

ENVIRONMENT AND RESOURCE MANAGEMENT (ERM)

Department of Geography, Environment and Geomatics, College of Social and Applied Human Sciences

The major focuses on environmental interactions and problem solving by developing an integrated biophysical environment - human environment perspective. In ERM, students will gain knowledge across the natural sciences, an understanding of how they interact, the skills (tools and techniques) needed to support decision making, as well as the methods of management and governance that are critical for environmental decision making. Beginning in first year students learn in the classroom and through hands-on work in labs and in the field. Students are expected to design and conduct experiments and problem solve using state-of-the-art computing and analytical tools. This major provides the knowledge, skills and methods an environmental scientist requires as environmental consultant, environmental manager, environmental and/or resource planner, geographic information systems analyst or to facilitate future graduate work.

Major Requirements (Honours)

This is a major within the degree: Bachelor of Science in Environmental Sciences (calendar.uoguelph.ca/undergraduate-calendar/degree-programs/bachelor-science-environmental-sciences-bsc-env/).

Code	Title	Credits
Semester 1		
BIOL*1070	Discovering Biodiversity	0.50
CHEM*1040	General Chemistry I	0.50
ENVS*1030	Introduction to Environmental Sciences	1.00
MATH*1080	Elements of Calculus I	0.50
Semester 2		
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
CHEM*1050	General Chemistry II	0.50
FARE*1040	Introduction to Environmental Economics, Law and Policy	1.00
GEOG*1300	Introduction to the Biophysical Environment	0.50
Semester 3		
ECON*2100	Economic Growth and Environmental Quality	0.50
or FARE*2700	Survey of Natural Resource Economics	
GEOG*2000	Geomorphology	0.50
GEOG*2460	Analysis in Geography	0.50
1.00 electives or restricted electives		1.00
Semester 4		
GEOG*2110	Climate and the Biophysical Environment	0.50
GEOG*2210	Environment and Resources	0.50
GEOG*2480	Mapping and GIS	0.50
1.00 electives or restricted electives		1.00
Semester 5		

ENVS*2120	Introduction to Environmental Stewardship	0.50
GEOG*3000	Fluvial Processes ¹	0.50
GEOG*3110	Biogeography	0.50
GEOG*3210	Indigenous-Settler Relationships in Environmental Governance	0.50
0.50 electives or restricted electives		0.50

Semester 6

GEOG*3480	GIS and Spatial Analysis	0.50
2.00 electives or restricted electives		2.00

Semester 7

ENVS*4001	Project in Environmental Sciences	0.50
GEOG*4110	Environmental Systems Analysis	1.00
GEOG*4210	Environmental Governance	0.50
0.50 electives or restricted electives		0.50

Semester 8

ENVS*4002	Project in Environmental Sciences	0.50
2.00 electives or restricted electives		2.00

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GEOG*3610 Environmental Hydrology may be substituted for GEOG*3000 Fluvial Processes and would be taken in Semester 6.

Restricted Electives

1. A minimum of 2 of the following courses:

Code	Title	Credits
CIS*1500	Introduction to Programming	0.50
ENVS*3330	Flexible Environmental Internship	0.50
ENVS*4390	Soil Variability and Land Evaluation	0.50
GEOG*4220	Local Environmental Management	0.50
GEOG*4230	Environmental Impact Assessment	0.50
IAEF*3500	Experiential Education	0.50

2. An additional 1.00 credits in Geography (GEOG) at the 3000 level or higher.

Credit Summary

(20.00 Total Credits)

Code	Title	Credits
Environmental Sciences Core		7.00
Environment and Resource Management Required Courses		6.00
Environment and Resource Management Restricted Electives		2.00
Free Electives,		5.00
Total Credits		20

Students are reminded that 6.00 credits of their B.Sc.(Env.) degree must be at the 3000-4000 level, and no program may include more than 7.00 credits at the 1000 level.

Students are encouraged to seek advice on their choices from their faculty advisor.

Co-op Requirements (Honours)

This is a major within the degree: Bachelor of Science in Environmental Sciences (calendar.uoguelph.ca/undergraduate-calendar/degree-programs/bachelor-science-environmental-sciences-bsc-env/).

The Co-op program in Environment and Resource Management is a five year program including four work terms. Students must complete a Fall, Winter and Summer work term, and must follow the academic work schedule as outlined below (also found on the Co-operative Education website: <https://www.recruitguelph.ca/cecs/>). Please refer to the Co-operative Education program policy with respect to adjusting this schedule.

Academic and Co-op Work Term Schedule

Year	Fall	Winter	Summer
1	Academic Semester 1	Academic Semester 2; COOP*1100	Off
2	Academic Semester 3	Academic Semester 4	COOP*1000 Work Term I
3	Academic Semester 5	Academic Semester 6	COOP*2000 Work Term II
4	COOP*3000 Work Term III	COOP*4000 Work Term IV	Off
5	Academic Semester 7	Academic Semester 8	N/A

Please refer to the Co-operative Education program policy with respect to work term performance grading, work term report grading and program completion requirements.

For additional program information students should consult with their Co-op Co-ordinator and Co-op Faculty Advisor, listed on the Co-operative Education web site.

Credit Summary

(22.00 Total Credits)

Code	Title	Credits
	Environmental Sciences Core	7.00
	Environment and Resource Management Required Courses	6.00
	Environment and Resource Management Restricted Electives	2.00
	Free Electives	5.00
	Co-op Work Terms	2.00
	Total Credits	22

Students are reminded that 6.00 credits of their B.Sc.(Env.) degree must be at the 3000-4000 level, and no program may include more than 7.00 credits at the 1000 level.

Students are encouraged to seek advice on their choices from their faculty advisor.

Recommended Program Sequence

Code	Title	Credits
Semester 1 - Fall		
BIOL*1070	Discovering Biodiversity	0.50
CHEM*1040	General Chemistry I	0.50
ENVS*1030	Introduction to Environmental Sciences	1.00
MATH*1080	Elements of Calculus I	0.50
Semester 2 - Winter		
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
CHEM*1050	General Chemistry II	0.50

COOP*1100	Introduction to Co-operative Education	0.00
FARE*1040	Introduction to Environmental Economics, Law and Policy	1.00
GEOG*1300	Introduction to the Biophysical Environment	0.50

Summer Semester

No academic semester or work term

Semester 3 - Fall

ECON*2100	Economic Growth and Environmental Quality	0.50
	or FARE*2700 Survey of Natural Resource Economics	
GEOG*2000	Geomorphology	0.50
GEOG*2460	Analysis in Geography	0.50
	1.00 electives or restricted electives	1.00

Semester 4 - Winter

GEOG*2110	Climate and the Biophysical Environment	0.50
GEOG*2210	Environment and Resources	0.50
GEOG*2480	Mapping and GIS	0.50
	1.00 electives or restricted electives	1.00

Summer Semester

COOP*1000	Co-op Work Term I	0.50
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Semester 5 - Fall

ENVS*2120	Introduction to Environmental Stewardship	0.50
GEOG*3000	Fluvial Processes ²	0.50
GEOG*3110	Biogeography	0.50
GEOG*3210	Indigenous-Settler Relationships in Environmental Governance	0.50
	0.50 electives or restricted electives	0.50

Semester 6 - Winter

GEOG*3480	GIS and Spatial Analysis	0.50
	2.00 electives or restricted electives	2.00

Summer Semester

COOP*2000	Co-op Work Term II	0.50
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Fall Semester

COOP*3000	Co-op Work Term III	0.50
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Winter Semester

COOP*4000	Co-op Work Term IV	0.50
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Summer Semester

No academic semester or work term

Semester 7 - Fall

ENVS*4001	Project in Environmental Sciences	0.50
GEOG*4110	Environmental Systems Analysis	1.00
GEOG*4210	Environmental Governance	0.50
	0.50 electives or restricted electives	0.50

Semester 8 - Winter

ENVS*4002	Project in Environmental Sciences	0.50
	2.00 electives or restricted electives	2.00

2

GEOG*3610 Environmental Hydrology may be substituted for GEOG*3000 Fluvial Processes and would be taken in Semester 6.

Restricted Electives

1. A minimum of 2 of the following courses:

Code	Title	Credits
CIS*1500	Introduction to Programming	0.50
ENVS*4390	Soil Variability and Land Evaluation	0.50
GEOG*4220	Local Environmental Management	0.50
GEOG*4230	Environmental Impact Assessment	0.50

2. An additional 1.00 credits in Geography (GEOG) at the 3000 level or higher.