGRAM REQUIREMENTS (36 crs)**

ES 112/L Introduction to Environmental Sciences I with lab (4)		
ES 113 Introduction to Environmental Sciences II <i>Pre-requisite: ES 112/L</i>		
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) <i>Pre-requisites: ES 112/L and BIOL 203, CHEM 121/L and MATH 162</i>		
ES 320 Environmental Ethics (3)		
ES 338 Environmental Law and Regulations (3) <i>Pre-requisites: ES 112/L</i>		
ES 350 Watershed Hydrology and Management (3) <i>Pre-requisites: ES 112/L, ES 123, BIOL 203/L and CHEM 121/L</i>		
ES 401 Community Participation in Environmental Planning (3) <i>Pre-requisites: ES 112/L, ES 320, BIOL 203/L and SPCH 130</i>		
ES 412 Environmental Health and Toxicology (3) <i>Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L</i>		
ES 415 Energy and Resource Development (3)		
ES 480 Senior Capstone - Field Experience (3)		

**You must choose one of the following concentrations (33-34)**

**Agriculture (34 crs)**

BIOL 360/L Botany with lab (4) <i>Pre-requisite: BIOL 204/L</i>		
ES 225 Principles of Agricultural Ecology (3) <i>Pre-requisites: ES 112/L and BIOL 203/L</i>		
ES 308 Invasive Species (3) <i>Pre-requisites: ES 112/L and BIOL 203/L</i>		
ES 311 Plant Pathology (3) <i>Pre-requisites: ES 112/L and BIOL 203/L</i>		
ES 340 Principles in Crop Production (3) <i>Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L</i>		
ES 365 Principles of Sustainable Agriculture (3) <i>Pre-requisites: ES 112/L and BIOL 203/L</i>		
ES 410/L Soil Testing and Interpretation (3) <i>Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L</i>		
ES 411 Soil Management and Fertility (3) <i>Pre-requisite: ES 410/L</i>		
ES 416 Irrigation and Drainage (3) <i>Pre-requisites: ES 112/L and MATH 162</i>		
ES 457 Economics, Food, and Agriculture in Industrial Development (3) <i>Pre-requisites: ES 112/L, ES 201/L and BIOL 203/L</i>		

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

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**Environmental Science (34 crs)**

ES 121 Environmental Air Monitoring (3)

*Pre-requisites: ES 112/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)

*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 410/L Soil Testing and Interpretation and lab (4)

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

Electives (6 hrs) upper-division courses approved by department advisor

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**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**

# 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>