Environmental Science

Program Requirements

Course Categories

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

Approved Courses Outside the Faculties of Science and Engineering and Design (approved by the Environmental Science Institute)

Approved Environmental Science Electives (approved by the Environmental Science Institute)

Free Electives (see Academic Regulations for the B.Sc.)

Approved Science for Environmental Science

Courses approved by the Institute of Environmental Science include the following that comply with the Academic Regulations for the B.Sc.:

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

Prohibited and Restricted Courses

Technology, Society, Environment Studes (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.

Environmental Science B.Sc. Honours (20.0 credits)

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

		• • • • • • • • • • • • • • • • • • • •	
1.	3.0 credits from:		3.0
	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 3509 [0.5]	Group Research in Environmental Science	
	0.5 credit in Approectives	ved Environmental Science	0.5
3.	1.0 credit in:		1.0
	ENSC 4906 [1.0]	Honours Research Project	
	or		
	ENSC 4901 [0.5]	Directed Projects	
	and 0.5 credit 4000-level Approved Science for 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	
		ved Science for Environmental	1.0
Sc	cience at the 4000-le	•	
_		Environmental Science Practicum	4 5
Sc	cience	oved Science for Environmental	1.5
Ele	ectives	oved Environmental Science	2.0
		ed in the Major CGPA (9.0 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:		3.0
	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	
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 I	
12	2. 0.5 credit from:		0.5
	BIOL 2107 [0.5] or BIOL 2201 [0.5]	Fundamentals of Genetics 5Cell Biology and 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	
of		roved courses outside the faculties ering and Design (may include	1.5
	5. 1.0 credit in free	electives.	1.0
To	tal Credits		20.0
,			

Environmental Science with Concentration in Ecology, Biodiversity and Conservation B.Sc. Honours (20.0 credits)

Α.	Credits Included in the Major CGPA (11.0 credits)
4	2.0 and dife in

Α.	Credits Included i	n the Major CGPA (11.0 credits)	
1.	3.0 credits in:		3.0
	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 3509 [0.5]	Group Research in Environmental Science	
2.	0.5 credit in 3000 l	evel Approved Environmental	0.5
	cience Electives		0.0
3.	1.0 credit in:		1.0
	ENSC 4906 [1.0] Or	Honours Research Project	
		nd 0.5 credit 4000-level Approved	
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	
		oved Science for Environmental	0.5
	ENSC 4001 [0.5]	Environmental Science Practicum	
6.	4.0 credits in:		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		
	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	
	F 2	,	

	Credits Included in	n the Major CGPA (11.5 credits)	3.0
В.	nemistry Sc. Honours (2	•	
		cience with Concentration in	l
_	tal Credits	0.000.	20.0
	. 1.0 credit in free	electives.	1.0
	Science and Engine SCI 1000)	ering and Design (may include	
	• • • • • • • • • • • • • • • • • • • •	roved courses outside the faculties	1.5
	ERTH 3205 [0.5]	Physical Hydrogeology	
	ERTH 2403 [0.5]	Introduction to Oceanography	
		Sciences Perspective	
	ERTH 2402 [0.5]	Climate Change: An Earth	
14	. 0.5 credit from:	·	0.5
	GEOG 3108 [0.5]	Soil Properties	
	GEOG 3105 [0.5]	Climate and Atmospheric Change	
	GEOG 3104 [0.5]	Principles of Biogeography	
	GEOG 3103 [0.5]	Watershed Hydrology	
13	. 0.5 credit from:		0.5
	BIOL 2107 [0.5]	Fundamentals of Genetics	
12	. 0.5 credit in:	•	0.5
	CHEM 2302 [0.5]	Analytical Chemistry I	
11	. 0.5 credit in:		0.5
	PHIL 2380 [0.5]	Ethics	
10		Introduction to Environmental	0.5
10	. 0.5 credit in:	Exploining Flatiel Earlin	0.5
	ERTH 1006 [0.5]	Exploring Planet Earth	
	GEOG 2013 [0.5]	Weather and Water	
	CHEM 1001 [0.5]	General Chemistry II	
	BIOL 1104 [0.5] CHEM 1001 [0.5]	General Chemistry I	
		Foundations of Biology II	
Э.	BIOL 1103 [0.5]	Foundations of Biology I	3.0
Q	3.0 credits in:	initioduction to Statistical Modeling I	3.0
	STAT 2507 [0.5]	Introduction to Statistical Modeling I	
J.	MATH 1007 [0.5]	Elementary Calculus I	1.0
	1.0 credit in:	ed in the major OGFA (3.0 credits)	1.0
P	,	ed in the Major CGPA (9.0 credits)	
	iii) 0.5 credit BIOL a	Experimental Microbiology	
	BIOL 3102 [0.5] BIOL 3303 [0.5]	Mycology Experimental Microbiology	
	BIOL 2303 [0.5]	Microbiology	
	ii) 0.5 credit from:	Migrabiology	
	BIOL 4103 [0.5]	Population Genetics	
	BIOL 3104 [0.5]	Molecular Genetics	
	i) 1.0 credit from:	Malandar Caraffa	
	Microbiology/gene	etics focus:	
	or		
	iii) 0.5 credit BIOL a	t the 4000-level	
	BIOL 3606 [0.5]	Field Course II	
	BIOL 3605 [0.5]	Field Course I	
	BIOL 3602 [0.5]	Conservation Biology	

1. 3.0 credits in:		3.0
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	

Change

	ENSC 3000 [0.5]	Environmental Science and	
	ENOO 0500 10 51	Management: Theory and Practice	
	ENSC 3509 [0.5]	Group Research in Environmental Science	
	0.5 credit in 3000 sience Electives	level Approved Environmental	0.5
3.	1.0 credit in:		1.0
	ENSC 4906 [1.0]	Honours Research Project	
	Or		
	ENSC 4901 [0.5] au Science for Environ	nd 0.5 credit 4000-level Approved	
2	1.0 credit in:	intental Science	1.0
-	BIOL 2600 [0.5]	Introduction to Ecology	1.0
	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	0.5
4.	0.5 credit from:	Climata Changa: An Farth	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.	3.0 credits in:		3.0
	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	
6.	CHEM 3800 [0.5] 1.5 credits in:		1.5
6.	1.5 credits in: Organic focus:		1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5]	Pollutants Advanced Organic Chemistry I	1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5]	Advanced Organic Chemistry I Advanced Organic Chemistry II	1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5]	Pollutants Advanced Organic Chemistry I	1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or	Advanced Organic Chemistry I Advanced Organic Chemistry II	1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus:	Advanced Organic Chemistry I Advanced Organic Chemistry II	1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in:	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry	1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5]	Pollutants Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I	1.5
6.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5]	Pollutants Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II	1.5
	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5]	Pollutants Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I	
	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] OR MARCON	Pollutants Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II	0.5
7.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] OR Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5] ii) 0.5 credit in CHE 0.5 credit in: CHEM 4800 [0.5]	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II M at the 4000-level	
7. B.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] OR Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5] ii) 0.5 credit in CHE 0.5 credit in: CHEM 4800 [0.5]	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II M at the 4000-level Atmospheric Chemistry	
7. B.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5] ii) 0.5 credit in CHE 0.5 credit in: CHEM 4800 [0.5] Credits not includ	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II M at the 4000-level Atmospheric Chemistry	0.5
7. B.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5] ii) 0.5 credit in CHE 0.5 credit in: CHEM 4800 [0.5] Credits not includ 1.5 credit in:	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II M at the 4000-level Atmospheric Chemistry ed in the Major CGPA (8.5 credits)	0.5
7. B.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5] ii) 0.5 credit in CHE 0.5 credit in: CHEM 4800 [0.5] Credits not includ 1.5 credit in: MATH 1007 [0.5]	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II M at the 4000-level Atmospheric Chemistry ed in the Major CGPA (8.5 credits)	0.5
7. B. 8.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5] ii) 0.5 credit in CHE 0.5 credit in: CHEM 4800 [0.5] Credits not includ 1.5 credit in: MATH 1007 [0.5] MATH 1107 [0.5] STAT 2507 [0.5] 3.0 credits in:	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II M at the 4000-level Atmospheric Chemistry ed in the Major CGPA (8.5 credits) Elementary Calculus I Linear Algebra I Introduction to Statistical Modeling I	0.5
7. B. 8.	1.5 credits in: Organic focus: CHEM 3201 [0.5] CHEM 3202 [0.5] CHEM 3205 [0.5] or Inorganic focus: i) 1.0 credit in: CHEM 3503 [0.5] CHEM 3504 [0.5] ii) 0.5 credit in CHE 0.5 credit in: CHEM 4800 [0.5] Credits not includ 1.5 credit in: MATH 1007 [0.5] MATH 1107 [0.5] STAT 2507 [0.5]	Advanced Organic Chemistry I Advanced Organic Chemistry II Experimental Organic Chemistry Inorganic Chemistry I Inorganic Chemistry II Inorganic Chemistry II M at the 4000-level Atmospheric Chemistry ed in the Major CGPA (8.5 credits) Elementary Calculus I Linear Algebra I	0.5

Environmental Sciences B Sc. Honours (2)	cience with Concentration i	n
Total Credits		20.0
15. 0.5 credit in free	elective	0.5
• • • • • • • • • • • • • • • • • • • •	roved courses outside the faculties ering and Design (may include	1.5
GEOG 3108 [0.5]	1	
GEOG 3104 [0.5] GEOG 3105 [0.5]	Principles of Biogeography Climate and Atmospheric Change	
GEOG 3103 [0.5]	Watershed Hydrology	
13. 0.5 credit from:		0.5
or BIOL 2201 [0.	5CPell Biology and Biochemistry	
BIOL 2107 [0.5]	Fundamentals of Genetics	0.5
12. 0.5 credit from:	Analytical Chemistry I	0.5
11. 0.5 credit in: CHEM 2302 [0.5]	Analytical Chemistry I	0.5
PHIL 2380 [0.5]	Introduction to Environmental Ethics	
10. 0.5 credit in:		0.5
GEOG 2013 [0.5]	Weather and Water	
ERTH 1006 [0.5]	Exploring Planet Earth	
CHEM 1002 [0.5]	General Chemistry II	
CHEM 1001 [0.5]	General Chemistry I	

B.Sc. Honours (20.0 credits)

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

_	Oreans included in	in the major ool A (11.0 credits)	
1.	4.0 credits from:		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 3509 [0.5]	Group Research in Environmental Science	
	ENSC 4906 [1.0]	Honours Research Project	
	Or		
	ENSC 4901 and 0.5 Science for Environ	5 credit 4000-level Approved imental Science	
2.	1.5 credits in:		1.5
	BIOL 2600 [0.5]	Introduction to Ecology	
	CHEM 2800 [0.5]	Foundations for Environmental Chemistry	
	GEOG 3108 [0.5]	Soil Properties	
3.	4.0 credits in:		4.0
	ERTH 2102 [0.5]	Mineralogy to Petrology	
	ERTH 2104 [0.5]	Igneous Systems, Geochemistry and Processes	
	ERTH 2314 [0.5]	Sedimentation and Stratigraphy	
	ERTH 2406 [0.5]	Geology and Map Interpretation	
	ERTH 3003 [0.5]	Geochemistry and Geochronology	
	ERTH 3205 [0.5]	Physical Hydrogeology	
	ERTH 3405 [0.5]	Geophysical Methods	
	ERTH 3806 [0.5]	Structural Geology	
4.	0.5 credit from:		0.5

ERTH 3203 [0.5] ERTH 3206 [0.5]	Applied Sedimentology Oceanography: Its Modern and		ENSC 3000 [0.5]	Environmental Science and Management: Theory and Practice	
5. 1.0 credit in ERTH	Geologic Records	1.0	ENSC 3509 [0.5]	Group Research in Environmental Science	
	ded in the Major CGPA (9.0 credits)		ENSC 4700 [0.5]	Topics in Environmental Science	
6. 1.5 credits in:		1.5	2. 1.0 credit in:	•	1.0
MATH 1007 [0.5]	Elementary Calculus I	1.0	BIOL 2600 [0.5]	Introduction to Ecology	
STAT 2507 [0.5]	Introduction to Statistical Modeling I		CHEM 2800 [0.5]	Foundations for Environmental	
MATH 1107 [0.5]	Linear Algebra I			Chemistry	
7. 3.5 credits in:	Ellical Algebra i	3.5	3. 0.5 credit from:		0.5
BIOL 1103 [0.5]	Foundations of Biology I	0.0	GEOG 3103 [0.5]	Watershed Hydrology	
BIOL 1104 [0.5]	Foundations of Biology II		GEOG 3104 [0.5]	Principles of Biogeography	
CHEM 1001 [0.5]	General Chemistry I		GEOG 3105 [0.5]	Climate and Atmospheric Change	
CHEM 1002 [0.5]	General Chemistry II		GEOG 3108 [0.5]	Soil Properties	
ERTH 1006 [0.5]	Exploring Planet Earth		4. 0.5 credit from:		0.5
GEOG 2013 [0.5]	Weather and Water		ERTH 2402 [0.5]	Climate Change: An Earth	
PHYS 1007 [0.5]	Elementary University Physics I			Sciences Perspective	
8. 1.5 credits from:	Elementary Oniversity i hysics i	1.5	ERTH 2403 [0.5]	Introduction to Oceanography	
CHEM 2302 [0.5]	Analytical Chemistry I	1.5	ERTH 3205 [0.5]	Physical Hydrogeology	
ERTH 2402 [0.5]	Climate Change: An Earth			oved Science for Environmental	1.0
LIXIII 2402 [0.0]	Sciences Perspective		Science at the 4000-le	evel excluding:	
ERTH 2403 [0.5]	Introduction to Oceanography		ENSC 4001 [0.5]	Environmental Science Practicum	
ERTH 2802 [0.5]	Field Geology I			roved Science for Environmental	1.5
ERTH 2312 [0.5]	Paleontology		Science		
ERTH 3203 [0.5]	Applied Sedimentology			roved Environmental Science	2.0
ERTH 3204 [0.5]	Mineral Deposits		Electives	ded in the Major CCDA (40.0	
ERTH 3206 [0.5]	Oceanography: Its Modern and		credits)	ded in the Major CGPA (10.0	
LITTI 0200 [0.0]	Geologic Records		8. 1.0 credit in:		1.0
ERTH 3207 [0.5]	Metamorphic Petrology and		MATH 1007 [0.5]	Elementary Calculus I	1.0
	Processes		STAT 2507 [0.5]	Introduction to Statistical Modeling I	
ENSC 3906 [0.5]	Project Planning for Environmental		9. 3.0 credits in:	introduction to Statistical Modeling i	3.0
	Research		BIOL 1103 [0.5]	Foundations of Biology I	0.0
GEOG 3103 [0.5]	Watershed Hydrology		BIOL 1104 [0.5]	Foundations of Biology II	
GEOG 3104 [0.5]	Principles of Biogeography		CHEM 1001 [0.5]	General Chemistry I	
GEOG 3105 [0.5]	Climate and Atmospheric Change		CHEM 1007 [0.5]	General Chemistry II	
• •	roved courses outside the faculties	1.5	ERTH 1006 [0.5]	Exploring Planet Earth	
	neering and Design (may include		GEOG 2013 [0.5]	Weather and Water	
NSCI 1000), includin			10. 0.5 credit in:	vvcatrici and vvater	0.5
PHIL 2380 [0.5]	Introduction to Environmental Ethics		PHIL 2380 [0.5]	Introduction to Environmental	0.5
11. 1.0 credit in:	Lunos	1.0	1 1112 2000 [0.0]	Ethics	
GEOM 2007 [0.5]	Geographic Information Systems	1.0	11. 0.5 credit in:		0.5
OLOM 2007 [0.5]	(11. 1.0 credit in)		CHEM 2302 [0.5]	Analytical Chemistry I	
GEOM 3002 [0.5]	Air Photo Interpretation and		12. 0.5 credit from:	· · · · · · · · · · · · · · · · · · ·	0.5
	Remote Sensing		BIOL 2107 [0.5]	Fundamentals of Genetics	
Total Credits		20.0		£Cell Biology and Biochemistry	
			13. 0.5 credit from:		0.5
Environmental S			GEOG 3103 [0.5]	Watershed Hydrology	
B.Sc. Major (20.0) credits)		GEOG 3104 [0.5]	Principles of Biogeography	
A. Credits Included	in the Major CGPA (11.0 credits)		GEOG 3105 [0.5]	Climate and Atmospheric Change	
1. 3.5 credits in:		3.5	GEOG 3108 [0.5]	Soil Properties	
ENSC 1500 [0.5]	Environmental Science Seminar		14. 0.5 credit from:	Con Freporate	0.5
ENSC 2000 [0.5]	Environmental Science Field Methods		ERTH 2402 [0.5]	Climate Change: An Earth Sciences Perspective	0.0
ENSC 2001 [0.5]	Earth Resources and Natural		ERTH 2403 [0.5]	Introduction to Oceanography	
	Hazards: Environmental Impacts		ERTH 3205 [0.5]	Physical Hydrogeology	
ENSC 2002 [0.5]	Methods and Analysis in Environmental Science		15. 1.5 credits in approf Science and Engine	proved courses outside the faculties eering and Design (may include	1.5
			NSCI 1000)		

Total Credits

Environmental Science (ENSC) Courses 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. A supplementary fee will apply. Prerequisite(s): ERTH 1006 and BIOL 1004 or BIOL 1104, CHEM 1001 and CHEM 1002 and permission of the Institute.

Field trips, lectures and workshops, seven hours per week (delivered on a single day and on up to two mandatory weekend trips).

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 study design, data collection and assembly, database manipulation, data analysis, and critically evaluating scientific information.

Prerequisite(s): STAT 2507 or permission from 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 3106 [0.5 credit]

Aguatic science and Management

Fundamentals of aquatic science. The physical, chemical, and biotic aspects of lake, river, and estuary systems including human impacts, management and conservation. Also listed as GEOG 3106.

Prerequisite(s): third-year standing and a second year science or engineering course.

Workshop four hours per week.

ENSC 3509 [0.5 credit]

Group Research in Environmental Science

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.

Localos, communo ana womenopo anco nearo

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]

Project Planning for Environmental Research

Independent or group study on the fundamentals of scientific investigation, which may include use of literature, learning of research techniques, and development of a research proposal, in consultation with a Faculty supervisor. May include directed reading, written assignments, tutorials, laboratory or field work. Prerequisite(s): Good standing in third year Environmental Science and permission of the Institute.

ENSC 3999 [0.0 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 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 4002 [0.5 credit] Environmental Decisions

The regulatory and scientific aspects of environmental management decisions, including risk analysis and mitigation, managing chronic and acute environmental impacts, and conservation of species and landscapes. Students will use real-world case studies to learn traditional and cutting-edge decision-making tools. Prerequisite(s): third-year standing in any B.Sc. program or permission of the Institute.

Workshops three hours per week.

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

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