

# MASTER OF SCIENCE ENVIRONMENTAL SUSTAINABILITY

The Institute of the Environment offers a master's level Collaborative Program in Environmental Sustainability and an interdisciplinary Master of Science (MSc) in Environmental Sustainability. The MSc is aimed at providing future professionals and scholars with the skills and capacities needed to develop effective regulatory and policy solutions to today's complex, multi-dimensional environmental problems. Students will gain foundational knowledge relevant to environmental sustainability from science, law, economics and policy; learn a set of methodological skills for synthesizing and integrating knowledge from these disciplines; and apply this knowledge and these integration skills to today's most pressing environmental challenges.

Two options are available: the MSc with thesis and the MSc with research paper. The MSc with research paper option can be completed in 12 months of full-time study, and the MSc with thesis option can be completed in 24 months of full-time study. Students in the MSc with research paper option may enroll for an additional term of full-time study if needed to fulfill the program requirements.

The Institute of the Environment, in collaboration with the University of Ottawa's CO-OP office, offers a CO-OP option to a limited number of students. We offer a co-op stream to a limited number of students who will request this option in their admission file. The co-op option gives selected students the opportunity to acquire practical work experience by completing two paid one-term work placements.

The compulsory courses for the program are currently offered in English. They will be offered in French in the future. In accordance with the regulations of the University of Ottawa, examinations, assignments, and the research paper or thesis may be written in the official language of the student's choice (either English or French).

The program is governed by the general regulations (<http://www.grad.uottawa.ca/Default.aspx?tabid=1807>) in effect for graduate studies.

Learn more about this program (<https://www.uottawa.ca/faculty-social-sciences/public-international-affairs/graduate/environmental-sustainability-programs/>)

## Admission Requirements

For the most accurate and up to date information on application deadlines, language tests and other admission requirements, please visit the specific requirements (<https://www.uottawa.ca/graduate-studies/programs-admission/apply/specific-requirements/>) webpage.

Admission is limited to the number of places available in the program in a given year, and is on a competitive basis. The basic admission requirement is an honours bachelor's degree or equivalent from a relevant discipline with a minimum average of B+ (75%), calculated in accordance with graduate studies guidelines. Examples of relevant disciplines include environmental studies, geography, economics, environmental science, political science, international development, environmental engineering, and law. Candidates with honours bachelor's degrees from disciplines

other than these may also be considered. The program is rigorous and requires strong academic skills, discipline and a professional work-ethic.

## CO-OP Option

The Institute of the Environment offers a co-op stream to a limited number of students who will request this option in their admission file. The co-op option gives selected students the opportunity to acquire practical work experience by completing two paid one-term work placements.

## Program Requirements

Requirements for this program have been modified. Please consult the 2022-2023 calendars (<https://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

## Master's with Research Paper

The program requirements include 31.5 course units as follows:

### Compulsory courses:

EVD 5109	Applied Environmental Sustainability	3 Units
EVD 5111	Capstone Seminar in Environmental Sustainability	3 Units
EVD 5113	Foundations of Environmental Policy	3 Units
EVD 5114	Professional Skills for Environmental Sustainability	1.5 Units
EVD 5121	Foundations of Environmental Science	3 Units
EVD 5122	Foundations of Environmental Economics	3 Units
EVD 5123	Evidence Synthesis and Evaluation	3 Units
EVD 5124	Foundations of Environmental Law	3 Units

### Elective courses

3 elective course units at the graduate level <sup>1</sup>	3 Units
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### Research Paper:

MRP 6999	Major Research Paper <sup>2</sup>
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### Note(s)

<sup>1</sup> It is possible to take the elective course credits outside of the EVD program (for instance, in geography, political studies, biology, globalization and international development). Consult the department for the list of elective courses and for the regulations governing the selection of these courses.

<sup>2</sup> Students must begin to formulate their research paper topic and choose their supervisor at the beginning of the program. The supervisor of the research paper must be an affiliate of the Institute of the Environment and the student's choice must be approved by the Program Director.

## Master's with Thesis

The program requirements include 19.5 course units as follows:

### Compulsory Courses:

EVD 5113	Foundations of Environmental Policy	3 Units
EVD 5114	Professional Skills for Environmental Sustainability	1.5 Units
EVD 5121	Foundations of Environmental Science	3 Units
EVD 5122	Foundations of Environmental Economics	3 Units
EVD 5124	Foundations of Environmental Law	3 Units

**Optional courses:** 3 Units

EVD 5109 Applied Environmental Sustainability

EVD 5123 Evidence Synthesis and Evaluation

**Elective courses**

3 elective course units at the graduate level <sup>1</sup> 3 Units

**Thesis Project:**

EVD 7997 Thesis Proposal <sup>2</sup>

**Thesis:**

THM 7999 Master's Thesis

Note(s)

<sup>1</sup> Students who choose to complete both EVD 5109 and EVD 5123 do not need to complete the 3 elective course units. A student may take the elective course units in other disciplines (for instance, in geography, political science, biology, globalization and international development). Consult the department for the list of elective courses and for the regulations governing the selection of these courses.

<sup>2</sup> Students must begin to formulate their thesis topic and choose their supervisor at the beginning of the program. The thesis supervisor must be an affiliate of the Institute of the Environment and the student's choice must be approved by the Program Director. The choice of thesis topic and supervisor must be registered no later than the end of the second term.

## CO-OP Option

CO-OP students must enroll full time and complete two work terms: EVD 6001 and EVD 6002.

Each work term is graded P/F (pass/fail), based on the employer's report and on the written report completed by the student (the student report should be 30 pages in length, including appendices). The report is evaluated by the professor in charge of the graduate CO-OP option in Environmental Sustainability.

The units awarded for CO-OP work terms may not be used to obtain equivalences for other courses. In other words, the CO-OP units are additional to the minimum requirements of the degree.

To remain in the CO-OP option, students must:

- maintain full-time status;
- maintain a 7.0 cumulative grade point average;
- obtain a satisfactory grade (P) for each CO-OP work term.

## Minimum Standards

The passing grade in all courses is C+. Students who fail two courses or the same course twice, or the thesis research proposal, or whose research progress is deemed unsatisfactory, must withdraw from the program.

## Duration of the Program

Full-time students are expected to fulfill all requirements of the thesis option within two years and the research paper option within one year. Students in the research paper option may take an additional term to complete their research paper, if needed. The maximum time permitted for all students is four years from the date of initial enrollment in the program.

## Research Research Fields & Facilities

Located in the heart of Canada's capital, a few steps away from Parliament Hill, the University of Ottawa is among Canada's top 10 research universities.

Professors affiliated with the Institute of the Environment conduct research on a variety of sustainability and environmental issues, including market instruments for environmental protection, community-based resource management, climate policy, the control of toxics as well as biodiversity loss and species at risk.

Our students can also collaborate with the Smart Prosperity Institute (SPI), a national research network and policy think tank based at the University of Ottawa's Institute of the Environment. SPI deliver world-class research and work with public and private partners - all to advance practical policies and market solutions for a stronger, cleaner economy.

With cutting-edge research, our graduate students, researchers and educators strongly influence national and international priorities.

## Courses

### EVD 5100 Seminar in Environmental Sustainability (3 units)

Overview of environmental sustainability issues using climate change as an example. Application of integrated analyses based on concepts in science, law, economics and policy to devise policy solutions. The debate about the scientific evidence for climate change and international efforts to negotiate an agreement. The economic, political and social dimensions of climate change and measures taken both nationally and internationally to mitigate its effects.

**Course Component:** Seminar

### EVD 5101 Economics of Environmental Law and Policy (3 units)

Environmental issues and the environmental policy framework from an economics perspective. Review of the underlying theory in relation to economic concepts such as efficiency, market failure, externalities, cost-benefit, and valuation. Overview of macroeconomic topics such as economic growth and green accounting, and their relation to law and policy. Application of these theoretical concepts to various environmental challenges, from climate change and energy regulation to managing ecosystem services and conserving biodiversity. Policy options for managing environmental challenges, from traditional command and control regulation to economic instruments such as environmental taxation, and cap and trade programs. Evaluation of the environmental, social, and economic effectiveness of the various policy options, and integration of economic theory into environmental policy development.

**Course Component:** Lecture

### EVD 5109 Applied Environmental Sustainability (3 units)

Uses an environmental sustainability case study, such as climate change, to learn how to synthesize information about a problem from multiple disciplinary perspectives, to critically evaluate such information using rigorous methodological approaches, and to design and evaluate policy or regulatory solutions.

**Course Component:** Seminar

### **EVD 5111 Capstone Seminar in Environmental Sustainability (3 units)**

Involves partnering with organization(s) working on a sustainability issue. Students work in interdisciplinary teams to identify the scientific, economic, legal and social dimensions of a particular environmental problem, evaluate a set of candidate solutions, and recommend an approach.

**Course Component:** Seminar

### **EVD 5113 Foundations of Environmental Policy (3 units)**

Study of the key political and administrative factors affecting the formulation and implementation of environmental policy, including democratic institutions, various methods for citizen and stakeholder engagement and their influence on the decision-making process in government, public opinion and the framing of policy problems, values and the use of scientific evidence in policy-making, lobbying and the role of interest representation, federalism and multi-level environmental governance, and the international governance of environmental problems. Case studies will place Canada in a comparative context and explore the importance of political factors across areas of environmental policy.

**Course Component:** Seminar

### **EVD 5114 Professional Skills for Environmental Sustainability (1.5 units)**

Oral and written communications skills, including presenting to parliamentary committees, preparing memos to cabinet, writing editorials, doing media interviews, and producing interdisciplinary public policy reports. Project and process management skills, including multi-stakeholder processes.

**Course Component:** Seminar

### **EVD 5121 Foundations of Environmental Science (3 units)**

Provides students with a thematic understanding of the current state of environmental science. Major themes include: the set of environmental issues that are currently of major concern in Canada and abroad; the range of scientific approaches currently employed to understand and predict the effects of human activities on ecosystems; the nature of environmental science evidence; and how environmental sustainability is characterized from the perspective of environmental science.

**Course Component:** Seminar

### **EVD 5122 Foundations of Environmental Economics (3 units)**

Key elements of economics including formal models and their underlying assumptions as they relate to the development of sustainability policy. Covers concepts such as public goods, market failure, non-market valuation, incentives, welfare economics, regulation, the equity-efficiency trade-off and market-based instruments. The course explains how fundamental economic concepts, particularly their advantages and limitations, are used to analyze issues at the interface of the economy and the environment. Examines renewable (e.g., fisheries, forests) and non-renewable (e.g., oil, gas, minerals) resource management and other topics (e.g., climate change, ozone depletion, cap and trade) in applied environmental economics. Explores the institutions and trade-offs that individuals and governments face in the context of sustainability policy.

**Course Component:** Seminar

### **EVD 5123 Evidence Synthesis and Evaluation (3 units)**

Reviews different understandings of what constitutes research, both as it pertains to the production of evidence and to the evaluation of existing evidence relating to policy, to regulatory and statutory interventions and to identifying evidence gaps. Students learn research methodologies to design research so as to maximize its evidentiary value (given existing constraints); they will also learn to synthesize and assess the evidentiary value of existing research.

**Course Component:** Seminar

### **EVD 5124 Foundations of Environmental Law (3 units)**

Foundations of environmental law, including theory of sustainability, constitutional division of powers, approaches to regulation of environmental issues, including examples of legal frameworks for different environmental problems, and access to justice.

**Course Component:** Seminar

### **EVD 5500 Séminaire en durabilité de l'environnement (3 crédits)**

Survol des enjeux en durabilité de l'environnement en se servant du changement climatique comme exemple. Application d'analyses intégrant des concepts en sciences, en droit, en science économique et en études politiques. Le débat au sujet de la preuve scientifique du changement climatique et les efforts sur le plan international pour négocier une entente. Les dimensions économiques, sociales et politiques du changement climatique et les mesures à ce jour pour atténuer ses effets, au niveau international et au niveau national.

**Volet :** Séminaire

### **EVD 5501 Approche économique et le droit de l'environnement (3 crédits)**

Les enjeux environnementaux et le système de réglementation du point de vue de la science économique. Étude de la théorie qui sous-tend certains concepts économiques, tels l'efficacité, la défaillance du marché, les externalités et la valuation. Survol des concepts macroéconomiques, tels la croissance économique et la comptabilité environnementale. Application de ces concepts théoriques aux défis environnementaux tels le changement climatique, la réglementation de l'énergie, la gestion des services écologiques et la conservation de la biodiversité. Les divers outils de réglementation pour la gestion des défis liés à l'environnement, incluant la réglementation traditionnelle de type « commande et contrôle », les moyens économiques tels que la taxation environnementale et les systèmes de droits d'échanges. Évaluation de l'efficacité environnementale, sociale et économique des diverses approches, et intégration de la théorie économique dans le développement de la réglementation environnementale.

**Volet :** Cours magistral

### **EVD 5509 Développement durable appliqué (3 crédits)**

Étude de cas en développement durable (changements climatiques, par exemple) pour apprendre à synthétiser l'information sur un problème à partir de plusieurs perspectives disciplinaires, pour évaluer l'information selon un schéma critique, en faisant usage de méthodes rigoureuses, et pour concevoir et évaluer des politiques ou règlements.

**Volet :** Séminaire

### **EVD 5511 Séminaire d'intégration sur le développement durable (3 crédits)**

Partenariat avec des organisations travaillant en développement durable. Les étudiants forment des équipes multidisciplinaires pour étudier les dimensions scientifiques, économiques, juridiques et sociales d'un problème environnemental particulier, pour évaluer un éventail de solutions possibles et pour recommander les mesures à prendre.

**Volet :** Cours magistral

### **EVD 5513 Rudiments des politiques environnementales (3 crédits)**

Étude des principaux facteurs politiques et administratifs influençant la formulation et la mise en oeuvre des politiques environnementales, y compris les institutions démocratiques, les méthodes de participation des citoyens et des parties prenantes et leur influence sur les processus décisionnels des gouvernements, l'opinion publique et la définition des problèmes, le rôle des valeurs et de la science dans la formulation des politiques, le lobbying et la représentation des intérêts, le fédéralisme et la gouvernance multi-niveaux des enjeux environnementaux, et la politique internationale de l'environnement. Des études de cas situeront le Canada dans une perspective comparée et exploreront l'importance de ces facteurs politiques dans divers secteurs des politiques environnementales.

**Volet :** Cours magistral

### **EVD 5514 Compétences professionnelles pour le développement durable (1.5 crédits)**

Compétences orales et écrites en communication, notamment les présentations aux comités parlementaires, la préparation de mémoires au cabinet, la rédaction d'éditoriaux, les entrevues médiatiques et la production de rapports multidisciplinaires sur les politiques publiques. Gestion de projet et de processus faisant intervenir de nombreux joueurs.

**Volet :** Cours magistral

### **EVD 5521 Rudiments des sciences de l'environnement (3 crédits)**

Donne aux étudiants une compréhension thématique de l'état actuel des sciences environnementales. Principaux thèmes : éventail des enjeux environnementaux d'importance au Canada et à l'étranger; les démarches scientifiques déployées pour comprendre et prédire les conséquences des activités humaines pour les écosystèmes; la nature des preuves apportées par les sciences de l'environnement; la perspective des sciences de l'environnement sur le développement durable.

**Volet :** Cours magistral

### **EVD 5522 Rudiments de l'économie de l'environnement (3 crédits)**

Principaux éléments de l'économie, y compris les modèles économiques officiels et les présuppositions afférentes à l'élaboration de politiques de développement durable. Étude de divers concepts : patrimoine commun; échec des marchés; non évaluation des valeurs courantes; mesures incitatives; économie du bien-être; réglementation; équilibre entre équité et efficacité; instruments reposant sur les mécanismes de marché. On examinera plus en détail les concepts fondamentaux de l'économie et leurs avantages et inconvénients pour l'examen des enjeux au carrefour de l'économie et de l'environnement. Étude de la gestion des ressources renouvelables (pêches, forêts, etc.) et non renouvelables (pétrole, gaz, minerai, etc.) et d'autres sujets en économie de l'environnement appliquée (ex. changements climatiques, destruction de la couche d'ozone, programmes de plafonnement et d'échange). Étude des institutions et programmes de compensation auxquels sont confrontés les individus et les gouvernements dans le contexte des politiques de développement durable.

**Volet :** Cours magistral

### **EVD 5523 Synthèse et évaluation de données probantes (3 crédits)**

La recherche vise soit à produire des données probantes, soit à évaluer les données probantes existantes en ce qu'elles ont trait à des interventions politiques, réglementaires et étatiques, y compris les lacunes en la matière. Ainsi, les étudiants acquièrent les compétences nécessaires qui leur permettent de concevoir un programme de recherche de façon à en optimiser la valeur probante (en fonction des contraintes existantes) et de synthétiser les résultats de recherches existantes et d'évaluer leur valeur probante.

**Volet :** Cours magistral

### **EVD 5524 Rudiments du droit de l'environnement (3 crédits)**

Rudiments du droit de l'environnement, y compris la théorie du développement durable, la division constitutionnelle des pouvoirs, les démarches visant à réglementer les questions environnementales, avec exemples de cadres légaux pour différents problèmes environnementaux et accès à la justice.

**Volet :** Séminaire

### **EVD 6001 Stage coop I / Co-Op Work Term I (6 crédits / 6 unités)**

Expérience en milieu de travail. Évalué P (réussite) / F (échec) par un professeur du programme selon les résultats du rapport écrit et l'évaluation du superviseur de stage. Préalable : permission du responsable des études supérieures. / Experience in a workplace setting. Evaluated P (Pass) / F (Fail) by a professor in the program based on the written report and the evaluation of the internship supervisor.

**Volet / Course Component:** Stage / Work Term

### **EVD 6002 Stage coop II / Co-Op Work II (6 crédits / 6 unités)**

Expérience en milieu de travail. Évalué P (réussite) / F (échec) par un professeur du programme selon les résultats du rapport écrit et l'évaluation du superviseur de stage. Préalable : permission du responsable des études supérieures. / Experience in a workplace setting. Evaluated P (Pass) / F (Fail) by a professor in the program based on the written report and the evaluation of the internship supervisor.

**Volet / Course Component:** Stage / Work Term

### **EVD 6112 Selected Topics in Environmental Sustainability (3 units)**

In-depth examination of a question or topic linked to new trends or research areas in environmental sustainability.

**Course Component:** Lecture

### **EVD 6512 Thèmes choisis en durabilité de l'environnement (3 crédits)**

Analyse approfondie d'une problématique ou d'une question liée aux nouvelles tendances en recherche ou aux nouveaux thèmes de recherche en durabilité de l'environnement.

**Volet :** Cours magistral

### **EVD 6912 Thèmes choisis en durabilité de l'environnement / Selected Topics in Environmental Sustainability (3 crédits / 3 units)**

Analyse approfondie d'une problématique ou d'une question liée aux nouvelles tendances en recherche ou aux nouveaux thèmes de recherche en durabilité de l'environnement. / In-depth examination of a question or topic linked to new trends or research areas in environmental sustainability.

**Volet / Course Component:** Cours magistral / Lecture

Préalable : connaissance passive de l'anglais. / Prerequisite: passive knowledge of French

### **EVD 6932 Lectures dirigées en durabilité de l'environnement / Directed Readings in Environmental Sustainability (3 crédits / 3 units)**

Cours individuel ayant pour objectif d'approfondir les connaissances de l'étudiant dans un domaine particulier ou de lui permettre de se familiariser avec un nouveau domaine. Le sujet est déterminé et développé en consultation avec le professeur responsable et en conformité avec les directives de l'Institut de l'environnement. Le travail remis dans ce cours doit être différent de ce qui a pu être soumis dans d'autres cours, y compris le projet de recherche, la thèse ou le mémoire. On permet un maximum d'un cours de lectures dirigées par étudiant et la permission n'est accordée que dans des circonstances exceptionnelles. / Individual course aimed at deepening a student's knowledge of a particular area or at gaining knowledge of a new area. The topic is selected and developed in consultation with the supervising professor in accordance with institute guidelines. The work submitted for this course must be different from that submitted for other courses, including the research proposal, the thesis or the research paper. Maximum of one directed readings course per student, and permission is granted only under exceptional circumstances.

**Volet / Course Component:** Recherche / Research

Préalable: Connaissance passive de l'anglais. / Prerequisite: Passive knowledge of French.

### **EVD 7997 Projet de thèse / Thesis Proposal**

**Volet / Course Component:** Recherche / Research

### **EVD 8100 Theory and Practice in Environmental Sustainability (3 units)**

Characterization of environmental sustainability from the perspective of economics, political science, environmental science, and law. Demonstration of how often-divergent perspectives and values of stakeholders from various backgrounds frame both sustainability problems themselves, and acceptable solutions.

**Course Component:** Seminar

### **EVD 8500 Théorie et pratique en durabilité environnementale (3 crédits)**

La caractérisation de la durabilité environnementale du point de vue de la science économique, de la science politique, de la science environnementale et du droit. Démonstration de comment les perspectives et les valeurs divergentes des parties prenantes de divers horizons définissent à la fois les problèmes et les solutions acceptables en durabilité.

**Volet :** Séminaire

### **EVD 8901 Conception de recherche et méthodologie pour la recherche en durabilité de l'environnement / Research Design and Methods for Environmental Sustainability (3 crédits / 3 units)**

Vue d'ensemble des méthodes de recherche employées dans les quatre domaines principaux de la durabilité (science de l'environnement, droit, politique et économie). À l'aide d'études de cas, examen des types d'inférences causales que l'on peut ou ne peut pas tirer d'un plan de recherche, les menaces à la déduction valable et les plans de recherche pouvant atténuer ces menaces. Accent particulier sera mis sur la relation entre les conceptions de recherche et la force de l'inférence causale. / Overview of research methods employed in the four main subject areas underlying sustainability (environmental science, law, policy and economics). Through case studies, examination of the kinds of causal inferences one can and cannot draw from a research design, threats to valid inference, and research designs that can mitigate those threats. Particular emphasis placed on the relationship between research designs and strength of causal inference.

**Volet / Course Component:** Séminaire / Seminar

### **EVD 9997 Examen d'entrée / Qualifying Examination**

Examen d'entrée / Qualifying Examination

**Volet / Course Component:** Recherche / Research

### **EVD 9998 Projet de thèse / PhD Thesis Proposal**

Projet de thèse / PhD Thesis Proposal

**Volet / Course Component:** Recherche / Research