

# Environmental Science

Co-operative Education option is available in the Environmental Science program.

## Graduation Requirements

In addition to the requirements listed below, students must satisfy:

1. the University regulations (see the *Academic Regulations of the University* section of this Calendar),
2. the common regulations applying to all B.Sc. programs including those relating to Science Continuation and Breadth requirements (see *Academic Regulations for the Bachelor of Science Degree* ).

Students should consult with the Institute when planning their program and selecting courses.

## Course Categories

The Environmental Science program description makes use of the following course categories:

### Approved Arts or Social Sciences

(approved by the Environmental Science Institute)

### Approved Environmental Science Specialization

(Approved by the Environmental Science Institute)

### Free Electives

(see Academic Regulations for the Bachelor of Science Degree)

### Approved Science for Environmental Science

Courses approved by the Institute of Environmental Science include the following that comply with the Academic Regulations for the Bachelor of Science degree.

- Biochemistry
- Biology
- Chemistry
- Computer Science
- Earth Science
- Environmental Science
- Geography
- Geomatics
- Mathematics and Statistics
- Physics

### Prohibited and Restricted Courses

Technology, Society, Environment Studies (TSES) courses are not accepted as Science Continuation courses in these programs, but may be used as Approved Environmental Science Specialization courses or as free electives.

## Program Requirements

### Environmental Science

#### B.Sc. Honours (20.0 credits)

##### A. Credits Included in the Major CGPA (11.0 credits)

1. **5.0 credits from:** 5.0  
 ENSC 1500 [0.5] Environmental Science Seminar

ENSC 2000 [0.5]	Environmental Science Field Methods	
ENSC 2001 [0.5]	Earth Resources and Natural Hazards: Environmental Impacts	
ENSC 2002 [0.5]	Methods and Analysis in Environmental Science	
ENSC 3000 [0.5]	Environmental Science and Management: Theory and Practice	
ENSC 3001 [0.5]	Professional Practice in Environmental Science	
ENSC 3509 [0.5]	Group Research in Environmental Science	
ENSC 3906 [0.5]	Project Planning for Environmental Research	
ENSC 4906 [1.0]	Honours Research Project	
<b>or</b>		
ENSC 4901 [0.5]	Directed Projects	
and 0.5 credit 4000-level Approved Science for Environmental Science		
<b>2. 1.0 credit in:</b>		1.0
BIOL 2600 [0.5]	Introduction to Ecology	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
<b>3. 0.5 credit from:</b>		0.5
GEOG 3103 [0.5]	Watershed Hydrology	
GEOG 3104 [0.5]	Principles of Biogeography	
GEOG 3105 [0.5]	Climate and Atmospheric Change	
GEOG 3108 [0.5]	Soil Properties	
<b>4. 0.5 credit from:</b>		0.5
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective	
ERTH 2403 [0.5]	Introduction to Oceanography	
ERTH 3205 [0.5]	Physical Hydrogeology	
<b>5. 1.0 credit in</b> Approved Science for Environmental Science at the 4000-level excluding:		1.0
ENSC 4001 [0.5]	Environmental Science Practicum	
<b>6. 1.5 credits in</b> Approved Science for Environmental Science		1.5
<b>7. 1.5 credits in</b> Approved Environmental Science Specialization		1.5
<b>B. Credits Not Included in the Major CGPA (9.0 credits)</b>		
<b>8. 1.0 credit in:</b>		1.0
MATH 1007 [0.5]	Elementary Calculus I	
STAT 2507 [0.5]	Introduction to Statistical Modeling I	
<b>9. 3.0 credits in:</b>		3.0
BIOL 1103 [0.5]	Foundations of Biology I	
BIOL 1104 [0.5]	Foundations of Biology II	
CHEM 1001 [0.5]	General Chemistry I	
CHEM 1002 [0.5]	General Chemistry II	
ERTH 1006 [0.5]	Exploring Planet Earth	
GEOG 2013 [0.5]	Weather and Water	
<b>10. 0.5 credit in:</b>		0.5
PHIL 2380 [0.5]	Introduction to Environmental Ethics	
<b>11. 0.5 credit in:</b>		0.5
CHEM 2302 [0.5]	Analytical Chemistry I	
<b>12. 0.5 credit from:</b>		0.5
BIOL 2107 [0.5]	Fundamentals of Genetics	
or BIOL 2201 [0.5]	Cell Biology and Biochemistry	

<b>13. 0.5 credit from:</b>	0.5
GEOG 3103 [0.5]	Watershed Hydrology
GEOG 3104 [0.5]	Principles of Biogeography
GEOG 3105 [0.5]	Climate and Atmospheric Change
GEOG 3108 [0.5]	Soil Properties
<b>14. 0.5 credit from:</b>	0.5
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective
ERTH 2403 [0.5]	Introduction to Oceanography
ERTH 3205 [0.5]	Physical Hydrogeology
<b>15. 1.5 credits in Approved Arts and Social Sciences</b>	1.5
<b>16. 1.0 credit in free electives.</b>	1.0
<b>Total Credits</b>	<b>20.0</b>

## Environmental Science with Concentration in Biology B.Sc. Honours (20.0 credits)

### A. Credits Included in the Major CGPA (11.5 credits)

<b>1. 5.0 credits from:</b>	5.0
ENSC 1500 [0.5]	Environmental Science Seminar
ENSC 2000 [0.5]	Environmental Science Field Methods
ENSC 2001 [0.5]	Earth Resources and Natural Hazards: Environmental Impacts
ENSC 2002 [0.5]	Methods and Analysis in Environmental Science
ENSC 3000 [0.5]	Environmental Science and Management: Theory and Practice
ENSC 3001 [0.5]	Professional Practice in Environmental Science
ENSC 3509 [0.5]	Group Research in Environmental Science
ENSC 3906 [0.5]	Project Planning for Environmental Research
ENSC 4906 [1.0]	Honours Research Project
<b>Or</b>	
ENSC 4901 [0.5] and 0.5 credit 4000-level Approved Science for Environmental Science	
<b>2. 1.0 credit in:</b>	1.0
BIOL 2600 [0.5]	Introduction to Ecology
CHEM 2800 [0.5]	Foundations for Environmental Chemistry
<b>3. 0.5 credit from:</b>	0.5
GEOG 3103 [0.5]	Watershed Hydrology
GEOG 3104 [0.5]	Principles of Biogeography
GEOG 3105 [0.5]	Climate and Atmospheric Change
GEOG 3108 [0.5]	Soil Properties
<b>4. 0.5 credit from:</b>	0.5
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective
ERTH 2403 [0.5]	Introduction to Oceanography
ERTH 3205 [0.5]	Physical Hydrogeology
<b>5. 0.5 credit in Approved Science for Environmental Science at the 4000-level, excluding:</b>	0.5
ENSC 4001 [0.5]	Environmental Science Practicum
<b>6. 4.0 credits in:</b>	4.0
a. 1.5 credit in:	
BIOL 2001 [0.5]	Animals: Form and Function
BIOL 2002 [0.5]	Plants: Form and Function

BIOL 2201 [0.5]	Cell Biology and Biochemistry
b. 0.5 credit from:	
BIOL 2303 [0.5]	Microbiology
BIOL 3004 [0.5]	Insect Diversity
BIOL 3102 [0.5]	Mycology
BIOL 3205 [0.5]	Plant Biochemistry and Physiology
c. 2.0 credits in a focus:	
Ecology focus:	
i) 0.5 credit in:	
BIOL 3604 [0.5]	Analysis of Ecological Relationships
ii) 1.0 credit from:	
BIOL 3601 [0.5]	Ecosystems and Environmental Change
BIOL 3602 [0.5]	Conservation Biology
BIOL 3605 [0.5]	Field Course I
BIOL 3606 [0.5]	Field Course II
iii) 0.5 credit BIOL at the 4000-level	
or	
Microbiology/genetics focus:	
i) 1.0 credit from:	
BIOL 3104 [0.5]	Molecular Genetics
BIOL 4103 [0.5]	Population Genetics
ii) 0.5 credit from:	
BIOL 2303 [0.5]	Microbiology
BIOL 3102 [0.5]	Mycology
BIOL 3303 [0.5]	Experimental Microbiology
iii) 0.5 credit BIOL at the 4000-level	
<b>B. Credits Not Included in the Major CGPA (8.5 credits)</b>	
<b>8. 1.0 credit in:</b>	1.0
MATH 1007 [0.5]	Elementary Calculus I
STAT 2507 [0.5]	Introduction to Statistical Modeling I
<b>9. 3.0 credits in:</b>	3.0
BIOL 1103 [0.5]	Foundations of Biology I
BIOL 1104 [0.5]	Foundations of Biology II
CHEM 1001 [0.5]	General Chemistry I
CHEM 1002 [0.5]	General Chemistry II
GEOG 2013 [0.5]	Weather and Water
ERTH 1006 [0.5]	Exploring Planet Earth
<b>10. 0.5 credit in:</b>	0.5
PHIL 2380 [0.5]	Introduction to Environmental Ethics
<b>11. 0.5 credit in:</b>	0.5
CHEM 2302 [0.5]	Analytical Chemistry I
<b>12. 0.5 credit in:</b>	0.5
BIOL 2107 [0.5]	Fundamentals of Genetics
<b>13. 0.5 credit from:</b>	0.5
GEOG 3103 [0.5]	Watershed Hydrology
GEOG 3104 [0.5]	Principles of Biogeography
GEOG 3105 [0.5]	Climate and Atmospheric Change
GEOG 3108 [0.5]	Soil Properties
<b>14. 0.5 credit from:</b>	0.5
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective
ERTH 2403 [0.5]	Introduction to Oceanography
ERTH 3205 [0.5]	Physical Hydrogeology
<b>15. 1.5 credits in Approved Arts and Social Sciences</b>	1.5

16. 0.5 credit in free electives.	0.5
<b>Total Credits</b>	<b>20.0</b>

## Environmental Science with Concentration in Chemistry

### B.Sc. Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (12.0 credits)

<b>1. 5.0 credits from:</b>	<b>5.0</b>
ENSC 1500 [0.5] Environmental Science Seminar	
ENSC 2000 [0.5] Environmental Science Field Methods	
ENSC 2001 [0.5] Earth Resources and Natural Hazards: Environmental Impacts	
ENSC 2002 [0.5] Methods and Analysis in Environmental Science	
ENSC 3000 [0.5] Environmental Science and Management: Theory and Practice	
ENSC 3001 [0.5] Professional Practice in Environmental Science	
ENSC 3509 [0.5] Group Research in Environmental Science	
ENSC 3906 [0.5] Project Planning for Environmental Research	
ENSC 4906 [1.0] Honours Research Project	
<b>Or</b>	
ENSC 4901 [0.5] and 0.5 credit 4000-level Approved Science for Environmental Science	
<b>2. 1.0 credit in:</b>	<b>1.0</b>
BIOL 2600 [0.5] Introduction to Ecology	
CHEM 2800 [0.5] Foundations for Environmental Chemistry	
<b>3. 0.5 credit from:</b>	<b>0.5</b>
GEOG 3103 [0.5] Watershed Hydrology	
GEOG 3104 [0.5] Principles of Biogeography	
GEOG 3105 [0.5] Climate and Atmospheric Change	
GEOG 3108 [0.5] Soil Properties	
<b>4. 0.5 credit from:</b>	<b>0.5</b>
ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective	
ERTH 2403 [0.5] Introduction to Oceanography	
ERTH 3205 [0.5] Physical Hydrogeology	
<b>5. 3.0 credits in:</b>	<b>3.0</b>
CHEM 2203 [0.5] Organic Chemistry I	
CHEM 2204 [0.5] Organic Chemistry II	
CHEM 2303 [0.5] Analytical Chemistry II	
CHEM 2501 [0.5] Introduction to Inorganic and Bioinorganic Chemistry	
CHEM 3305 [0.5] Advanced Analytical Chemistry Laboratory	
CHEM 3800 [0.5] The Chemistry of Environmental Pollutants	
<b>6. 1.5 credits in:</b>	<b>1.5</b>
Organic focus:	
CHEM 3201 [0.5] Advanced Organic Chemistry I	
CHEM 3202 [0.5] Advanced Organic Chemistry II	
CHEM 3205 [0.5] Experimental Organic Chemistry	
or	
Inorganic focus:	
i) 1.0 credit in:	

CHEM 3503 [0.5] Inorganic Chemistry I	
CHEM 3504 [0.5] Inorganic Chemistry II	
ii) 0.5 credit in CHEM at the 4000-level	
<b>7. 0.5 credit in:</b>	<b>0.5</b>
CHEM 4800 [0.5] Atmospheric Chemistry	
<b>B. Credits not included in the Major CGPA (8.0 credits)</b>	
<b>8. 1.5 credit in:</b>	<b>1.5</b>
MATH 1007 [0.5] Elementary Calculus I	
MATH 1107 [0.5] Linear Algebra I	
STAT 2507 [0.5] Introduction to Statistical Modeling I	
<b>9. 3.0 credits in:</b>	<b>3.0</b>
BIOL 1103 [0.5] Foundations of Biology I	
BIOL 1104 [0.5] Foundations of Biology II	
CHEM 1001 [0.5] General Chemistry I	
CHEM 1002 [0.5] General Chemistry II	
ERTH 1006 [0.5] Exploring Planet Earth	
GEOG 2013 [0.5] Weather and Water	
<b>10. 0.5 credit in:</b>	<b>0.5</b>
PHIL 2380 [0.5] Introduction to Environmental Ethics	
<b>11. 0.5 credit in:</b>	<b>0.5</b>
CHEM 2302 [0.5] Analytical Chemistry I	
<b>12. 0.5 credit from:</b>	<b>0.5</b>
BIOL 2107 [0.5] Fundamentals of Genetics	
or BIOL 2201 [0.5] Cell Biology and Biochemistry	
<b>13. 0.5 credit from:</b>	<b>0.5</b>
GEOG 3103 [0.5] Watershed Hydrology	
GEOG 3104 [0.5] Principles of Biogeography	
GEOG 3105 [0.5] Climate and Atmospheric Change	
GEOG 3108 [0.5] Soil Properties	
<b>14. 1.5 credits in Approved Arts and Social Sciences</b>	<b>1.5</b>
<b>Total Credits</b>	<b>20.0</b>

## Environmental Science with Concentration in Earth Sciences

### B.Sc. Honours (20.0 credits)

#### A. Credits Included in the Major CGPA (11.5 credits)

<b>1. 5.0 credits from:</b>	<b>5.0</b>
ENSC 1500 [0.5] Environmental Science Seminar	
ENSC 2000 [0.5] Environmental Science Field Methods	
ENSC 2001 [0.5] Earth Resources and Natural Hazards: Environmental Impacts	
ENSC 2002 [0.5] Methods and Analysis in Environmental Science	
ENSC 3000 [0.5] Environmental Science and Management: Theory and Practice	
ENSC 3001 [0.5] Professional Practice in Environmental Science	
ENSC 3509 [0.5] Group Research in Environmental Science	
ENSC 3906 [0.5] Project Planning for Environmental Research	
ENSC 4906 [1.0] Honours Research Project	
<b>Or</b>	
ENSC 4901 [0.5] and 0.5 credit 4000-level Approved Science for Environmental Science	
<b>2. 1.0 credit in:</b>	<b>1.0</b>

BIOL 2600 [0.5]	Introduction to Ecology	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
<b>3. 0.5 credit from:</b>		0.5
GEOG 3103 [0.5]	Watershed Hydrology	
GEOG 3104 [0.5]	Principles of Biogeography	
GEOG 3105 [0.5]	Climate and Atmospheric Change	
GEOG 3108 [0.5]	Soil Properties	
<b>4. 3.0 credits in:</b>		3.0
ERTH 2102 [0.5]	Mineralogy to Petrology	
ERTH 2104 [0.5]	Igneous Systems, Geochemistry and Processes	
ERTH 2105 [0.5]	Geodynamics	
ERTH 2314 [0.5]	Sedimentation and Stratigraphy	
ERTH 2406 [0.5]	Geology and Map Interpretation	
ERTH 3205 [0.5]	Physical Hydrogeology	
<b>5. 1.0 credit from:</b>		1.0
ERTH 2312 [0.5]	Paleontology	
ERTH 3003 [0.5]	Geochemistry and Geochronology	
ERTH 3204 [0.5]	Mineral Deposits	
ERTH 3206 [0.5]	Oceanography: Its Modern and Geologic Records	
ERTH 3207 [0.5]	Metamorphic Petrology and Processes	
ERTH 3405 [0.5]	Geophysical Methods	
ERTH 3806 [0.5]	Structural Geology	
<b>6. 1.0 credit in EARTH at the 4000-level</b>		1.0
<b>B. Credits not included in the Major CGPA (8.5 credits)</b>		
<b>7. 1.0 credit in:</b>		1.0
MATH 1007 [0.5]	Elementary Calculus I	
STAT 2507 [0.5]	Introduction to Statistical Modeling I	
<b>8. 3.0 credits in:</b>		3.0
BIOL 1103 [0.5]	Foundations of Biology I	
BIOL 1104 [0.5]	Foundations of Biology II	
CHEM 1001 [0.5]	General Chemistry I	
CHEM 1002 [0.5]	General Chemistry II	
ERTH 1006 [0.5]	Exploring Planet Earth	
GEOG 2013 [0.5]	Weather and Water	
<b>9. 0.5 credit in:</b>		0.5
PHIL 2380 [0.5]	Introduction to Environmental Ethics	
<b>10. 0.5 credit in:</b>		0.5
CHEM 2302 [0.5]	Analytical Chemistry I	
<b>11. 0.5 credit in:</b>		0.5
PHYS 1007 [0.5]	Elementary University Physics I	
<b>12. 0.5 credit from:</b>		0.5
GEOG 3103 [0.5]	Watershed Hydrology	
GEOG 3104 [0.5]	Principles of Biogeography	
GEOG 3105 [0.5]	Climate and Atmospheric Change	
GEOG 3108 [0.5]	Soil Properties	
<b>13. 0.5 credit from:</b>		0.5
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective	
ERTH 2403 [0.5]	Introduction to Oceanography	
ERTH 2802 [0.5]	Field Geology I	
<b>14. 1.5 credits in Approved Arts or Social Sciences</b>		1.5
<b>15. 0.5 credit in:</b>		0.5

GEOG 2007 [0.5]	Geographic Information Systems	
Total Credits		20.0
<b>Environmental Science</b>		
<b>B.Sc. Major (20.0 credits)</b>		
<b>A. Credits Included in the Major CGPA (11.0 credits)</b>		
<b>1. 4.0 credits in:</b>		4.0
ENSC 1500 [0.5]	Environmental Science Seminar	
ENSC 2000 [0.5]	Environmental Science Field Methods	
ENSC 2001 [0.5]	Earth Resources and Natural Hazards: Environmental Impacts	
ENSC 2002 [0.5]	Methods and Analysis in Environmental Science	
ENSC 3000 [0.5]	Environmental Science and Management: Theory and Practice	
ENSC 3001 [0.5]	Professional Practice in Environmental Science	
ENSC 3509 [0.5]	Group Research in Environmental Science	
ENSC 4700 [0.5]	Topics in Environmental Science	
<b>2. 1.0 credit in:</b>		1.0
BIOL 2600 [0.5]	Introduction to Ecology	
CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
<b>3. 0.5 credit from:</b>		0.5
GEOG 3103 [0.5]	Watershed Hydrology	
GEOG 3104 [0.5]	Principles of Biogeography	
GEOG 3105 [0.5]	Climate and Atmospheric Change	
GEOG 3108 [0.5]	Soil Properties	
<b>4. 0.5 credit from:</b>		0.5
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective	
ERTH 2403 [0.5]	Introduction to Oceanography	
ERTH 3205 [0.5]	Physical Hydrogeology	
<b>5. 1.0 credit in Approved Science for Environmental Science at the 4000-level excluding:</b>		1.0
ENSC 4001 [0.5]	Environmental Science Practicum	
<b>6. 1.5 credits in Approved Science for Environmental Science</b>		1.5
<b>7. 1.5 credits in Approved Environmental Science Specialization</b>		1.5
<b>B. Credits Not Included in the Major CGPA (10.0 credits)</b>		
<b>8. 1.0 credit in:</b>		1.0
MATH 1007 [0.5]	Elementary Calculus I	
STAT 2507 [0.5]	Introduction to Statistical Modeling I	
<b>9. 3.0 credits in:</b>		3.0
BIOL 1003 [0.5]	Introductory Biology I	
BIOL 1004 [0.5]	Introductory Biology II	
CHEM 1001 [0.5]	General Chemistry I	
CHEM 1002 [0.5]	General Chemistry II	
ERTH 1006 [0.5]	Exploring Planet Earth	
GEOG 2013 [0.5]	Weather and Water	
<b>10. 0.5 credit in:</b>		0.5
PHIL 2380 [0.5]	Introduction to Environmental Ethics	
<b>11. 0.5 credit in:</b>		0.5
CHEM 2302 [0.5]	Analytical Chemistry I	

<b>12. 0.5 credit from:</b>	0.5
BIOL 2107 [0.5] Fundamentals of Genetics or BIOL 2201 [0.5] Cell Biology and Biochemistry	
<b>13. 0.5 credit from:</b>	0.5
GEOG 3103 [0.5] Watershed Hydrology	
GEOG 3104 [0.5] Principles of Biogeography	
GEOG 3105 [0.5] Climate and Atmospheric Change	
GEOG 3108 [0.5] Soil Properties	
<b>14. 0.5 credit from:</b>	0.5
ERTH 2402 [0.5] Climate Change: An Earth Sciences Perspective	
ERTH 2403 [0.5] Introduction to Oceanography	
ERTH 3205 [0.5] Physical Hydrogeology	
<b>15. 1.5 credits in Approved Arts and Social Sciences</b>	1.5
<b>16. 2.0 credits in free electives.</b>	2.0
<b>Total Credits</b>	<b>20.0</b>

**Institute of Environmental Science  
Faculty of Science**

**ENSC 1500 [0.5 credit]**

**Environmental Science Seminar**

The purpose and nature of the program; society's view on the natural and human-modified environment; major environmental issues and their scientific aspects; preparation and presentation of paper and seminars. Prerequisite(s): enrolment in the Environmental Science program.

Lectures, seminars and workshops four hours a week.

**ENSC 2000 [0.5 credit]**

**Environmental Science Field Methods**

A field-based course introducing students to practical methods in environmental science. Topics will include earth sciences, geography, biology, and chemistry related aspects of environmental sciences and will focus on quantitative techniques to assess environmental impacts and management.

Prerequisite(s): EARTH 1006 and BIOL 1004 or BIOL 1104, CHEM 1001 and CHEM 1002 and permission of the Institute.

**ENSC 2001 [0.5 credit]**

**Earth Resources and Natural Hazards: Environmental Impacts**

Environmental impact of mineral, energy and water resource exploitation and impact of hazardous Earth processes such as volcanic eruptions, earthquakes and others: their prediction and mitigation.

Lectures three hours per week.

**ENSC 2002 [0.5 credit]**

**Methods and Analysis in Environmental Science**

Study and application of qualitative and quantitative techniques in environmental science, including data collection and assembly, database manipulation, data analysis, and strategy development. Example case studies focus on multidisciplinary environmental problems involving techniques, such as, life cycle analysis, environmental impact analysis and carbon footprint analysis.

Prerequisite(s): completion of ENSC 2000 and permission of the institute.

Lectures and seminars three hours a week.

**ENSC 3000 [0.5 credit]**

**Environmental Science and Management: Theory and Practice**

Theoretical and practical perspectives related to environmental science and management; Emphasis on real-world problems associated with human activities and development of solutions in natural and built environments; Hands-on experience with environmental monitoring and restoration. A supplementary fee will apply. Prerequisite(s): third-year standing in Environmental Science or permission of the Institute. Field trips, lectures and workshops, 7 hours per week (delivered on a single day).

**ENSC 3001 [0.5 credit]**

**Professional Practice in Environmental Science**

Development of understanding and skills related to the professional practice of environmental science; project planning and management; preparation of proposals; issues of health and safety, professional ethics, liability, and codes of certification; interactions between environmental scientist, other professionals and stakeholders.

Prerequisite(s): third-year standing in Environmental Science or permission of the Institute.

Lectures, seminars and workshops three hours a week.

**ENSC 3509 [0.5 credit]**

**Group Research Project**

Major project relating to an issue involving environmental science; effective methods of team research and presentation of group work.

Prerequisite(s): third-year standing in the Environmental Science program or permission of the Institute.

Lectures, seminars and workshops three hours a week.

**ENSC 3700 [0.5 credit]**

**Topics in Environmental Science**

Specific topics of current interest. Topics may vary from year to year.

Prerequisite(s): Third year standing in the Environmental Science program or permission of the Institute.

**ENSC 3906 [0.5 credit]****Research Techniques and Project Planning**

Discussions and workshops on the fundamentals of scientific investigation, including use of literature, theory and data, preparation and evaluation of a scientific research proposal.

Prerequisite(s): ENSC 3509 and good standing in third year Environmental Science with a minimum CGPA of 6.0 or permission of the Program Director.

Discussion groups and workshops three hours a week.

**ENSC 3999 [0.0 credit]****Co-operative Work Term**

Practical experience for students enrolled in the Co-operative Option. To receive course credit a student must receive satisfactory evaluations from their work term employer. Written reports describing the work term project will be required. Graded Sat or Uns.

Prerequisite(s): registration in the Environmental Science Co-operative Option and permission of the Institute. Four-month work term.

**ENSC 4001 [0.5 credit]****Environmental Science Practicum**

Experience working in the environmental science sector, applying academic training to practical environmental issues. Graded Sat/Uns.

Prerequisite(s): fourth-year standing in the Environmental Science program.  
practicum

**ENSC 4700 [0.5 credit]****Topics in Environmental Science**

Prerequisite(s): third-year standing in the Environmental Science program or permission of the Institute.

Lectures and discussion three hours a week.

**ENSC 4901 [0.5 credit]****Directed Projects**

Independent or group study, for fourth-year students to explore a particular project, in consultation with a Faculty supervisor. May include directed reading, written assignments, tutorials, laboratory or field work.

Prerequisite(s): permission of the Institute. Students normally may not offer more than 1.0 credit of Directed Special Studies in their program.

**ENSC 4906 [1.0 credit]****Honours Research Project**

An independent investigation into an aspect of environmental science supervised by a member of the faculty. Approval of the topic and the research schedule must be obtained from the project supervisor and the course coordinator before the last date for registration.

Prerequisite(s): fourth-year standing in the Honours Environmental Science program, a major CGPA 8.0 and permission of the Institute.

independent study