Area of Interest: Environmental Science

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

Ontario College Graduate Certificate  Academic Year: 2020/2021
1 Year  Program Code: 1517X01FWO
Ottawa Campus

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. Courses are offered on evenings and weekends.

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 version of the program are subject to availability.

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

- ecology research and reporting
- water and wastewater monitoring
- site assessments
- cost proposals
- pollution prevention and control
- 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 built 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, water and wastewater monitoring, site assessment and cost proposals, pollution prevention and control, and 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**

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<tr>
<th>Level: 01</th>
<th>Courses</th>
<th>Hours</th>
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<tr>
<td>ENV4002</td>
<td>Field Techniques and Sample Acquisition</td>
<td>84.0</td>
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<tr>
<td>ENV4003</td>
<td>Environmental Policy I</td>
<td>42.0</td>
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<tr>
<td>GIS4010</td>
<td>GIS and Spatial Data Foundations</td>
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<td>SCI4000</td>
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<td>SCI4001</td>
<td>Biodiversity and Conservation</td>
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<tr>
<td>ENV4005</td>
<td>Environmental Policy II</td>
<td>42.0</td>
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<tr>
<td>ENV4006</td>
<td>Environmental Auditing and Site Assessment</td>
<td>70.0</td>
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<tr>
<td>ENV4008</td>
<td>Environmental Modelling and Risk Assessment</td>
<td>42.0</td>
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Fees for the 2020/2021 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](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](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, and one pair of CSA-approved safety glasses. 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 and eye protection. The estimated cost of this equipment for the program is $400.

Admission Requirements for the 2021/2022 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.

Admission Requirements for 2020/2021 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.
- International applicants must provide proof of the subject specific requirements noted above along with proof of either: (IELTS / TOEFL) 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.
- Applicants with international transcripts must provide proof of the subject specific requirements noted above and may be required to provide proof of language proficiency.

Application Information
Program Code 1517X01FWO

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 http://www.ontariocolleges.ca/. A $95 fee applies.

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/myACin/ 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
Email: mailto:AskUs@algonquincollege.com

Additional Information

Programs at Algonquin College are Bring Your Own Device (BYOD). To see the BYOD requirements for your program, please visit: http://www.algonquincollege.com/byod/.

Apply directly to the non co-op version of this program through OntarioColleges.ca or our International Application Portal. Qualified students may elect to participate in the co-op version, two terms prior to the first co-op work term. Subject to availability.

Cooperative 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 online readiness activities and in-person 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 and other Canadian and international colleges and universities. Algonquin College`s Co-op Department provides assistance in developing co-op job opportunities and facilitates 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 re-locate 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.

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 a mandatory part of an academic program.

For more information, please visit https://www.algonquincollege.com/coop.

For more information, contact Sean Beingessner, Program Coordinator, at 613-727-4723 ext. 5359 or mailto:beinges1@algonquincollege.com
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, resume writing, 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 environment 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
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): none
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 impacts of urban and industrial development on biodiversity and ecosystem functions is important, as it may guide zoning decisions. Students investigate the effects of population growth on the demand for food, energy and resources. Using case studies and in-depth analysis, students examine regulations and their implications on habitat change.

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

SCI4002 Sustainable Hydrology

Hydrologists 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