Environmental Science

Co-operative Education (http://www.carleton.ca/ calendars/2012-13/undergrad/regulations/cooperativeeducation) 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

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)

B.Sc. Honours (2	20.0 credits)	94		
		94		
	n 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 Camp			
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 Project			
ENSC 3906 [0.5]	Research Techniques and Project Planning			
ENSC 4906 [1.0]	Honours Research Project			
2. 1.0 credit in:	,	1.0		
BIOL 2600 [0.5]	Introduction to Ecology			
CHEM 2800 [0.5]	Foundations for Environmental			
	Chemistry			
3. 0.5 credit from:		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			
4. 0.5 credit from:		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			
5. 1.0 credit in Approx Science at the 4000-le	ved Science for Environmental evel excluding:	1.0		
ENSC 4001 [0.5]	Environmental Science Practicum			
6. 1.5 credits in Appro	oved Science for Environmental	1.5		
7. 1.5 credits in Appro	oved Environmental Science	1.5		
B. Credits Not Includ	led in the Major CGPA (9.0 credits)			
8. 1.0 credits in:		1.0		
MATH 1007 [0.5]	Elementary Calculus I			
STAT 2507 [0.5]	Introduction to Statistical Modeling I			
9. 3.0 credits in:		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			
10. 0.5 credit in:		0.5		
PHIL 2380 [0.5]	Introduction to Environmental Ethics			
11. 0.5 credit in:		0.5		
CHEM 2302 [0.5]	Analytical Chemistry			
12. 0.5 credit from:				

BIOL 2104 [0.5]	Introductory Genetics		b. 0.5 credit from:		
or BIOL 2200 [0.5]	Cellular Biochemistry		BIOL 2303 [0.5]	Microbiology	
13. 0.5 credit from:		0.5	BIOL 3004 [0.5]	Insect Diversity	
GEOG 3103 [0.5]	Watershed Hydrology		BIOL 3102 [0.5]	Mycology	
GEOG 3104 [0.5]	Principles of Biogeography		BIOL 3205 [0.5]	Plant Biochemistry and Physiology	
GEOG 3105 [0.5]	Climate and Atmospheric Change		c. 2.0 credits in a fe	ocus:	
GEOG 3108 [0.5]	Soil Properties		Ecology focus:		
14. 0.5 credit from:		0.5	i) 0.5 credit in:		
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective		BIOL 3604 [0.5]	Analysis of Ecological Relationships	
ERTH 2403 [0.5]	Introduction to Oceanography		ii) 1.0 credit from:		
ERTH 3205 [0.5]	Physical Hydrogeology		BIOL 3601 [0.5]	Ecosystems and Environmental	
15. 1.5 credits in App	proved Arts and Social Sciences	1.5		Change	
16. 1.0 credit in free	electives.	1.0	BIOL 3602 [0.5]	Conservation Biology	
Total Credits		20.0	BIOL 3605 [0.5]	Field Course I	
	ainman with Communication is	_	BIOL 3606 [0.5]	Field Course II	
	cience with Concentration in	า	iii) 0.5 credit BIOL	at the 4000-level	
Biology	200 111		or		
B.Sc. Honours (2	20.0 credits)		Microbiology/gene	tics focus:	
		6T	i) 1.0 credit from:		
A. Credits Included i	n the Major CGPA (11.5 credits)		BIOL 3104 [0.5]	Molecular Genetics	
1. 5.0 credits from:		5.0	BIOL 4103 [0.5]	Population Genetics	
ENSC 1500 [0.5]	Environmental Science Seminar		ii) 0.5 credit from:		
ENSC 2000 [0.5]	Environmental Science Field Camp		BIOL 2303 [0.5]	Microbiology	
ENSC 2001 [0.5]	Earth Resources and Natural		BIOL 3102 [0.5]	Mycology	
	Hazards: Environmental Impacts		BIOL 3303 [0.5]	Experimental Microbiology	
ENSC 2002 [0.5]	Methods and Analysis in Environmental Science		iii) 0.5 credit BIOL	at the 4000-level ded in the Major CGPA (8.5 credits)	
ENSC 3000 [0.5]	Environmental Science and		8. 1.0 credit in:	add in the major don't (ord ordans)	1.0
	Management: Theory and Practice		MATH 1007 [0.5]	Elementary Calculus I	
ENSC 3001 [0.5]	Professional Practice in Environmental Science		STAT 2507 [0.5]	Introduction to Statistical Modeling I	2
ENSC 3509 [0.5]	Group Research Project		9. 3.0 credits in:	Farm detians of Dialogue	3.0
ENSC 3906 [0.5]	Research Techniques and Project		BIOL 1103 [0.5]	Foundations of Biology I	
	Planning		BIOL 1104 [0.5]	Foundations of Biology II	
ENSC 4906 [1.0]	Honours Research Project		CHEM 1001 [0.5]	General Chemistry I	
2. 1.0 credit in:		1.0	CHEM 1002 [0.5]	General Chemistry II	
BIOL 2600 [0.5]	Introduction to Ecology		GEOG 2013 [0.5]	Weather and Water	
CHEM 2800 [0.5]	Foundations for Environmental		ERTH 1006 [0.5]	Exploring Planet Earth	
	Chemistry		10. 0.5 credit in:		0.
3. 0.5 credit from:		0.5	PHIL 2380 [0.5]	Introduction to Environmental	
GEOG 3103 [0.5]	Watershed Hydrology		44. O. F. amadit in .	Ethics	0
GEOG 3104 [0.5]	Principles of Biogeography		11. 0.5 credit in:	Associational Observatory	0.
GEOG 3105 [0.5]	Climate and Atmospheric Change		CHEM 2302 [0.5]	Analytical Chemistry	_
GEOG 3108 [0.5]	Soil Properties		12. 0.5 credit in:		0.
4. 0.5 credit from:		0.5	BIOL 2104 [0.5]	Introductory Genetics	
ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective		13. 0.5 credit from: GEOG 3103 [0.5]	Watershed Hydrology	0.
ERTH 2403 [0.5]	Introduction to Oceanography		GEOG 3104 [0.5]	Principles of Biogeography	
ERTH 3205 [0.5]	Physical Hydrogeology		GEOG 3105 [0.5]	Climate and Atmospheric Change	
5. 0.5 credit in Appro Science at the 4000-le	ved Science for Environmental evel, excluding:	0.5	GEOG 3108 [0.5] 14. 0.5 credit from :	Soil Properties	0.
ENSC 4001 [0.5]	Environmental Science Practicum		ERTH 2402 [0.5]	Climate Change: An Earth	-
6. 4.0 credits in: a. 1.5 credit in:		4.0	ERTH 2403 [0.5]	Sciences Perspective Introduction to Oceanography	
BIOL 2001 [0.5]	Animals: Form and Function		ERTH 3205 [0.5]	Physical Hydrogeology	
BIOL 2001 [0.5]	Plants: Form and Function		LIXIII 0200 [0.0]	i ilyaicai i iyalogeology	
BIOL 2002 [0.5]	Callular Riochamietry				

Cellular Biochemistry

BIOL 2200 [0.5]

15. 1.5 credits in Approved Arts and Social Sciences		roved Arts and Social Sciences	1.5	,		
10	6. 0.5 credit in free	electives.	0.5	7. 0.5 credit in:		0.5
To	otal Credits		20.0	CHEM 4800 [0.5]	Atmospheric Chemistry	
Environmental Science with Concentratio		cience with Concentration in	า		ded in the Major CGPA (8.0 credits)	
Chemistry				8. 1.0 credit in:		1.0
	.Sc. Honours (2	20.0 credits)		MATH 1007 [0.5]	Elementary Calculus I	
	(-	,	6U	STAT 2507 [0.5]	Introduction to Statistical Modeling I	
	Cradita Included :	n the Major CCDA (42.0 eredite)		9. 3.0 credits in:		3.0
		n the Major CGPA (12.0 credits)	5 0	BIOL 1103 [0.5]	Foundations of Biology I	
1.	. 5.0 credits from:	Facility and the Local Control of the Control of th	5.0	BIOL 1104 [0.5]	Foundations of Biology II	
	ENSC 1500 [0.5]	Environmental Science Seminar		CHEM 1001 [0.5]	General Chemistry I	
	ENSC 2000 [0.5]	Environmental Science Field Camp		CHEM 1002 [0.5]	General Chemistry II	
	ENSC 2001 [0.5]	Earth Resources and Natural Hazards: Environmental Impacts		GEOG 2013 [0.5]	Weather and Water	
	ENISC 2002 [0 5]	•		ERTH 1006 [0.5]	Exploring Planet Earth	
	ENSC 2002 [0.5]	Methods and Analysis in Environmental Science		10. 0.5 credit in:	Introduction to Environmental	0.5
	ENSC 3000 [0.5]	Environmental Science and		PHIL 2380 [0.5]	Introduction to Environmental Ethics	
	ENSC 3001 [0.5]	Management: Theory and Practice Professional Practice in		11. 0.5 credit in:		0.5
	LN3C 3001 [0.3]	Environmental Science		CHEM 2302 [0.5]	Analytical Chemistry	
	ENSC 3509 [0.5]	Group Research Project		12. 0.5 credit from:		0.5
	ENSC 3906 [0.5]	Research Techniques and Project		BIOL 2104 [0.5]	Introductory Genetics	
	21100 0000 [0.0]	Planning		BIOL 2200 [0.5]	Cellular Biochemistry	
	ENSC 4906 [1.0]	Honours Research Project		13. 0.5 credit from:		0.5
2.	. 1.0 credit in:	•	1.0	GEOG 3103 [0.5]	Watershed Hydrology	
	BIOL 2600 [0.5]	Introduction to Ecology		GEOG 3104 [0.5]	Principles of Biogeography	
	CHEM 2203 [0.5]	Organic Chemistry I		GEOG 3105 [0.5]	Climate and Atmospheric Change	
3.	. 0.5 credit from:	organic cricimon,	0.5	GEOG 3108 [0.5]	Soil Properties	
	GEOG 3103 [0.5]	Watershed Hydrology	0.0	14. 1.5 credits in App	proved Arts and Social Sciences	1.5
	GEOG 3104 [0.5]	Principles of Biogeography		15. 0.5 credit in:		0.5
	GEOG 3105 [0.5]	Climate and Atmospheric Change		MATH 1107 [0.5]	Linear Algebra I	
	GEOG 3108 [0.5]	Soil Properties		Total Credits	· · · · · · · · · · · · · · · · · · ·	20.0
4	. 0.5 credit from:		0.5			
	ERTH 2402 [0.5]	Climate Change: An Earth			Science with Concentration i	n
		Sciences Perspective		Earth Sciences		
	ERTH 2403 [0.5]	Introduction to Oceanography		B.Sc. Honours (2		
	ERTH 3205 [0.5]	Physical Hydrogeology				6W1
5.	. 3.0 credits in:		3.0	A. Credits Included i	in the Major CGPA (11.5 credits)	
	CHEM 2204 [0.5]	Organic Chemistry II		1. 5.0 credits from:		5.0
	CHEM 2303 [0.5]	Analytical Chemistry		ENSC 1500 [0.5]	Environmental Science Seminar	
	CHEM 2501 [0.5]	Introduction to Inorganic and		ENSC 2000 [0.5]	Environmental Science Field Camp	
		Bioinorganic Chemistry		ENSC 2001 [0.5]	Earth Resources and Natural Hazards: Environmental Impacts	
	CHEM 2800 [0.5]	Foundations for Environmental Chemistry		ENSC 2002 [0.5]	Methods and Analysis in	
	CHEM 3305 [0.5]	Advanced Analytical Chemistry Laboratory		ENSC 3000 [0.5]	Environmental Science Environmental Science and	
	CHEM 3800 [0.5]	The Chemistry of Environmental			Management: Theory and Practice	
6.	. 1.5 credits in:	Pollutants	1.5	ENSC 3001 [0.5]	Professional Practice in Environmental Science	
	Organic focus:			ENSC 3509 [0.5]	Group Research Project	
	CHEM 3201 [0.5]	Advanced Organic Chemistry I		ENSC 3906 [0.5]	Research Techniques and Project	
	CHEM 3202 [0.5]	Advanced Organic Chemistry II		ENIOO 4000 [4 0]	Planning	
	CHEM 3205 [0.5]	Experimental Organic Chemistry		ENSC 4906 [1.0]	Honours Research Project	
OI	r			2. 1.0 credit in:	Leter desette a 1 5 1	1.0
	Inorganic focus:			BIOL 2600 [0.5]	Introduction to Ecology	
	i) 1.0 credit in:			CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
	CHEM 3503 [0.5]	Inorganic Chemistry I		3. 0.5 credit from:	One mouse	0.5
	011514.0504.50.51	Inorganic Chemistry II		3. 0.5 Creat from:		0.5
	CHEM 3504 [0.5]	morganic Chemistry ii		GEOG 3103 [0.5]	Watershed Hydrology	

CEOC 2404 IO 51	Dringiples of Piegesgraphy	
GEOG 3104 [0.5]	Principles of Biogeography	
GEOG 3105 [0.5]	Climate and Atmospheric Change	
GEOG 3108 [0.5]	Soil Properties	4.0
4. 1.0 credit in ERTH	at the 4000-level	1.0
5. 3.0 credits in:	Minarala su ta Datuala su	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	
6. 1.0 credit from:		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	
	ed in the Major CGPA (8.5 credits)	
8. 1.0 credit in:		1.0
MATH 1007 [0.5]	Elementary Calculus I	
STAT 2507 [0.5]	Introduction to Statistical Modeling I	
9. 3.0 credits in:	3	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	
10. 0.5 credit in:		0.5
PHIL 2380 [0.5]	Introduction to Environmental Ethics	0.0
11. 0.5 credit in:		0.5
CHEM 2302 [0.5]	Analytical Chemistry	0.0
12. 0.5 credit from:	, mary acar cricinical	0.5
BIOL 2104 [0.5]	Introductory Genetics	0.0
or BIOL 2200 [0.5]	Cellular Biochemistry	
13. 0.5 credit from:	Condidi Biochemiony	0.5
GEOG 3103 [0.5]	Watershed Hydrology	0.0
GEOG 3103 [0.5]	Principles of Biogeography	
GEOG 3104 [0.5]	Climate and Atmospheric Change	
GEOG 3103 [0.5]	Soil Properties	
14. 0.5 credit from:	Soil Froperties	0.5
	Climata Changa: An Earth	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	
15. 1.5 credits in App	roved Arts or Social Sciences	1.5
40 0 = 114 1		0.5
16. 0.5 credit in:		

Environmental Science B.Sc. Major (20.0 credits)

B.Sc. Major (20.0 credits)				
		94		
A. Credits Included i	n the Major CGPA (11.0 credits)			
1. 4.0 credits in:		4.0		
ENSC 1500 [0.5]	Environmental Science Seminar			
ENSC 2000 [0.5]	Environmental Science Field Camp			
ENSC 2001 [0.5]	Earth Resources and Natural Hazards: Environmental Impacts			
ENSC 2002 [0.5]	·			
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 Project			
ENSC 4700 [0.5]	Topics in Environmental Science			
2. 1.0 credit in:	•	1.0		
BIOL 2600 [0.5]	Introduction to Ecology			
CHEM 2800 [0.5]	Foundations for Environmental			
	Chemistry			
3. 0.5 credit from:		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			
4. 0.5 credit from:		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			
5. 1.0 credit in Approx	ved Science for Environmental evel excluding:	1.0		
ENSC 4001 [0.5]	Environmental Science Practicum			
6. 1.5 credits in Appro	oved Science for Environmental	1.5		
7. 2.5 credits in Appro	oved Environmental Science	2.5		
•	led in the Major CGPA (9.0 credits)			
8. 1.0 credit in:	is a in the major out A (o.o ordato)	1.0		
MATH 1007 [0.5]	Elementary Calculus I	1.0		
STAT 2507 [0.5]	Introduction to Statistical Modeling I			
9. 3.0 credits in:	g.	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			
GEOG 2013 [0.5]	Weather and Water			
ERTH 1006 [0.5]	Exploring Planet Earth			
10. 0.5 credit in:		0.5		
PHIL 2380 [0.5]	Introduction to Environmental Ethics			
11. 0.5 credit in:		0.5		
CHEM 2302 [0.5]	Analytical Chemistry			
12. 0.5 credit from:		0.5		
BIOL 2104 [0.5]	Introductory Genetics			
BIOL 2200 [0.5]	Cellular Biochemistry			
13. 0.5 credit from:		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	
14. 0.5 credit from:		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	
15. 1.5 credits in App	roved Arts and Social Sciences	1.5
16. 1.0 credit in free electives.		1.0
Total Credits		20.0

Environmental Science (ENSC) Courses Institute of Environ 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 Camp

A ten-day field course taken before classes begin in the fall, including exercises from geological, hydro geological, chemical, biological, and geographic aspects of environmental science. A supplementary field camp fee may apply.

Prerequisite(s): ERTH 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

Study of professional activities and the documentation of proposals, planning, accreditation and research; issues of health and safety, professional ethics and codes of certification; review of practicum, internship and co-op work terms, and the professional application of Environmental Science; Guest lectures and visits. 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 Program Director. 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

Assists students in preparing a research plan and proposal for their fourth year Honours project; discussion and workshop experience in 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 third-year standing in the Environmental Science Honours program, or an Honours Science program with permission of the Program Director. Discussion groups and workshops three hours a week.

ENSC 3909 [0.5 credit]

Co-operative Work Term Report 2

This course provides 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 Department. Four-month work term.

ENSC 3999 [0.5 credit] Co-operative Work Term

Practical experience for students enrolled in the Cooperative 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 Department. Four-month work term.

Four-month work term.

ENSC 4001 [0.5 credit]

Environmental Science Practicum

Experience in an external agency setting, translating the academic dimension into practical involvement with environmental issues. Requires a final report integrating the placement experience with the student's background knowledge. Graded Sat/Uns.

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

ENSC 4700 [0.5 credit]

Topics in Environmental Science

Prerequisite: third-year standing in the Environmental Science program or permission of the Institute. Lectures and discussion three hours a week.

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 program director before the last date for late registration. Prerequisite(s): fourth-year standing in the Honours Environmental Science program and permission of the Program Director.

Summer session: some of the courses listed in this Calendar are offered during the summer. Hours and scheduling for summer session courses will differ significantly from those reported in the fall/winter Calendar. To determine the scheduling and hours for summer session classes, consult the class schedule at central.carleton.ca

Not all courses listed are offered in a given year. For an up-to-date statement of course offerings for the current session and to determine the term of offering, consult the class schedule at central.carleton.ca