



McGill



BIELER SCHOOL  
*of* ENVIRONMENT



BIELER

# Bieler School of Environment

Our world faces unprecedented environmental challenges that require new approaches and diverse solutions. The Bieler School of Environment trains students to address critical environmental issues from multiple perspectives, understand the broader societal contexts, and adapt to a constantly changing world.

The growth of technology, globalising economies, and rapid increases in consumption, have had dramatic and significant environmental impacts, requiring us to rethink human-environment relations, political and economic decision-making, and social well-being. The complexity of the problems we face calls for knowledge that is both highly specialized and broadly applicable across disciplines and fields.

McGill University's Faculties of Agricultural and Environmental Sciences, Arts, and Science have come together to forge a unique approach to the study of the environment, through the Bieler School of Environment (BSE). Encompassing a broad range of ideas, methods, and perspectives, we provide a foundation upon which more specialized knowledge can be built, to enable and develop the interdisciplinary approaches our planet needs.



# Programs

The Bieler School of Environment offers a number of undergraduate degree programs, built around interdisciplinary concentrations. These concentrations consist of courses from different departments and faculties across McGill.

Concentrations represent areas of expertise that are key to understanding and managing the interface between our natural and built environments. The Bachelor of Arts & Science degrees (Interfaculty Programs) focus on several areas reflecting a student's interests or goals, rather than one specific concentration.

## **B.Sc. Major in Environment** (Faculty of Science, Downtown Campus)

Concentrations focus on natural and life sciences in:

- Atmospheric Environment and Air Quality
- Biodiversity and Conservation
- Earth Sciences and Economics
- Ecological Determinants of Health
- Environmetrics
- Food Production and Environment
- Land Surface Processes and Environmental Change
- Renewable Resource Management
- Water Environments and Ecosystems

## **B.Sc. (Ag.Env.Sc.) Major in Environment** (Faculty of Agricultural and Environmental Sciences, Macdonald Campus)

Concentrations focus on natural and life sciences in:

- Biodiversity and Conservation
- Ecological Determinants of Health
- Environmetrics
- Food Production and Environment
- Land Surface Processes and Environmental Change
- Renewable Resource Management
- Water Environments and Ecosystems

## **B.A. Faculty Program Environment** (Faculty of Arts, Downtown Campus)

Concentrations focus on the social sciences in:

- Ecological Determinants of Health in Society
- Economics and the Earth's Environment
- Environment and Development

## **Bachelor of Arts and Science Interfaculty Program Environment** (Downtown Campus)

Combined with a Minor in another department, this program focuses equally on the natural and social sciences. Students choose their courses from a number of defined areas, based on their interests.

## **Bachelor of Arts and Science Interfaculty Program Sustainability, Science and Society** (Downtown Campus; offered in partnership with the Department of Geography).

Combined with a Minor in another department, this program is structured to focus on the challenges and issues underlying sustainable development.

## **Diploma in Environment**

For students with an undergraduate degree already, this one-year program can enrich or reorient a student's area of specialization through undergraduate level course work.

## **Environment Honours**

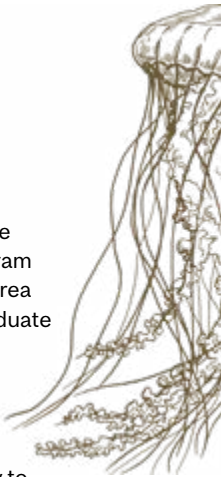
This program provides students in their final year with the opportunity to undertake a year-long research project under a professor's guidance and supervision.

## **Minor in Environment (or Minor Concentration)**

For students majoring in an area other than Environment, the Minor (or Minor Concentration) comprises 18 credits (six courses) from a student's electives.

## **Programs offered in the Bieler School of Environment**

<b>Program</b>	<b>Downtown Campus</b>	<b>Macdonald Campus</b>
B.Arts, Faculty Program Environment	X	
B.Sc., Major Environment	X	
B.Sc.(Ag.Env.Sc.) Major Environment		X
B.A.&Sc., Interfaculty Program Environment	X	
Minor in Environment	X	X
Diploma in Environment	X	X
Honours (in all Bachelor degrees)	X	X





# Enjoy the best of what McGill has to offer!

## Two Campuses, One School

In a truly interdisciplinary educational experience, Bieler School of Environment students benefit from the diverse and inspiring opportunities offered by **three faculties on two McGill Campuses**: the Faculty of Arts and the Faculty of Science, located on the Downtown Campus in the heart of Montreal - and the Faculty of Agricultural and Environmental Sciences, located on the Macdonald Campus in Sainte-Anne-de-Bellevue, 35 km west of Montreal.



## Studying Locally and Globally

Bieler students have many opportunities for field research, experiential learning, and field semester studies, in Canada and around the world, in regions ranging from the Arizona desert, to Barbados, Panama, and East Africa. We encourage all Bieler students to engage with local and global societal challenges, and to get a bit of the environment under their fingernails!







# Core Courses

The core courses are **team taught** and are offered on both the Downtown and Macdonald Campuses. Our faculty comprise several Faculty Lecturers and over a dozen Professors who are jointly appointed with a second department/teaching unit at McGill, including Geography, Natural Resource Sciences, Atmospheric and Oceanic Sciences, Political Science, Anthropology, the Institute for Health and Social Policy, Plant Science, Philosophy, Biology, the Redpath Museum, and the School of Urban Planning. The core courses are fundamental to the BSE student's program, which also includes complementary courses and electives.

Descriptions of the core courses are available on the BSE's website and the e-Calendar.



[www.mcgill.ca/  
environment](http://www.mcgill.ca/environment)



[www.mcgill.ca/  
study](http://www.mcgill.ca/study)

## Core Courses and Year Taken

U1	U2	U3
<b>ENVR 200</b> The Global Environment	<b>ENVR 301</b> Environmental Research Design	<b>ENVR 400</b> Environmental Thought
<b>ENVR 201</b> Society, Environment, and Sustainability		<b>ENVR 401</b> Environmental Research
<b>ENVR 202</b> The Evolving Earth		
<b>ENVR 203</b> Knowledge, Ethics and Environment		

# Bachelor of Science

Major Environment [Downtown Campus]

# Bachelor of Science (Ag.Env.Sc.)

Major Environment [Macdonald Campus]

In addition to the seven core ENVR courses, students in the Environment Major focus their studies in one of the following:

## 1. Atmospheric Environment and Air Quality\*\*

This concentration focuses on the mechanisms of atmospheric flow and on atmospheric chemistry. Courses examine how the atmosphere transports pollution, locally and globally, and the mechanisms and processes by which pollutants are released from the atmosphere.

## 2. Biodiversity and Conservation

This concentration links the study of biodiversity which combines evolution with ecology and genetics, with the applied field of conservation biology which deals with the prevention of the extinction of rare species and maintenance of community diversity.

## 3. Earth Sciences and Economics\*\*

In this concentration, students are introduced to the fundamentals of earth science, natural resource economics, public policy for resource industries, and the potential effects of climate change on the global economy.

## 4. Ecological Determinants of Health

This concentration focuses on the interface between environment and human well-being

through the elements of food and infectious agents. To prevent or reduce infectious contaminants in the environment, or to improve food production and nutritional quality, an understanding of social forces that influence how we respond, is also key. There are two separate streams of study within the concentration: Population and Cellular.

## 5. Environmetrics

This concentration responds to the crucial need for sound study design and appropriate statistical methods in the environmental sciences. Students learn how to analyze and model environmental changes and their impacts on the natural world, people, and society; and the ecological relationships amongst the natural and human worlds.

## 6. Food Production and Environments

Students learn about the interaction between the environment and the business of food production, an area of human activity characterized by increasing demands and challenges. As global population rises, and land available for agriculture decreases, land-use competition for what remains will grow more fierce, making increasingly critical the need for smart and informed decision-making related to food production.

## 7. Land Surface Processes and Environmental Change

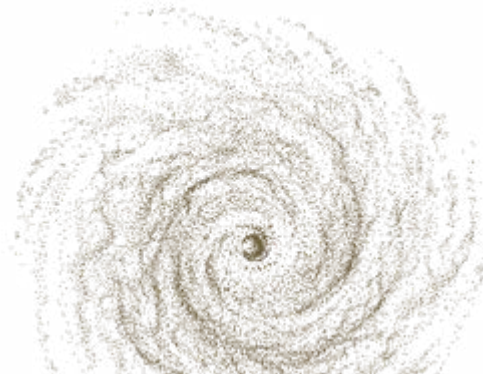
Students are introduced in this concentration to the physical and biogeochemical processes at the atmosphere-lithosphere interface, which fashion land surface habitats and determine their biological productivity and response to anthropogenic or natural environmental changes.

## 8. Renewable Resource Management

In this concentration, students learn about renewable resources (e.g. wildlife, fisheries, water, forests, soil, genetic resources), the ecosystem structures and processes required to sustain them, the delivery of ecosystem goods and services, and the management of resources to achieve goals that are consistent with sustainability and ecosystem maintenance.

## 9. Water Environments and Ecosystems

Students in this concentration study both the physical mechanisms and the biological processes of water bodies, and can choose one of two separate streams of study within the concentration: Biological, which looks at how different forms of life are regulated in water bodies; or Physical, which focuses on the transport mechanisms in rivers, oceans and the atmosphere.



[The concentrations marked \*\* are not available to students in the B.Sc.(Ag.Env.Sc.)].



# Bachelor of Arts

Faculty Program Environment [Downtown Campus]

In addition to the seven core ENVR courses, students in the Faculty Program Environment focus their studies in one of the following three concentrations:

## 1. Economics and the Earth's Environment

Society depends on the Earth's resources which are produced by geological processes. Economics influences which energy sources power our society and how our wastes are treated. Resource use creates waste, and geologic processes influence the fate of wastes in the environment. This concentration teaches students about this cycle and its implications on how we can use it to shape our future.

## 2. Environment and Development

This concentration, studying the interface between environment and development requires students to transcend boundaries of traditional disciplines: e.g. economics, anthropology, geography, political science. By studying at sufficient depth and breadth, students are able to acquire a strong grasp of current theories, concepts, and approaches to sustainable paths to economic development.

## 3. Ecological Determinants of Health in Society

An understanding of the interface between human health and environment depends on an appreciation of both the biological and ecological determinants of health, and the role of social sciences in the design, implementation, and monitoring of interventions. Demographic patterns and urbanization, economic forces, ethics, Indigenous knowledge and culture, and an understanding of how social change can be effected are all critical to assuring the health of individuals and societies in the future. Recognizing the importance of nutrition to good health, and the increasing importance of infection as a health risk linked intimately with the environment, this concentration prepares students to help solve problems of nutrition and infection by tying the relevant natural sciences to the social sciences.

# Bachelor of Arts and Science

Interfaculty Program Environment [Downtown Campus]

In addition to the seven core ENVR courses, students in the Interfaculty Program Environment can work with an adviser to select courses from diverse subject areas in the social and natural sciences, to create a liberal arts and science curriculum embodying critical thinking and practical skills unique to each student.

To provide a balance of natural and life sciences with social sciences and humanities, students additionally do a Minor in another subject, for example, in:

- Geographic Information Systems
- International Development Studies
- Political Science
- Anthropology
- Sociology
- Atmospheric Science
- Earth and Planetary Sciences
- Psychology



## Honours

The Honours program gives students the opportunity to pursue a directed, focused and individual research project over the course of a full year under the supervision of a professor. While Honours is not necessarily required for graduate school, the Honours program will provide BSE students with additional preparation for graduate level research.

## Diploma

The Diploma in Environment (30 credits) is designed for students with an undergraduate degree who wish to enrich or reorient their training, supplementing their specialization with additional undergraduate level course work.

The Diploma requires 30 credits of full-time or part-time study. Taken full-time, the Diploma is a one-year program. Students holding a BSc or BA degree or equivalent can register for the Diploma in Environment through the Faculty of Science, the Faculty of Agricultural and Environmental Sciences, or the Faculty of Arts, provided they meet University admission criteria.



## Minor

The Environment Minor (18 credits) is intended to complement the expertise gained through a Major, Major Concentration, Faculty Program, or Interfaculty Program outside the BSE. Students taking the Minor (or Minor Concentration) in Environment are exposed to different approaches, perspectives, and world views that will help them gain an understanding of the complexity and the conflicts that underlie environmental problems.







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