School of Geography & Earth Sciences

AREAS OF STUDY

Earth & Environmental Sciences at McMaster University encompasses five major themes:

- **Aqueous Environmental Geochemistry**: Study of Earth processes and chemical interactions between the solid Earth, living organisms, the atmosphere and the hydrosphere.
- **Earth Sciences**: Study of solid earth, its rocks, land forms, minerals and resources.
- **Environmental Hydrology and Climate**: Study of the Earth’s water supply, movement, balance, quality and interaction with climate processes.
- **Environmental Policy**: Study of how human activities can be managed to prevent, reduce or mitigate harmful environmental impacts.
- **Geographical Information Systems (GIS) and Spatial Analysis**: Statistical study of human activities and their impacts, which relies on geographical information science.

It should be noted that each thematic area has its own sequence of courses and prerequisites. Students may elect to take some or all of the upper level courses from different areas. In addition, there is a set of courses encompassing research design, field work, internships, and the senior thesis or review paper.

Students in Honours Earth & Environmental Sciences may choose a suite of courses that fulfills the academic requirements for the professional recognition from the Association of Professional Geoscientists of Ontario (APGO – www.apgo.net).

OUR APPROACH

- **Interdisciplinary**: The School uses an interdisciplinary approach to the understanding of our environment that we interact with every day.
- **Experiential**: Our aim is for students to be actively involved in their learning experience.
- **Skills Development**: We place considerable emphasis on the development of lifelong skills.
- **Internship Courses**: Our internship courses allow students to integrate classroom knowledge and job career opportunities related to the discipline.

AREAS OF RESEARCH

- **Earth Surface Processes**: focuses on earth and atmospheric processes occurring in the near-surface zone, extending ~1 km above and below the Earth’s surface.
- **Environment and Health**: aims to understand the relationship of the environment to human health.
- **Geochemistry**: is primarily interested in the application of approaches to understand bio- and geo-chemical processes, geochronology and physico-chemical records.
- **Hydrologic Sciences**: use state-of-the-art equipment and techniques to generate new knowledge about the occurrence, distribution, and quality of water in the environment, and the impact of human activities.
- **Social Geography**: focuses on the relationship between social life and geographical patterns of change at various scales.
- **Spatial Analysis**: seeks to understand the nature and outcome of human and physical processes that take place over space with the use of quantitative methods, such as spatial statistics, and Geographical Information Systems (GIS).

POSSIBLE CAREERS

Earth and Environmental Sciences is a multi-disciplinary degree that leads to careers in these and many other related fields:

- Climate Change
- Air and Water
- Natural Disaster
- Environmental Assessment
- Water Resource
- Management
- Oil and Mineral
- Exploration
- Oil and Mineral
- Environment and Health
- Geochemical Analysis
LEVEL II PROGRAMS

Honours Earth & Environmental Sciences (Honours B. Sc.)

Enrolment in this program is limited and possession of the published minimum requirements does not guarantee admission. Admission is by selection but requires, as a minimum, completion of any Level I program with a Grade Point Average of at least 5.0 including:

- 6 units ENVIRSC 1C03, 1G03 with an average of at least C+
- 3 units from BIOLOGY 1M03
- 3 units from MATH 1A00, 1LS3
- 15 units from the Science I Course List

Completion of any Level I program with a Grade Point Average of at least 5.0 including:

- 3 units from ENVIRSC 1C03, 1G03 with a grade of at least C+
- 3 units from MATH 1A03, 1LS3, 1M03
- 3 units from GEOG 1HA3, 1HB3
- 9 units from the Science I Course List

ADMISSION REQUIREMENTS

1. Students who did not complete Grade 12 Chemistry U must complete CHEM 1R03 in Level I. Given this course is considered elective, an additional three units from the Science I Course List must be completed. CHEM 1A03 must be completed by the end of Level II.

ADMISSION NOTES

- Both ENVIRSC 1C03 and 1G03 must be completed by the end of Level II.
- Both GEOG 1HA3 and 1HB3 must be completed by the end of Level II.

Students are strongly recommended to complete CHEM 1A00 and 1A03 in Level I.

Environmental Sciences (B. Sc.)

Enrolment in this program is limited and possession of the published minimum requirements does not guarantee admission. Selection is based on academic achievement but requires, as a minimum, completion of any Level I program with a Grade Point Average of at least 5.0 including:

- 3 units from MATH 1A03, 1LS3
- 3 units from ENVIRSC 1C03, 1G03 with a grade of at least C+
- 12 units from ASTRON 1F03, BIOPHYS 1S03, CHEM 1A03, 1AA3, COMPSCI 1J03, 1M03, 1X03, ENVIRSC 1C03, 1G03, GEOG 1HA3, 1HB3, MATH 1AA3, 1B03, 1LT3, MEDPHYS 1E03, PHYSICS 1A03, 1AA3, 1C03, 1CC3, PSYCH 1F03, 1X03, 1XX3, SCIENCE 1A03

Completion of any Level I program with a Grade Point Average of at least 3.5 including:

- 3 units from MATH 1A00, 1LS3
- 18 units from the Science I Course List

Field Experience

Students participate in a range of field-based activities through local and more distant sites of interest.

Co-op Opportunities

The School of Geography & Earth Sciences offers a cooperative education option for Honours Earth & Environmental Sciences, Honours Environmental Sciences and Honours Geography & Environmental Sciences programs, beginning in Level III. Cooperative education extends the undergraduate program to five years, and is a great way to gain practical experience and develop a professional network. In addition, during the four, 4-month work terms, you will further enhance your technical and non-technical workplace skills, such as teamwork, effective communication and time management. Admission is based on academic achievement and an interview. For further information, consult the Undergraduate Calendar or stop by the Science Career and Cooperative Education office in GSB 127.

Contact Information

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