ENVIRONMENTAL GEOMATICS (EG)

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

Note: admission, including internal or external transfer, to the Environmental Geomatics major (regular and Co-op) has been suspended. For more information, please contact the Department of Geography, Environment and Geomatics, College of Social and Applied Human Sciences.

This program provides opportunities for study of the processes and properties of the biophysical environment and a core foundation in the analytical techniques (i.e. Geographical Information Science and Remote Sensing) used for their interpretation, analysis and presentation.

Graduates of the program will have unique specialty in the application of spatial technologies to the study and assessment of biophysical and Earth surface processes.

Note: admission, including internal or external transfer, to the Environmental Geomatics major (regular and Co-op) has been suspended. For more information, please contact the Department of Geography, Environment and Geomatics, College of Social and Applied Human Sciences.

Major Requirements (Honours)

This is a major within the degree: Bachelor of Science (calendar.uoguelph.ca/undergraduate-calendar/degree-programs/bachelor-science-bsc/)**.**

Students may enter this major in Semester 1 or any semester thereafter. A student wishing to declare the major may wish to consult with a B.Sc. Faculty Advisor in the Department of Geography, Environment and Geomatics. All students are encouraged to consult with the advisor on a regular basis.

The major will require the completion of 20.00 credits as indicated below:

Students lacking Grade 12 or 4U Biology, Chemistry or Physics should follow the revised schedule of study for this major found at https://www.uoguelph.ca/bsc/revised_SS/.

Code	Title	Credits
Semester 1		
BIOL*1070	Discovering Biodiversity	0.50
CHEM*1040	General Chemistry I	0.50
GEOG*1350	Earth: Hazards and Global Change	0.50
MATH*1080	Elements of Calculus I	0.50
or MATH*1200	Calculus I	
PHYS*1080	Physics for Life Sciences	0.50
Semester 2		
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
CHEM*1050	General Chemistry II	0.50
GEOG*1300	Introduction to the Biophysical Environment	0.50
PHYS*1070	Physics for Life Sciences II	0.50
0.50 Liberal Education electives [1]		0.50
Semester 3		
ENVS*2240	Fundamentals of Environmental Geology	0.50
GEOG*2000	Geomorphology	0.50
GEOG*2420	The Earth From Space	0.50
GEOG*2480	Mapping and GIS	0.50
0.50 Liberal Education electives		0.50
Semester 4		
GEOG*2110	Climate and the Biophysical Environment	0.50
GEOG*2210	Environment and Resources	0.50
STAT*2040	Statistics I	0.50
0.50 approved Science electives		0.50
Select 0.50 credits from the following:		
CIS*1200	Introduction to Computing	0.50
CIS*1500	Introduction to Programming	0.50
MATH*1210	Calculus II	0.50
MATH*1090	Elements of Calculus II	0.50
Semester 5		
GEOG*3000	Fluvial Processes	0.50
GEOG*3110	Biogeography	0.50
Select 0.50 credits from the following:		
GEOG*3020	Global Environmental Change	0.50
GEOG*3090	Gender and Environment	0.50
GEOG*3210	Indigenous-Settler Relationships in Environmental Governance	0.50
1.00 electives, at least 0.50 from approved Science electives		1.00
Semester 6		
GEOG*3420	Remote Sensing of the Environment	0.50
GEOG*3480	GIS and Spatial Analysis	0.50
GEOG*3610	Environmental Hydrology	0.50
1.00 electives, at least 0.50 from approved Science electives		1.00
Semester 7		
GEOG*4110	Environmental Systems Analysis	1.00
1.50 electives, at least 0.50 from approved Science electives [2]		1.50
Semester 8		
GEOG*4150	Catchment Processes	0.50
GEOG*4480	Applied Geomatics	1.00
1.00 approved Science electives		1.00

1

GEOG*1220 Human Impact on the Environment is recommended.

2

GEOG*4690 Geography Field Course is recommended.

Credit Summary

(20.00 Total Credits)

Code	Title	Credits
First year science credits		4.50
Required science courses semesters 3 – 8		8.50
Required social science courses semesters 3 – 8		1.00
Approved Science Electives		3.00
Liberal Education Electives		1.00

Free electives - any approved elective for B.Sc. students	2.00
Total Credits	**20**

Of the total credits required, students are required to complete 16.00 credits in science of which 2.00 credits must be at the 4000 level and an additional 4.00 credits must be at the 3000 or 4000 level.

Note: admission, including internal or external transfer, to the Environmental Geomatics major (regular and Co-op) has been suspended. For more information, please contact the Department of Geography, Environment and Geomatics, College of Social and Applied Human Sciences.

Co-op Requirements (Honours)

This is a major within the degree: Bachelor of Science **(**calendar.uoguelph.ca/undergraduate-calendar/degree-programs/bachelor-science-bsc/**).**

The Co-op program in Environmental Geomatics 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	Off
2	Academic Semester 3 COOP*1100	Academic Semester 4	COOP*1000 Work Term I
3	Academic Semester 5	COOP*2000 Work Term II	Academic Semester 6
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

(21.50 Total Credits)[1]

Code	Title	Credits
First year science credits		4.50
Required science courses semesters 3 – 8		9.00
Required social science courses semesters 3 – 8		1.00
Approved Science Electives		2.50
Liberal Education Electives		1.00
Free electives - any approved elective for B.Sc. students		2.00
Co-op Work Terms		1.50
Total Credits		**21.5**

1

A fourth Co-op work term is optional and if completed, the total number of credits will equal 22.00.

Of the total credits required, students are required to complete 16.00 credits in science of which 2.00 credits must be at the 4000 level and an additional 4.00 credits must be at the 3000 or 4000 level.

Note: A minimum of three Co-op work terms including a Summer, Fall and Winter are necessary to complete the Co-op requirement.

Recommended Program Sequence

Students lacking Grade 12 or 4U Biology, Chemistry or Physics should follow the revised schedule of study for this major found at https://www.uoguelph.ca/bsc/revised_SS/.

Code	Title	Credits
Semester 1 - Fall		
BIOL*1070	Discovering Biodiversity	0.50
CHEM*1040	General Chemistry I	0.50
GEOG*1350	Earth: Hazards and Global Change	0.50
MATH*1080	Elements of Calculus I	0.50
or MATH*1200	Calculus I	
PHYS*1080	Physics for Life Sciences	0.50
Semester 2 - Winter		
BIOL*1090	Introduction to Molecular and Cellular Biology	0.50
CHEM*1050	General Chemistry II	0.50
GEOG*1300	Introduction to the Biophysical Environment	0.50
PHYS*1070	Physics for Life Sciences II	0.50
0.50 Liberal Education electives		0.50
Summer Semester		
No academic semester or work term		
Semester 3 - Fall		
COOP*1100	Introduction to Co-operative Education	0.00
ENVS*2240	Fundamentals of Environmental Geology	0.50
GEOG*2000	Geomorphology	0.50
GEOG*2420	The Earth From Space	0.50
GEOG*2480	Mapping and GIS	0.50
STAT*2040	Statistics I	0.50
Semester 4 - Winter		
GEOG*2110	Climate and the Biophysical Environment	0.50
GEOG*2210	Environment and Resources	0.50
GEOG*3420	Remote Sensing of the Environment	0.50
0.50 approved Science electives		0.50
Select 0.50 credits from the following:		
CIS*1200	Introduction to Computing	0.50
CIS*1500	Introduction to Programming	0.50
MATH*1210	Calculus II	0.50
MATH*1090	Elements of Calculus II	0.50
Summer Semester		
COOP*1000	Co-op Work Term I	0.50
Semester 5 - Fall		
GEOG*3000	Fluvial Processes	0.50

GEOG*3110	Biogeography	0.50
GEOG*3480	GIS and Spatial Analysis	0.50
0.50 approved Science electives		0.50
0.50 Liberal Education electives		0.50
Winter Semester		
COOP*2000	Co-op Work Term II	0.50
Semester 6 - Summer		
GEOG*3020	Global Environmental Change	0.50
or GEOG*3210	Indigenous-Settler Relationships in Environmental Governance	
GEOG*3610	Environmental Hydrology	0.50
GEOG*4990	Independent Study in Geography	0.50
1.00 electives		1.00
Fall Semester		
COOP*3000	Co-op Work Term III	0.50
Winter Semester		
COOP*4000	Co-op Work Term IV	0.50
Summer Semester		
No academic semester or work term		
Semester 7 - Fall		
GEOG*4110	Environmental Systems Analysis	1.00
1.50 electives, at least 1.00 from approved Science electives		1.50
Semester 8 - Winter		
GEOG*4150	Catchment Processes	0.50
GEOG*4480	Applied Geomatics	1.00
1.00 electives, at least 0.50 from approved Science electives		1.00