Area of Interest: Environmental and Applied Sciences

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

Ontario College Graduate Certificate Program Code: 1517X03FPM

1 Year

Pembroke Campus

Our Program

Join those at the forefront of environmental management practice.

This one-year Environmental Management and Assessment Ontario College Graduate Certificate program provides students with a comprehensive understanding of environmental sciences through hands-on experiences and personalized learning activities. Graduates acquire advanced knowledge and skills, making them highly competitive in the environmental sector.

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

- environmental site assessment
- regulatory compliance
- designated substance surveys
- climate change assessment
- waste management
- water quality management
- air, soil, and quality assessment
- sampling and analytical work
- policy analysis, development, and planning
- environmental health and safety
- natural resources planning and management
- environmental research, data analysis, and technology
- environmental health and safety compliance
- environmental business and management

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

Over two terms (eight months), you develop transferrable knowledge and skills in hydrology, field techniques, sample processing and analysis, biodiversity and conservation, environmental modelling, environmental auditing and assessment, Geographic Information Systems (GIS), scientific communication for public policy, and environmental policy analysis and implementation. Your skill-set enables you to assess human impacts on the environment, develop and enforce regulations, complete environmental site assessments, conduct research, and effectively implement strategies to address environmental challenges.

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 are well-equipped for various roles in government, for profit and not-for-profit organizations, and consulting agencies, focusing on areas such as environmental compliance, sustainable development, conservation, or corporate environmental responsibility.

Employment

Graduates may find employment as:

- Assistant Resource Management Technician
- Environment and Social Governance Compliance Assistant
- Environmental Assistant/Scientist
- Environmental Consultant
- Environmental Field Technician
- Environmental Management Assessment Assistant
- Environmental Technician/Technologist
- Environmental/Health Safety Technician
- Geoscience Assessment Officer
- GIS Assistant/Technician/Analyst
- Hazardous Materials Assessor
- Junior Geotechnical Field Technician
- Lab Technician
- Materials Testing Facility Technician
- Quality Assurance Engineering Assistant
- Research Assistant
- Site/Field Project Coordinator
- Survey technician
- Sustainability Project Assistant/Manager
- Water Analysis/Treatment Technician
- Water Resources Technician

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
ENV7009	Environmental Legislation	42.0
ENV7010	Waste Management	42.0
ENV7013	Field Techniques and Sample Acquisition	56.0
GEP1001	Cooperative Education and Job Readiness	21.0
GIS7010	Gis and Spatial Data Foundations	42.0
SCI7000	Sample Processing and Analysis	42.0
SCI7003	Scientific Communication for Public Policy	42.0
SCI7007	Biodiversity and Conservation	42.0
Level: 02	**Courses**	**Hours**
ENV7002	Field Tech. & Sample Acquisition	84.0
ENV7006	Environmental Auditing and Site Assessment	70.0
ENV7008	Environmental Modelling and Risk Assessment	42.0
ENV7011	Hazardous Materials	42.0
ENV7012	Environmental Management and Assessment Applied Research Project	56.0
GEP2001	Co-Op Job Search 1	21.0
GIS7011	Environmental Map Design	42.0
MGT7501	Project Management Fundamentals	42.0
Co-op: 01	**Courses**	**Hours**
WKT7517	Environmental Management and Assessment Work Term	0.0

Fees for the 2025/2026 Academic Year

Tuition and ancillary fees for this program can be viewed by using the Tuition and Fees

Estimator tool at https://www.algonquincollege.com/ro/pay/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.

- Due to the nature of your program, you are required to participate in learning that takes place throughout the diverse forests, lands and waters of the Ottawa Valley including trips to the Petawawa Research Forest, a nationally recognized centre of excellence for forestry research. Students are expected to make their own way to sites within the City of Pembroke. However, for more distant, off campus locations, where parking is unsafe, unavailable or limited, bus transportation is required. For your purchase convenience, an Environmental Management Assessment student term bus pass is available for purchase in the Campus Proud shop at the following rates (based on required use): Fall $84, Winter $84.

Admission Requirements for the 2026/2027 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.>/LI>

- 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.

Admission Requirements for 2025/2026 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.

Application Information

ENVIRONMENTAL MANAGEMENT AND ASSESSMENT
Program Code 1517X03FPM

Applications to full-time day programs must be submitted with official transcripts showing

completion of the academic admission requirements through:

https://www.ontariocolleges.ca/en
60 Corporate Court
Guelph, Ontario
N1G 5J3
1-888-892-2228

Applications are available online https://www.ontariocolleges.ca/en

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.my.site.com/myac360/s/self-registration-page 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 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 www.
https://www.algonquincollege.com/coop-career-centre/

Contact Information

Program Coordinator(s)

- Patrick Nicholson, mailto:nicholp@algonquincollege.com , 613-735-4700, ext. 2647

Course Descriptions

ENV7002 Field Tech. & 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):none

ENV7006 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

ENV7008 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

ENV7009 Environmental Legislation

In the environmental sector, practitioners apply policy, law, and regulations to design and evaluate actions for environmental protection. Students examine various approaches used by government and businesses to identify environmental risks and set environmental management priorities. Students investigate risk management and environmental impact assessments while analyzing the economic implications and benefits of environmental protection initiatives. Through case study and analysis of real-world scenarios, students develop knowledge and skills to complete complex policy analysis and apply results to business or government management situations.

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

ENV7010 Waste Management

Comprehensive waste management systems are designed to minimize waste and to enhance reuse, and recycling opportunities in support of social, financial, and environmental sustainability. Students explore waste management regulations, principles and best practices for waste minimization, recycling strategies, and leading disposal technologies to promote the circular economy and reduce the impact of waste on the environment. Students examine ways to assist with budget preparation and analysis. Through assignments, projects, and case studies, students

investigate a variety of waste management strategies that promote environmentally-friendly materials and processes.

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

ENV7011 Hazardous Materials

Effective hazardous waste management is crucial to preserve and protect healthy ecosystems and to support biodiversity. Students analyze the impacts of improper disposal of hazardous materials on soil, water, and air quality, and potential harm to wildlife and human health. Students explore ethical and sustainable strategies to prevent hazardous substances from entering the environment and causing long-term damage for existing and future generations. Through case study and analysis, students investigate ways to properly store, transport, recycle, recover and dispose of hazardous materials to protect public health and the environment.

Prerequisite(s): ENV7010
Corerequisite(s):none

ENV7012 Environmental Management and Assessment Applied Research Project

Environmental assessment and management professionals work with organizations to create strategies to protect the environment and human health. Students research and analyze specific environmental challenges, and consolidate their knowledge and skills to complete applied projects in the environmental field. Students investigate contemporary environmental issues to develop innovative, evidence-informed recommendations or solutions. Simulating a workplace scenario, students seek and integrate feedback during all project phases and culminate by presenting and defending their findings and proposals.

Prerequisite(s): ENV7009 and ENV7013 and SCI7000 and SCI7003 and SCI7007
Corerequisite(s):none

ENV7013 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 learn theory on installation of monitoring wells. Students also gain experience completing interviews, participating in safety meetings and employing industry best practices.

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

GEP2001 Co-Op Job Search 1

Students are guided through a self-directed co-op job search using Algonquin's web-based resource centre, HireAC, as well as independent resources. Students will access information on key

job search processes, including Co-op and Career Centre job search procedures and how to declare a self-developed job that meets co-op guidelines. Students will apply and further develop their knowledge on networking, interview techniques and job search strategies to improve their chances of success in securing co-op employment through a competitive job search process. Additional support is provided through individual coaching and group sessions, including job application reviews, mock interviews and assistance for students experiencing unique employment challenges.

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

GIS7010 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

GIS7011 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): GIS7010
Corerequisite(s):none

MGT7501 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

SCI7000 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

SCI7003 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

SCI7007 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 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 integrating social and ethical issues into regional, national, and international policies and treaties related to biodiversity

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

WKT7517 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