



# Environmental Studies

Environmental scientists work toward defining and solving environmental problems caused by the actions of human beings. Their interdisciplinary training is broad-based and encompasses the natural sciences, mathematics, economics, and the social sciences. Their primary ethical concern is human stewardship of the earth.

Students in the Environmental Studies program are concerned with both the technological problems and social aspects of environmental issues. Working in cooperation with the Center for Environmental, Earth and Space Studies, Economics, and Sociology, they may participate in applied research. Their interdisciplinary course work includes the study of scientific principles used in environmental problem solving, and the study of the impact of economics, politics, and other social systems on environmental policies and practices.

Because of the breadth of study necessary to prepare for upper division Environmental Studies courses, students are urged to declare in the major during their freshman or sophomore year.

At least 50 percent of credits in the major should be at 3000/4000 levels.

## Programs

- Environmental Studies, B.S. (Geohydrology Emphasis) *major*
- Environmental Studies, B.S. (Ecosystem Emphasis) *major*
- Environmental Studies, B.S. (Environmental Health and Toxicology Emphasis) *major*
- Indigenous Sustainability Studies, B.S. *major*
- Environmental Studies *minor*
- Indigenous Sustainability Studies *minor*
- Sustainability *minor*

## Career Directions

- Chemist
- Ecologist
- Engineering Technician
- Environmental Chemist
- Environmental Consultant
- Environmental Economist
- Environmental Engineer
- Environmental Engineering Scientist
- Environmental Manager
- Environmental Outdoor Educator
- Environmental Policy Maker and Planner
- Environmental Scientist
- Environmental Sociologist
- Environmental Specialist
- Environmental Technologist
- Environmental Toxicologist
- Geohydrologist
- Hydrogeologist
- Natural Resources Specialist
- Pollution Control Specialist
- Research Lab Technician
- Researcher
- Teacher
- Wastewater Monitor
- Wastewater Treatment Operator
- Water Quality Specialist
- Water Treatment Operator
- Also: Graduate Study

## Preparation

### Recommended High School Courses

- Biology
- Chemistry
- Government
- Math
- Physics
- Political Science
- Social Science

## Environmental Studies, B.S. *major* Geohydrology Emphasis

Required Credits: 65  
Required GPA: 2.25

### I REQUIRED CORE COURSES

Complete the following courses:

- ENVR 2000 Introduction to Environmental Science (3 credits)
- ENVR 3880 Environmental Controversies (2 credits)

- ENVR 4880 Senior Seminar I (1 credit)

Select 1 of the following courses for 3 credits:

- ENVR 4970 Internship (3 credits)
- ENVR 4990 Thesis (3 credits)

Select 1 of the following courses:

- ENVR 3800 Environmental Data Analysis (3 credits)
- PSY 3401 Basic Statistics for Research (4 credits)
- SOC 3001 Social Statistics (3 credits)
- STAT 2610 Applied Statistics (4 credits)

Select 1 of the following courses:

- ENVR 3600 Environmental Justice and Sustainability (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4610 Sustainability: Theory and Practice (4 credits)

Select 1 of the following courses:

- ENVR 4220 Sampling and Analysis (4 credits)
- GEOL 3120 Soils (4 credits)  
or BIOL 3120 Soils (4 credits)
- GEOL 3211 Environmental Hydrology (3 credits)

## GEOHYDROLOGY EMPHASIS

Complete the following courses:

- GEOG 3231 Introduction to Geographic Information Systems (3 credits)
- GEOL 1110 Physical Geology (4 credits)
- GEOL 2110 Mineralogy and Petrology (4 credits)
- GEOL 3211 Environmental Hydrology (3 credits)
- GEOL 3212 Hydrogeology (3 credits)
- GEOL 3700 Environmental Geophysics (3 credits)

Select 1 of the following courses:

- GEOL 3400 Glacial and Pleistocene Geology (3 credits)
- GEOL 3600 Stratigraphy and Sedimentation (3 credits)

Select 1 of the following courses:

- MATH 1470 Precalculus (5 credits)
- MATH 2471 Calculus I (5 credits)

Select 1 of the following courses:

- PHYS 1101 General Physics I (4 credits)
- PHYS 2101 Physics I (5 credits)

Select 15 semester credits from the following courses that have not been completed in the core above, or any other related courses (3000/4000) approved in advance by a Center for Sustainability Services advisor:

- ENVR 3040 Environmental Economics (3 credits)  
or ECON 3040 Environmental Economics (3 credits)
- ENVR 3300 Environmental Management and Safety (3 credits)
- ENVR 3600 Environmental Justice and Sustainability (3 credits)
- ENVR 3840 Wetlands Ecology (3 credits)  
or BIOL 3840 Wetlands Ecology (3 credits)
- ENVR 4050 Geochemistry (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4220 Sampling and Analysis (4 credits)
- ENVR 4400 Environmental Microbiology (3 credits)
- GEOG 3232 Intermediate Geographic Information Systems (3 credits)
- GEOG 3255 Introduction to Remote Sensing (3 credits)
- GEOG 4130 Biogeography (3 credits)
- GEOG 4140 Landscape Ecology (3 credits)
- GEOG 4265 Spatial Analysis (3 credits)
- GEOG 4275 Advanced Geographic Information Systems (3 credits)
- GEOL 3120 Soils (4 credits)  
or BIOL 3120 Soils (4 credits)
- GEOL 4300 Global Environmental Change (3 credits)

## SUGGESTED SEMESTER SCHEDULE FOR ENVIRONMENTAL STUDIES MAJOR, B.S. GEOHYDROLOGY EMPHASIS

The following is a list of Environmental Studies Major Courses arranged by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

### Freshman

- ENVR 2000 Introduction to Environmental Science (3 credits)
- MATH 1470 Precalculus (5 credits)  
or MATH 2471 Calculus I (5 credits)
- PHYS 1101 General Physics I (4 credits)  
or PHYS 2101 Physics I (5 credits)
- Liberal Education Requirements
- Emphasis Electives

### Sophomore (with the emphasis already selected)

- ENVR 3600 Environmental Justice and Sustainability (3 credits)  
or ENVR 4210 Environmental Law and Policy (3 credits)  
or ENVR 4610 Sustainability: Theory and Practice (4 credits)
- ENVR 3880 Environmental Controversies (2 credits)
- GEOL 1110 Physical Geology (4 credits)
- GEOL 2110 Mineralogy and Petrology (4 credits)
- ENVR 3800 Environmental Data Analysis (3 credits)  
or SOC 3001 Social Statistics (3 credits)  
or STAT 2610 Applied Statistics (4 credits)  
or PSY 3401 Basic Statistics for Research (4 credits)
- Liberal Education Requirements
- Emphasis Electives

### Junior

- GEOG 3231 Introduction to Geographic Information Systems (3 credits)
- GEOL 3211 Environmental Hydrology (3 credits)
- GEOL 3700 Environmental Geophysics (3 credits)
- Liberal Education Requirements
- Emphasis Electives

### Senior

- ENVR 4880 Senior Seminar I (1 credit)
- ENVR 4970 Internship (3 credits)  
or ENVR 4990 Thesis (3 credits)
- GEOL 3212 Hydrogeology (3 credits)
- GEOL 3400 Glacial and Pleistocene Geology (3 credits)  
or GEOL 3600 Stratigraphy and Sedimentation (3 credits)
- Liberal Education Requirements
- Emphasis Electives

## Environmental Studies, B.S. *major* Ecosystem Emphasis

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Required Credits: 59

Required GPA: 2.25

### I REQUIRED CORE COURSES

Complete the following courses:

- ENVR 2000 Introduction to Environmental Science (3 credits)
- ENVR 3880 Environmental Controversies (2 credits)
- ENVR 4880 Senior Seminar I (1 credit)

Select 1 of the following courses for 3 credits:

- ENVR 4970 Internship (3 credits)
- ENVR 4990 Thesis (3 credits)

Select 1 of the following courses:

- ENVR 3800 Environmental Data Analysis (3 credits)
- PSY 3401 Basic Statistics for Research (4 credits)
- SOC 3001 Social Statistics (3 credits)
- STAT 2610 Applied Statistics (4 credits)

Select 1 of the following courses:

- ENVR 3600 Environmental Justice and Sustainability (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4610 Sustainability: Theory and Practice (4 credits)

Select 1 of the following courses:

- ENVR 4220 Sampling and Analysis (4 credits)
- GEOL 3120 Soils (4 credits)  
*or* BIOL 3120 Soils (4 credits)
- GEOL 3211 Environmental Hydrology (3 credits)

### ECOSYSTEM STUDIES EMPHASIS

Select 2 of the following courses:

- BIOL 1120 General Biology: Evolution And Ecology (3 credits)
- BIOL 1211 Introductory Biology I (4 credits)
- BIOL 1212 Introductory Biology II (4 credits)
- CHEM 1111 General Chemistry I (4 credits)  
*or* CHEM 2211 Principles of Chemistry I (4 credits)
- CHEM 1112 General Chemistry II (4 credits)  
*or* CHEM 2212 Principles of Chemistry II (4 credits)
- GEOL 1110 Physical Geology (4 credits)
- GEOL 1120 Historical Geology (4 credits)
- PHYS 1101 General Physics I (4 credits)  
*or* PHYS 2101 Physics I (5 credits)
- PHYS 1102 General Physics II (4 credits)  
*or* PHYS 2102 Physics II (5 credits)

Select 34 credits from the following courses that have not been completed in the core above, or any other related courses (3000/4000) approved in advance by a Center for Sustainability Services advisor:

- ENVR 3040 Environmental Economics (3 credits)  
*or* ECON 3040 Environmental Economics (3 credits)
- ENVR 3300 Environmental Management and Safety (3 credits)
- ENVR 3600 Environmental Justice and Sustainability (3 credits)
- ENVR 3700 Natural Resource Management (3 credits)
- ENVR 3840 Wetlands Ecology (3 credits)  
*or* BIOL 3840 Wetlands Ecology (3 credits)
- ENVR 4110 Environmental Chemistry (3 credits)
- ENVR 4200 Wastewater Treatment (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4400 Environmental Microbiology (3 credits)
- GEOG 2100 Introduction to Physical Geography (3 credits)
- GEOG 3231 Introduction to Geographic Information Systems (3 credits)
- GEOG 3232 Intermediate Geographic Information Systems (3 credits)
- GEOG 3255 Introduction to Remote Sensing (3 credits)
- GEOG 3630 Conservation Biology (3 credits)  
*or* BIOL 3630 Conservation Biology (3 credits)
- GEOG 4130 Biogeography (3 credits)

- GEOG 4140 Landscape Ecology (3 credits)
- GEOG 4265 Spatial Analysis (3 credits)
- GEOG 4275 Advanced Geographic Information Systems (3 credits)
- GEOL 3120 Soils (4 credits)  
*or* BIOL 3120 Soils (4 credits)
- GEOL 3211 Environmental Hydrology (3 credits)
- GEOL 3212 Hydrogeology (3 credits)
- GEOL 3700 Environmental Geophysics (3 credits)
- GEOL 4300 Global Environmental Change (3 credits)

### SUGGESTED SEMESTER SCHEDULE FOR ENVIRONMENTAL STUDIES MAJOR, B.S. ECOSYSTEMS EMPHASIS

The following is a list of Environmental Studies Major Courses arranged by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

#### Freshman

- CHEM 1111 General Chemistry I (4 credits)  
*or* CHEM 2211 Principles of Chemistry I (4 credits)
- ENVR 2000 Introduction to Environmental Science (3 credits)
- GEOL 1110 Physical Geology (4 credits)
- Liberal Education Requirements
- Emphasis Electives

#### Sophomore (with the emphasis already selected)

- ENVR 3880 Environmental Controversies (2 credits)
- GEOL 3211 Environmental Hydrology (3 credits)  
*or* GEOL 3120 Soils (4 credits)  
*or* ENVR 4220 Sampling and Analysis (4 credits)
- ENVR 3600 Environmental Justice and Sustainability (3 credits)  
*or* ENVR 4210 Environmental Law and Policy (3 credits)  
*or* ENVR 4610 Sustainability: Theory and Practice (4 credits)
- ENVR 3800 Environmental Data Analysis (3 credits)  
*or* SOC 3001 Social Statistics (3 credits)  
*or* STAT 2610 Applied Statistics (4 credits)  
*or* PSY 3401 Basic Statistics for Research (4 credits)
- Liberal Education Requirements
- Emphasis Electives

#### Junior

- Liberal Education Requirements
- Emphasis Electives

#### Senior

- ENVR 4880 Senior Seminar I (1 credit)
- ENVR 4970 Internship (3 credits)  
*or* ENVR 4990 Thesis (3 credits)
- Liberal Education Requirements
- Emphasis Electives

### Environmental Studies, B.S. *major* Environmental Health and Toxicology Emphasis

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Required Credits: 66  
Required GPA: 2.25

## I REQUIRED CORE COURSES

Complete the following courses:

- ENVR 2000 Introduction to Environmental Science (3 credits)
- ENVR 3880 Environmental Controversies (2 credits)
- ENVR 4880 Senior Seminar I (1 credit)

Select 1 of the following courses for 3 credits:

- ENVR 4970 Internship (3 credits)
- ENVR 4990 Thesis (3 credits)

Select 1 of the following courses:

- ENVR 3800 Environmental Data Analysis (3 credits)
- PSY 3401 Basic Statistics for Research (4 credits)
- SOC 3001 Social Statistics (3 credits)
- STAT 2610 Applied Statistics (4 credits)

Select 1 of the following courses:

- ENVR 3600 Environmental Justice and Sustainability (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4610 Sustainability: Theory and Practice (4 credits)

Select 1 of the following courses:

- ENVR 4220 Sampling and Analysis (4 credits)
- GEOL 3120 Soils (4 credits)  
or BIOL 3120 Soils (4 credits)
- GEOL 3211 Environmental Hydrology (3 credits)

## ENVIRONMENTAL HEALTH AND TOXICOLOGY EMPHASIS

Select 2 of the following:

- BIOL 1120 General Biology: Evolution And Ecology (3 credits)
- BIOL 1211 Introductory Biology I (4 credits)
- BIOL 1212 Introductory Biology II (4 credits)
- CHEM 1111 General Chemistry I (4 credits)  
or CHEM 2211 Principles of Chemistry I (4 credits)
- CHEM 1112 General Chemistry II (4 credits)  
or CHEM 2212 Principles of Chemistry II (4 credits)
- GEOL 1110 Physical Geology (4 credits)
- GEOL 1120 Historical Geology (4 credits)

Complete the following courses:

- ENVR 4110 Environmental Chemistry (3 credits)
- ENVR 4220 Sampling and Analysis (4 credits)
- ENVR 4500 Environmental Toxicology (4 credits)
- GEOL 3211 Environmental Hydrology (3 credits)

Select 1 of the following courses:

- MATH 1470 Precalculus (5 credits)
- MATH 2471 Calculus I (5 credits)

Select 19 credits from the following courses:

- CHEM 3311 Organic Chemistry I (3 credits)
- CHEM 3312 Organic Chemistry II (3 credits)
- CHEM 3371 Organic Chemistry Laboratory I (1 credit)
- CHEM 3372 Organic Chemistry Laboratory II (1 credit)
- CHEM 3507 Analytical Chemistry (3 credits)
- CHEM 3570 Analytical Chemistry Laboratory (1 credit)

- CHEM 4411 Biochemistry I (3 credits)
- CHEM 4412 Biochemistry II (3 credits)
- CHEM 4471 Biochemistry Laboratory I (1 credit)
- CHEM 4472 Biochemistry Laboratory II (1 credit)
- ENVR 3040 Environmental Economics (3 credits)
- ECON 3040 Environmental Economics (3 credits)
- ENVR 3300 Environmental Management and Safety (3 credits)
- ENVR 3600 Environmental Justice and Sustainability (3 credits)
- ENVR 3840 Wetlands Ecology (3 credits)  
or BIOL 3840 Wetlands Ecology (3 credits)
- ENVR 4200 Wastewater Treatment (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4400 Environmental Microbiology (3 credits)
- GEOG 2100 Introduction to Physical Geography (3 credits)
- GEOG 3231 Introduction to Geographic Information Systems (3 credits)
- GEOG 3232 Intermediate Geographic Information Systems (3 credits)
- GEOG 3630 Conservation Biology (3 credits)  
or BIOL 3630 Conservation Biology (3 credits)
- GEOG 4130 Biogeography (3 credits)
- GEOG 4140 Landscape Ecology (3 credits)
- GEOL 3120 Soils (4 credits)  
or BIOL 3120 Soils (4 credits)
- GEOL 3700 Environmental Geophysics (3 credits)
- GEOL 4300 Global Environmental Change (3 credits)

Select 3 semester credits of upper division (3000/4000)

electives approved in advance by a Center for Sustainability Studies advisor.

## SUGGESTED SEMESTER SCHEDULE FOR ENVIRONMENTAL STUDIES MAJOR, B.S. ENVIRONMENTAL HEALTH AND TOXICOLOGY EMPHASIS

The following is a list of Environmental Studies Major Courses arranged by year. This schedule is intended to help students plan their courses in an orderly fashion; however, these are only suggestions and this schedule is flexible.

Freshman

- CHEM 1111 General Chemistry I (4 credits)  
or CHEM 2211 Principles of Chemistry I (4 credits)
- ENVR 2000 Introduction to Environmental Science (3 credits)
- GEOL 1110 Physical Geology (4 credits)
- MATH 1470 Precalculus (5 credits)  
or MATH 2471 Calculus I (5 credits)
- Liberal Education Requirements
- Emphasis Electives

Sophomore (with the emphasis already selected)

- ENVR 3880 Environmental Controversies (2 credits)
- GEOL 3211 Environmental Hydrology (3 credits)  
or GEOL 3120 Soils (4 credits)  
or BIOL 3120 Soils (4 credits)  
or ENVR 4220 Sampling and Analysis (4 credits)
- ENVR 3600 Environmental Justice and Sustainability (3 credits)  
or ENVR 4210 Environmental Law and Policy (3 credits)  
or ENVR 4610 Sustainability: Theory and Practice (4 credits)
- ENVR 3800 Environmental Data Analysis (3 credits)  
or SOC 3001 Social Statistics (3 credits)  
or STAT 2610 Applied Statistics (4 credits)  
or PSY 3401 Basic Statistics for Research (4 credits)
- Liberal Education Requirements

- Emphasis Electives

#### Junior

- ENVR 4110 Environmental Chemistry (3 credits)
- ENVR 4220 Sampling and Analysis (4 credits)
- Liberal Education Requirements
- Emphasis Electives

#### Senior

- ENVR 4500 Environmental Toxicology (4 credits)
- ENVR 4880 Senior Seminar I (1 credit)
- ENVR 4970 Internship (3 credits)  
or ENVR 4990 Thesis (3 credits)
- GEOL 3211 Environmental Hydrology (3 credits)
- Liberal Education Requirements
- Emphasis Electives

## Indigenous Sustainability Studies, B.S. major

Required Credits: 48

Required GPA: 2.25

### I REQUIRED CORE COURSES

Complete the following courses:

- ENVR 2000 Introduction to Environmental Science (3 credits)
- ENVR 3880 Environmental Controversies (2 credits)
- ENVR 4880 Senior Seminar I (1 credit)
- INST 1107 Introduction to Turtle Island (3 credits)
- INST 2201 Creation to Contact (3 credits)  
or INST 2202 Survivance Since Contact (3 credits)
- INST 3170 Indigenous Education (3 credits)
- INST 4418 Federal Indian Law (3 credits)
- ENVR 3710 Indigenous Environmental Knowledge: Global Perspective (3 credits)  
or INST 3710 Indigenous Environmental Knowledge: Global Perspective (3 credits)

Select 3 of the following courses:

- ENVR 3720 Food Sovereignty, Health & Indigenous Environments (3 credits)  
or INST 3720 Food Sovereignty, Health & Indigenous Environments (3 credits)
- ENVR 3730 Sustainable Communities: Local Indigenous Perspective (3 credits)  
or INST 3730 Sustainable Communities: Local Indigenous Perspective (3 credits)
- ENVR 3740 Environment, Wellness & the Sacred Connection to Place (3 credits)  
or INST 3740 Environment, Wellness & the Sacred Connection to Place (3 credits)
- ENVR 3750 Sustainable Communities: Global Indigenous Perspective (3 credits)  
or INST 3750 Sustainable Communities: Global Indigenous Perspective (3 credits)

Select 1 of the following courses:

- ENVR 4970 Internship (3 credits)
- ENVR 4990 Thesis (3 credits)

### II REQUIRED ELECTIVES

Select 15 credits of electives from the following courses:

- BIOL 2339 Ethics of Fish and Wildlife Management (3 credits)
- BIOL 2610 General Ecology (3 credits)
- BIOL 3361 Limnology (4 credits)
- BIOL 3400 Fish & Wildlife Law and Administration (3 credits)
- BIOL 3420 Human Dimensions of Wildlife and Fisheries Management (3 credits)
- BIOL 3610 Principles of Wildlife Management (3 credits)
- BIOL 3630 Conservation Biology (3 credits)  
or GEOG 3630 Conservation Biology (3 credits)
- BIOL 3730 Plant Diversity (4 credits)
- BIOL 4623 Forest Ecology (4 credits)
- CHEM 3110 Laboratory Management and Safety (2 credits)
- CRJS 4477 Restorative Justice (3 credits)
- ENVR 3040 Environmental Economics (3 credits)  
or ECON 3040 Environmental Economics (3 credits)
- ENVR 3600 Environmental Justice and Sustainability (3 credits)
- ENVR 3700 Natural Resource Management (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4220 Sampling and Analysis (4 credits)
- ENVR 4610 Sustainability: Theory and Practice (4 credits)
- GEOG 3231 Introduction to Geographic Information Systems (3 credits)
- GEOG 3410 Geography of North America (3 credits)
- GEOL 1110 Physical Geology (4 credits)  
or GEOL 1120 Historical Geology (4 credits)
- GEOL 3120 Soils (4 credits)  
or BIOL 3120 Soils (4 credits)
- GEOL 3211 Environmental Hydrology (3 credits)  
or GEOL 3212 Hydrogeology (3 credits)
- HLTH 2800 Multicultural Health in America (2 credits)
- HLTH 3500 Community Health (3 credits)
- INST 1202 Indigenous Environmental Current Events (3 credits)
- INST 2925 People of the Environment: Indigenous Knowledge Perspective (3 credits)
- INST 3317 Tribal Government and Leadership (3 credits)
- INST 3888 Indigenous Women Writers (3 credits)
- INST 4900 Social Justice (3 credits)
- LEAD 3500 Theories and Contexts of Leadership (3 credits)
- MASC 3270 Media and Social Change (3 credits)
- MATH 1120 Environmental Mathematics (3 credits)
- OJIB 1100 Ojibwe Culture (4 credits)
- OJIB 1111 Elementary Ojibwe I (4 credits)
- OJIB 1112 Elementary Ojibwe II (4 credits)
- OJIB 2211 Intermediate Ojibwe I (4 credits)
- OJIB 2212 Intermediate Ojibwe II (4 credits)
- OJIB 3311 Advanced Ojibwe I (4 credits)
- OJIB 3312 Advanced Ojibwe II (4 credits)
- PHIL 2250 Human Nature (3 credits)
- POL 3230 Environmental Politics (3 credits)
- PSY 3367 Social Psychology (3 credits)
- PSY 4588 Multicultural Psychology (4 credits)
- SOC 3050 Environmental Sociology (3 credits)
- SOWK 2110 Intercultural Communication (3 credits)
- TADD 1440 Drawing Foundations (4 credits)
- TADD 3748 Ceramics/Hand Building (4 credits)
- TADD 3749 Ceramics/Wheel (4 credits)
- TADT 1111 Introduction to Project Management (3 credits)
- TADT 2100 Impact Of Technology, Art & Design (2 credits)
- TADT 3267 Economic and Cost Analysis (3 credits)
- TADT 4385 Sustainability and Emerging Technologies (3 credits)
- TADT 4878 Quality Assurance (3 credits)

Or any other relevant course(s) approved in advance by an Advisor from the Center for Sustainability Studies or Indigenous Studies department. (Please note that you must complete 40 credits at the 3000-level or higher to graduate)

## **Environmental Studies *minor***

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Required Credits: 22  
Required GPA: 2.00

### **I REQUIRED COURSES**

COMPLETE THE FOLLOWING COURSES:

- BIOL 1211 Introductory Biology I (4 credits)
- BIOL 1212 Introductory Biology II (4 credits)
- BIOL 2610 General Ecology (3 credits)
- ENVR 2000 Introduction to Environmental Science (3 credits)

COMPLETE THE FOLLOWING COURSE:

- ENVR 3880 Environmental Controversies (2 credits)

COMPLETE THE FOLLOWING COURSE:

Enroll for 1 credit - two different terms

- ENVR 4880 Senior Seminar I (1 credit)

### **II REQUIRED ELECTIVES**

SELECT 4 SEMESTER CREDITS IN UPPER DIVISION COURSES IN ENVIRONMENTAL STUDIES

## **Indigenous Sustainability Studies *minor***

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Required Credits: 17  
Required GPA: 2.25

### **I REQUIRED CORE COURSES**

Complete the following courses:

- ENVR 2000 Introduction to Environmental Science (3 credits)
- ENVR 3710 Indigenous Environmental Knowledge: Global Perspective (3 credits)  
*or* INST 3710 Indigenous Environmental Knowledge: Global Perspective (3 credits)
- ENVR 3880 Environmental Controversies (2 credits)
- INST 1107 Introduction to Turtle Island (3 credits)

### **II REQUIRED ELECTIVES**

Select 6 credits from Indigenous Studies or Environmental Studies or any other relevant course(s) approved in advance by an Advisor from the Center for Sustainability Studies or Indigenous Studies department.

## **Sustainability *minor***

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Required Credits: 22  
Required GPA: 2.00

### **I REQUIRED COURSES**

COMPLETE THE FOLLOWING COURSES:

- ENVR 2000 Introduction to Environmental Science (3 credits)
- ENVR 3600 Environmental Justice and Sustainability (3 credits)

COMPLETE ONE OF THE FOLLOWING COURSES FOR 1 OR 2 CREDITS:

- UNIV 3910 Directed Independent Study (1-2 credits)
- UNIV 4910 Independent Study (1-2 credits)

COMPLETE ONE OF THE FOLLOWING COURSES FOR 3 CREDITS:

- UNIV 3970 Internship (3 credits)
- UNIV 4970 Internship (3 credits)

### **II REQUIRED ELECTIVES**

SELECT 12 CREDITS FROM THE FOLLOWING COURSES:

- ECON 3040 Environmental Economics (3 credits)  
*or* ENVR 3040 Environmental Economics (3 credits)
- ENVR 4210 Environmental Law and Policy (3 credits)
- ENVR 4220 Sampling and Analysis (4 credits)
- ENVR 4230 Air Pollution Technology (4 credits)
- ENVR 4240 Waste Management (4 credits)
- ENVR 4260 Risk Assessment and Auditing (3 credits)
- GEOG 2400 Introduction to Planning (3 credits)
- GEOL 3211 Environmental Hydrology (3 credits)
- SOC 3050 Environmental Sociology (3 credits)
- TADT 1315 Energy and Power Technology (3 credits)
- TADT 4385 Sustainability and Emerging Technologies (3 credits)

A course approved by the Director of Center for Environmental, Economics, Earth and Space Studies

## **Environmental Studies Courses**

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### **ENVR 2000 Introduction to Environmental Science (3 credits)**

An introduction to environmental science emphasizing biological, physical-chemical and cross-cultural environmental social principles underlying major world environmental, political and economic issues; examination of the impacts of human activities and technology on global environmental and socio-economic stability; application of critical thinking and working with graphic skills and lab-like data analysis related to global environmental, biological, physical-chemical, cultural, and socio-economic topics. Liberal Education Goal Areas 3 & 10.

### **ENVR 2150 Wilderness Ethics: Projects for Environmental Field Programs (1-3 credits)**

Major schools of thought on the meaning of wilderness, its importance to modern society, and implications for responsible citizenship. Notions of wilderness and wilderness ethics advanced by major authors, past and present. Wilderness policy in the United States and recommendations for revisions to the Wilderness Act. Relation of sustainability to wilderness protection and the benefits provided to society. Experiential learning by visiting key areas that meet certain criteria for wilderness and relation of these experiences to personal values, including ethical behavior in "wilderness" settings. Liberal Education Goal Area 9.

**ENVR 2925 People of the Environment: Global Pollution Perspective (3 credits)**

This course is a section of the interdisciplinary environmental issues course, People of the Environment. The focus of this course is to explore the scientific aspects of global pollution, including causes, effects, and solutions. Liberal Education Goal Area 10.

**ENVR 3040 Environmental Economics (3 credits)**

Examines environmental problems as consequence of market's failure to accurately value environmental resources. Alternative private and public policies are examined in terms of their effectiveness in improving the efficiency and equity with which water, air, and other resources are allocated. Prerequisite: ECON 2000 or consent of instructor. Also offered under ECON 3040.

**ENVR 3300 Environmental Management and Safety (3 credits)**

Helps students pursuing environmental studies to develop environmental management skills required in both manufacturing and non-manufacturing businesses. Safe handling, transport, and storage of hazardous materials with respect to their physical and chemical nature, and application of regulatory requirements relevant to specific business and hazardous materials involved. Prerequisites: CHEM 1112 or CHEM 2212 or ENVR 2000 or GEOL 1110 or consent of instructor. May not be offered every year.

**ENVR 3600 Environmental Justice and Sustainability (3 credits)**

The ethical and moral dimensions of environmental choices. The legal, philosophical, political, and economic underpinnings of various theories of justice. A major focus is the inequitable distribution of environmental risks and the implications of policies that attempt to combat these risks. Prerequisite: ENVR 2000 or consent of instructor.

**ENVR 3700 Natural Resource Management (3 credits)**

This class offers an interdisciplinary introduction to the principles of natural resource management highlighting the biological and physical science aspects of natural resource management at local, national, and global scales. Topics covered may include resource management of soil, water, forests, rangelands, wetlands, waterways, and wildlife. This is an intermediate-level course designed to introduce key concepts and topical areas in natural resource management. A specific focus for the course will be the application of adaptive natural resource management to key Minnesota resources at multiple levels of government (local, county, state, federal, and tribal) over time. Prerequisite(s): ENVR 2000 or consent of instructor.

**ENVR 3710 Indigenous Environmental Knowledge: Global Perspective (3 credits)**

Indigenous cultures refer to pre-colonial societies who today represent a minority, non-dominant group in the societies presently residing in territories these cultures once developed. Throughout their history, Indigenous people have developed their own body of environmental knowledge that they have passed on, generation to generation. This course will provide students with a global perspective of Indigenous environmental knowledge and how this knowledge has affected the relationship of the Indigenous peoples with the natural world and its resources. Students will also investigate present-day political, economic, social, and technological issues related to incorporating Indigenous environmental knowledge into sustainability efforts.

**ENVR 3720 Food Sovereignty, Health & Indigenous Environments (3 credits)**

This course is designed to help students understand the interconnections of food sovereignty, health and environmental sustainability. Students will explore why it is not only important for people to control the way their food is produced, distributed, and consumed but why the food should be appropriate to the cultural background of the people consuming it. Students will learn the critical connections between food and health with an exploration of those influences within the context of Indigenous worldviews and ways of knowing. This is an experiential learning course -- learning through interaction, projects, and reflection. This course may be suitable as an elective in Indigenous Studies and Environmental Studies, Health and Nursing degree programs.

**ENVR 3730 Sustainable Communities: Local Indigenous Perspective (3 credits)**

Human societies all across the globe have developed rich sets of experiences and explanations relating to the sustainable communities they live, work and play in. This course is designed to introduce students to the basic concepts of these sustainable communities. Students will learn how these communities function, their challenges, and the critical networks that exist with the environment. This class will explore the role of Indigenous knowledge and traditional ways of learning, as well as scientific knowledge in maintaining the sustainability of a community. This is an experiential learning course -- learning through interaction, projects, and reflection.

**ENVR 3740 Environment, Wellness & the Sacred Connection to Place (3 credits)**

In Indigenous communities, there is a deep and lasting connection to place. Today, there exists overwhelming evidence that connection to place offers important elements for overall individual wellness. However, many communities face challenges in their environments that are detrimental to their health and well-being. To support these communities, there is a need to reconnect them with ways to restore the sustainability of their environment and connection to place. In this course, students will learn the critical connections between the environment and health and will explore the influences of connection to place within the context of Indigenous worldviews and ways of knowing. This is an experiential learning course -- learning through interaction, projects, and reflection.

**ENVR 3750 Sustainable Communities: Global Indigenous Perspective (3 credits)**

Throughout their history, Indigenous people have developed their own body of knowledge on global sustainability that they have passed on, generation to generation. This course will provide students with a large picture perspective of global Indigenous sustainability knowledge and viewpoints and how this perspective continues to affect the relationship of the Indigenous peoples with the natural world and its resources. Students will also investigate present-day global political, economic, social, and technological issues related to incorporating Indigenous views into sustainability efforts across the continents.

**ENVR 3800 Environmental Data Analysis (3 credits)**

The aim of this course is to expose students to both introductory and advanced analytical methods for environmental applications. The class will provide a primer on introductory inferential statistics (sampling, probability, central tendencies, spread, t- tests and ANOVA) and work towards more advanced analytical applications which are geared towards research questions in Environmental Studies, Geology, and Geography. These techniques include multiple regression, logistic regression, multi-dimensional scaling, regression trees, cluster analysis, survival analysis and basic time series analysis. This class will focus on learning both the theoretical background and application of these methods and discuss the ethical and contextual issues that surround the use of statistical analysis in environmental research.

**ENVR 3840 Wetlands Ecology (3 credits)**

Survey course develops a basic understanding of the terminology, classification, ecology, values, and conservation of wetlands. Covers wetland systems from around the world, with emphasis on wetlands in North America. Prerequisites: BIOL 1211 and BIOL 1212.

**ENVR 3880 Environmental Controversies (2 credits)**

Faculty and student presentations followed by group discussion of classic and current problems, and governmental policies/regulations. Prerequisite: ENVR 2000 or consent of instructor.

**ENVR 4050 Geochemistry (3 credits)**

Study of processes in the lithosphere, hydrosphere, and atmosphere; cycling of the elements; weathering; microbe-mineral interactions; nanoparticles; microscopic imaging. Prerequisites: CHEM 1112 or CHEM 2212 or ENVR 2000 or GEOL 1110 or consent of instructor.

**ENVR 4110 Environmental Chemistry (3 credits)**

Intensive study of biogeochemical cycles of natural and man-made pollutants including transformations, transport, fate and persistence mechanisms. Environmental effects, long-term impacts, and methods of treatment/prevention are discussed. Prerequisites: CHEM 1112 or CHEM 2212 or consent of instructor.

**ENVR 4200 Wastewater Treatment (3 credits)**

Introduction to the operation of the principal methods and treatment processes of municipal and industrial wastewaters, and for the disposal of treated effluent and sludges, and other solid materials. Integration of fundamental principles of science with different aspects of sanitary technology. Prerequisites: BIOL 1212, CHEM 1112 or CHEM 2212, MATH 1170, or consent of instructor. BIOL 1212 is not required for Chemistry majors.

**ENVR 4210 Environmental Law and Policy (3 credits)**

Overview of environmental laws, regulations, and policies. Prerequisite: Consent of instructor.

**ENVR 4220 Sampling and Analysis (4 credits)**

Methods of sampling and analysis of air, water, soil and other environmental compartments will be described in lecture and experienced in laboratory session. The focus is on regulations and prescribed protocols for environmental field and lab work. Lecture and laboratory. Prerequisites: CHEM 1112 or CHEM 2212 or ENVR 2000 or GEOL 1110 or consent of instructor.

**ENVR 4230 Air Pollution Technology (4 credits)**

In depth overview of sources and types of air pollution, major environmental impacts, regulations, and technologies for control and clean up. Prerequisites: CHEM 1112 or CHEM 2212 or ENVR 2000 or GEOL 1110 or consent of instructor.

**ENVR 4240 Waste Management (4 credits)**

An overview of the solid and hazardous waste situation at the local, state, national and international levels. The focus on management will include a systems approach to prevention, and remediation of wastes. Prerequisites: CHEM 1112 or CHEM 2212 or ENVR 2000 or GEOL 1110 or consent of instructor.

**ENVR 4260 Risk Assessment and Auditing (3 credits)**

Overview of human/environmental risk assessment methods and environmental auditing techniques, with a focus on regulatory compliance and case studies. Prerequisites: CHEM 1112 or CHEM 2212 or ENVR 2000 or GEOL 1110 or consent of instructor.

**ENVR 4400 Environmental Microbiology (3 credits)**

Fundamental aspects of microbiology as related to land production, environmental pollution and water quality control processes. The role of major groups of microbes as pollutants, as purifying agents, and as agents of biochemical changes, and ecological functions and importance of each group in the environment. Prerequisites: BIOL 1110 or BIOL 1120 or CHEM 1112 or CHEM 2212 or consent of instructor.

**ENVR 4500 Environmental Toxicology (4 credits)**

An overview of major environmental pollutants, their transport, fate and toxicology. Pollutant effects studied from practical and theoretical focus on stress at various levels of biological organization. Prerequisites: BIOL 1212, BIOL 2610, and CHEM 1112 or CHEM 2212, or consent of instructor.

**ENVR 4610 Sustainability: Theory and Practice (4 credits)**

Becoming agents of positive change in our communities requires building many different skill sets. This course will build core competencies of community leadership and focus on sustainability issues in our community. We will integrate theories, principles and practices of sustainability throughout the course and explore how various entities such as the University, the City of Bemidji, local tribes, companies, non-profits and individuals approach sustainability actions and choices. We will explore issues such as energy, water, waste, food and transportation as well as diversity, equity and inclusion in decision making. Students will be asked to identify a specific problem facing our community and utilize Problem and Project Based Learning (PBL) techniques to directly engage with these local issues, connect with the stakeholders involved and work together to propose potential solutions. Prerequisite(s): ENVR 2000 or consent of instructor.

**ENVR 4880 Senior Seminar I (1 credit)**

Senior level seminar in which students explore the environmental job market and graduate school opportunities. Prerequisites: Senior status and ENVR 3880.

**ENVR 4970 Internship (3 credits)**

Graded Satisfactory/Unsatisfactory only. Student internships may be either full-time or part-time in a public or private agency appropriate to the degree objective. Internships consist of closely supervised periods of service that are arranged in advance of the course registration. Students should consult their advisor concerning prerequisites.

**ENVR 4990 Thesis (3 credits)**

A thesis written by the student that reports extensive original research carried out by the student and demonstrates appropriate methodology and scholarship.

**All-University Courses**

The course numbers listed below, not always included in the semester class schedule, may be registered for by consent of the advisor, instructor, or department chair, or may be assigned by the department when warranted. Individual registration requires previous arrangement by the student and the completion of any required form or planning outline as well as any prerequisites.

1910, 2910, 3910, 4910 DIRECTED INDEPENDENT STUDY  
 1920, 2920, 3920, 4920 DIRECTED GROUP STUDY  
 1930, 2930, 3930, 4930 EXPERIMENTAL COURSE  
 1940, 2940, 3940, 4940 IN-SERVICE COURSE  
 1950, 2950, 3950, 4950 WORKSHOP, INSTITUTE, TOUR  
 1960, 2960, 3960, 4960 SPECIAL PURPOSE INSTRUCTION  
 1970, 2970, 3970, 4970 INTERNSHIP  
 1980, 2980, 3980, 4980 RESEARCH  
 1990, 2990, 3990, 4990 THESIS