

Area of Interest: Environmental and Applied Sciences

## Environmental Management and Assessment (Co-op and Non Co-op Version)

Ontario College Graduate Certificate  
1 Year  
Ottawa Campus

Program Code: 1517X03FWO

### Our Program

**Join those at the forefront of environmental management practice.**

The Environmental Management and Assessment Ontario College Graduate Certificate program adds depth to your existing expertise in the environmental management and assessment field. Highly skilled and environmentally aware professionals are constantly being sought out by employers in the field. This program enhances your knowledge of environmental sciences.

Gain essential knowledge and skills by studying a range of disciplines throughout this program, including:

- ecological conservation
- project management
- environmental policy and reporting
- contaminant control
- GIS and environmental map design

Take courses in hydrology, environmental modelling and environmental policies.

Field experiences throughout the program give you integrative skills that employers of this expanding field are looking for.

Students also have the option to gain real-world experience through a paid co-operative education (co-op) work term (see Additional Information for more details). Please note that places in the co-op work term are subject to availability and academic eligibility. Please note admission to the co-op program does not guarantee a co-op placement.

Graduates of this program may be employed in a number of fields, including:

- ecology research and reporting
- environmental monitoring
- phased environmental site assessments
- proposal writing and cost estimating
- pollution prevention and control
- brownfield remediation
- regulatory compliance
- policy development

### SUCCESS FACTORS

This program is well-suited for students who:

- Wish to expand their career options in the environmental industry.
- Enjoy a hands-on approach to working in the outdoor and urban environment.
- Are critical and innovative thinkers.
- Are able to analyze, evaluate and apply relevant information from a variety of sources.
- Are independent learners.

## Employment

Graduates may find employment in a variety of expanding environmental fields, such as ecology research and reporting, environmental monitoring, phased environmental site assessment, proposal writing and cost estimating, pollution prevention and control, brownfield remediation, regulatory compliance and policy development.

## Learning Outcomes

The graduate has reliably demonstrated the ability to:

- Prepare and present technical reports in a scientific format, including figures, tables and interpretation of results.
- Design and implement sampling protocols using industry techniques to ensure appropriate statistical design.
- Analyze the various regulations that govern federal, provincial and municipal legislation as they apply to project specific requirements.
- Collect and analyze field samples using appropriate air, water and soil quality testing equipment.
- Apply modeling technology to simulate and predict environmental damage in a variety of situations.
- Create strategies for waste minimization and/or remediation in the industrial, commercial, institutional and residential sectors.
- Investigate the effects of various environmental contaminants on plant, animal and human health.
- Develop plans to mitigate the environmental impact of current industrial processes.
- Explain and analyze the ecological role of biodiversity and conservation.
- Identify and apply discipline-specific practices that contribute to the local and global community through social responsibility, economic commitment and environmental stewardship.

## Program of Study

Level: 01	Courses	Hours
ENV4002	Field Techniques and Sample Acquisition	84.0
ENV4003	Environmental Policy I	42.0
GEP1001	Cooperative Education and Job Readiness	18.0
GIS4010	GIS and Spatial Data Foundations	42.0
SCI4000	Sample Processing and Analysis	42.0

SCI4001	Biodiversity and Conservation	42.0
SCI4003	Scientific Communication for Public Policy	42.0
<b>Level: 02</b>	<b>Courses</b>	<b>Hours</b>
ENV4005	Environmental Policy II	42.0
ENV4006	Environmental Auditing and Site Assessment	70.0
ENV4008	Environmental Modelling and Risk Assessment	42.0
GIS4011	Environmental Map Design	42.0
MGT4500	Project Management Fundamentals	42.0
SCI4002	Sustainable Hydrology	42.0
<b>Co-op: 01</b>	<b>Courses</b>	<b>Hours</b>
WKT1517X	Environmental Management and Assessment Work Term	

## Fees for the 2023/2024 Academic Year

Tuition and related ancillary fees for this program can be viewed by using the Tuition and Fees Estimator tool at <https://www.algonquincollege.com/fee-estimator>.

Further information on fees can be found by visiting the Registrar's Office website at <https://www.algonquincollege.com/ro>.

Fees are subject to change.

Additional program related expenses include:

- Books cost approximately \$400 per year.
- Students will need to purchase one full-length lab coat, one pair of CSA-approved safety glasses, and rent a locker to keep all their personal items during the laboratories.
- Students will also be required to work in the field in the summer and/or fall seasons, and should have denim pants or coveralls, long sleeves, CSA-approved steel toe boots, puncture-resistant work gloves, CSA-approved hardhat, eye protection, and a high visibility vest. The estimated cost of this equipment for the program is \$500.

## Admission Requirements for the 2024/2025 Academic Year

### Program Eligibility

- Ontario College Diploma, Ontario College Advanced Diploma, Degree or equivalent in areas of science, applied science, engineering.
- An arts degree in environmental studies will also be considered.
- Applicants with international transcripts must provide proof of the subject-specific requirements noted above and may be required to provide proof of language proficiency. Domestic applicants with international transcripts must be evaluated through the International Credential Assessment Service of Canada (ICAS) or World Education Services (WES).
- IELTS-International English Language Testing Service (Academic) Overall band of 6.5 with a minimum of 6.0 in each band; OR TOEFL-Internet-based (iBT)-overall 88, with a minimum of 22 in each component: Reading 22; Listening 22; Speaking 22; Writing 22; OR Duolingo English Test (DET) Overall 120, minimum of 120 in Literacy and no score below 105.

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### Program Eligibility

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### Application Information

#### **ENVIRONMENTAL MANAGEMENT AND ASSESSMENT (CO-OP AND NON CO-OP VERSION)** **Program Code 1517X03FWO**

Applications to full-time day programs must be submitted with official transcripts showing completion of the academic admission requirements through:

ontariocolleges.ca  
60 Corporate Court  
Guelph, Ontario N1G 5J3  
1-888-892-2228

Applications are available online at <http://www.ontariocolleges.ca/>.

Applications for Fall Term admission received by February 1 will be given equal consideration. Applications received after February 1 will be processed on a first-come, first-served basis as long as places are available.

International applicants applying from out-of-country can obtain the International Student Application Form at <https://algonquincollege.force.com/myACint/> or by contacting the Registrar's Office.

For further information on the admissions process, contact:

Registrar's Office  
Algonquin College  
1385 Woodroffe Ave  
Ottawa, ON K2G 1V8  
Telephone: 613-727-0002  
Toll-free: 1-800-565-4723  
TTY: 613-727-7766  
Fax: 613-727-7632  
Contact: <https://www.algonquincollege.com/ro>

### Additional Information

#### **CO-OP INFORMATION:**

All applicants apply directly to the co-op version of this program through <http://www.ontariocolleges.ca/> or our International Application Portal. Applicants not wishing to pursue the co-op version will have the opportunity to opt-out after being admitted to the program but prior to the first co-op work term.

Co-operative education (Co-op) allows students to integrate their classroom learning with a real-world experience through paid work terms. Two academic terms prior to the cooperative education work term, students are required to actively participate in and successfully complete the self-directed co-op course, readiness activities and workshops.

Students must actively conduct a guided, self-directed job search and are responsible for securing approved program-related paid co-op employment. Students compete for co-op positions

alongside students from Algonquin College and other Canadian and international colleges and universities. Algonquin College's Co-op Department provides assistance in developing co-op job opportunities and guides the overall process, but does not guarantee that a student will obtain employment in a co-op work term. Co-op students may be required to relocate to take part in the co-op employment opportunities available in their industry and must cover all associated expenses; e.g., travel, work permits, visa applications, accommodation and all other incurred expenses.

Co-op work terms are typically 14 weeks in duration and are completed during a term when students are not taking courses. For more information on your program's co-op level(s), visit the courses tab on your program's webpage.

International students enrolled in a co-op program are required by Immigration, Refugees and Citizenship Canada (IRCC) to have a valid Co-op/Internship Work Permit prior to commencing their work term. Without this document International students are not legally eligible to engage in work in Canada that is part of an academic program. The Co-op/Internship Work Permit does not authorize international students to work outside the requirements of their academic program.

For more information on co-op programs, the co-op work/study schedule, as well as general and program-specific co-op eligibility criteria, please visit <https://www.algonquincollege.com/coop>.

## Contact Information

### Program Coordinator(s)

- Sandra Robles-Cruz, <mailto:robless@algonquincollege.com>, 613-727-4723, ext. 5359

## Course Descriptions

### ENV4002 Field Techniques and Sample Acquisition

Environmental professionals require a variety of hands-on, practical skills in order to succeed in this diverse and dynamic sector. Students will develop site plans, learn to sample soil and groundwater, survey elevations, measure groundwater levels and flow direction, complete chain of custody forms, complete Phase I-ESA reports, characterize soil, develop a sampling plan, budget and plan remediation programs, learn to log rock core and soil boreholes, and install monitoring wells. Students will also gain experience completing interviews, participating in safety meetings and employing industry best practices.

Prerequisite(s): none  
Corerequisite(s): SCI4000

### ENV4003 Environmental Policy I

The environmental policy practitioner must be trained to analyze environmental policy, law, and regulations, whether working in business or government. Students learn about the major environmental challenges of our age, as well as the costs to natural capital that require specific government mitigation and/or preventative actions. Students investigate the need for policy, law, and regulations at the federal and provincial levels in Canada and the response of business to these regulations. Students apply various environmental policies for different economic sectors in Canada.

Prerequisite(s): none  
Corerequisite(s): none

### ENV4005 Environmental Policy II

In the environmental sector practitioners apply policy, law and regulations to design and evaluate actions for environmental protection. Students learn about the approaches that government and businesses use to identify environmental risks and set environmental management priorities. Students gain a deeper understanding of risk management and environmental impact assessments while they analyze the economic implications and benefits of environmental protection initiatives. Students expand their skills to complex policy analysis and apply results to business or government management situations.

Prerequisite(s): ENV4003

Corerequisite(s):none

### **ENV4006 Environmental Auditing and Site Assessment**

Students acquire the tools to perform high-level environmental audits and site assessments. Students gain an in-depth understanding of Ontario Environmental Regulation 153/04, including learning to interpret environmental data and forming conclusions and recommendations for further investigation and/or remediation. Using both case studies and field excursions, students identify environmental hazards and liabilities and assess localized environmental requirements. Students review effective and appropriate environmental management systems and learn to write technical reports.

Prerequisite(s): none

Corerequisite(s):none

### **ENV4008 Environmental Modelling and Risk Assessment**

Understanding the underlying assumptions of environmental models, and their impact on decision-making processes is essential to determine the risk associated with chemical release. Students use modelling technology to predict the fate of contaminants in aquatic and terrestrial environments. Through hands-on activities, case studies and model development students learn how contaminants move in different mediums.

Prerequisite(s): none

Corerequisite(s):none

### **GEP1001 Cooperative Education and Job Readiness**

Students are guided through a series of activities that prepare them to conduct a professional job search and succeed in the workplace. Through a detailed orientation students learn the cooperative education program policies and procedures related to searching and securing a work term opportunity. Students identify their strengths and transferable skills and participate in workshop-style sessions that focus on cover letter and resume development, interview techniques and job search strategies. Students learn how to navigate a web-based resource centre, which is used to post employment and cooperative education job opportunities. Students reflect on workplace success, ethics and responsibilities.

Prerequisite(s): none

Corerequisite(s):none

### **GIS4010 GIS and Spatial Data Foundations**

Knowledge of projections and geographic coordinate systems is essential for environmental professionals. Students learn the fundamentals of spatial data. They examine means of collecting geographic data, including the use of GPS, and develop data collection protocols for data verification and field checking. Students then develop foundational skills with GIS software for data management and visualization, importing field data into geographic database formats.

Prerequisite(s): none

Corerequisite(s):none

### **GIS4011 Environmental Map Design**

Students develop skills in environmental map design. Students explore the relationship between common statistics and geographic data, and apply this to classification of data for map purposes. Students learn graphic and colour theory, as well as cartographic design processes. They select cartographic representations most appropriate to the data and explore various approaches to visualization of environmental data in map form.

Prerequisite(s): GIS4010

Corerequisite(s):none



**MGT4500 Project Management Fundamentals**

Managing projects is an essential component in today's business environment and mastering concepts, tools and techniques can help manage projects more efficiently. Students focus on the fundamental principles of project management: how to initiate, plan and execute a project that meets objectives and satisfies stakeholder's expectations. Through case studies and team-work, students examine key project management principles, tools and techniques and learn the concepts behind the foundation of project management.

Prerequisite(s): none

Corerequisite(s):none

**SCI4000 Sample Processing and Analysis**

Environmental professionals should be able to follow a project from idea through the sampling, analysis and reporting stages. Students use industry techniques and protocols to process and analyze soil and water samples. Quantitative and qualitative determinations of sample components are achieved using analytical equipment in the laboratory.

Prerequisite(s): none

Corerequisite(s):none

**SCI4001 Biodiversity and Conservation**

Understanding the importance of biodiversity and the effects of anthropogenic influences (urban and industrial development) on ecosystem functions is key to sustainable management of our environment and natural resources. Students investigate the types of biodiversity, the importance of ecosystem services, and the threats to biodiversity (impacts of habitat loss, invasive species, and climate change). Through discussions, case studies, and assignments, students examine the importance of conservation (species and habitats at risk, reserves, protected areas, restoration), regulations, and sustainable management.

Prerequisite(s): none

Corerequisite(s):none

**SCI4002 Sustainable Hydrology**

Students apply scientific knowledge and mathematical principles to solve water-related problems in society. Students acquire a better understanding of the impact of climate change on freshwater sources. Students consider water environmental protection, with a focus on environmentally conscious handling of wastewater and storm water in water-centric urban environments. Students expand upon their knowledge of hydrology by exploring current approaches to the sustainability of freshwater sources.

Prerequisite(s): none

Corerequisite(s):none

**SCI4003 Scientific Communication for Public Policy**

Clear, concise and effective communication is required for success in this industry. Students explore and apply industry-specific technical writing strategies, such as assessing scientific procedures and clearly articulating complex technological problems. Through written assignments, presentations and simulating briefing activities, students develop written and spoken communication skills essential for professionals in this sector.

Prerequisite(s): none

Corerequisite(s):none

**WKT1517X Environmental Management and Assessment Work Term**

Students gain valuable on-the-job experience. This Cooperative Education work-term develops further technical expertise for students.

Prerequisite(s): none  
Corerequisite(s):none