

# MASTER OF SCIENCE GEOGRAPHY AND SPECIALIZATION SCIENCE, SOCIETY AND POLICY

The Department of Geography, Environment and Geomatics conducts research and teaching on the interrelationships between human society and the physical world. Students are introduced to the full spectrum of subfields, including human and physical geography, environmental studies, and geomatics. Specific departmental strengths include polar environments, urban geography, climate change, and GIS and remote sensing.

In addition to its undergraduate programs, the department offers thesis-based two-year Master of Arts (MA) and Master of Science (MSc) programs, as well as a course-based interdisciplinary one-year Master concentration in The Anthropocene (MSc), and a PhD in Geography. Through the MA and MSc programs, students can also participate in the collaborative program in Science, Society and Policy. The programs are governed by the general regulations in effect for graduate studies.

The objective of the collaborative program in Science, Society and Policy is to provide students with the knowledge and skills needed to evaluate the challenges confronting decision-making at the interface of science and policy. Students will have an opportunity to explore how evidence is used in decision-making, how current policies shape the scientific enterprise, and how emerging technologies interact with society.

## 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.

To be admissible to the master's program, the student must hold an BA with honours in geography or in a related discipline with an academic record indicating at least (B+) or the equivalent. Candidates whose bachelor's degree with honours (or the equivalent) is in an area other than geography may be admitted for a qualifying period, during which they must take selected courses required in the department's BA with honours program.

## Additional Coursework

The Admissions Committee may, depending on the candidates' background, require them to successfully complete additional courses, including language courses, beyond the basic MA degree requirements.

## Collaborative Programs

The Department of Geography is one of the units participating in the collaborative programs in Canadian Studies (PhD level only), in Science, Society and Policy (master's level only). Students should indicate in their initial application for admission that they wish to be accepted into one of the collaborative programs.

Admission to the collaborative program in Science, Society and Policy is governed by the general regulations in effect for graduate studies.

Applications for admission may be submitted at the time of application to a participating master's program (i.e. primary program) at the University of Ottawa or upon acceptance into a participating master's program at the University of Ottawa.

To be accepted into the collaborative program candidates must:

- Be admitted to one of the programs participating in the collaborative program;
- Submit a collaborative program enrollment form (<http://issp.uottawa.ca/en/education/SSPcollaborative/>);
- Submit a 1-page cover letter (<http://issp.uottawa.ca/en/education/SSPcollaborative/>) (500 words maximum) outlining their interest in the collaborative program and how their research topic or area aligns with the scope of inquiry at the Institute for Science, Society and Policy;

In the case of a thesis-based program, the collaborative enrollment form must be signed by the student's thesis supervisor, as consent to participate in the collaborative program.

Note that some of the primary programs have a co-op option. Students in the collaborative program may also have access to the co-op option provided that space is available, that they meet the co-op admission requirements, and that required courses do not conflict with the schedule of co-op placements.

## Additional Information

For additional information, refer to the Department of Geography ([http://www.geography.uottawa.ca/PDF/Form\\_geography.pdf](http://www.geography.uottawa.ca/PDF/Form_geography.pdf))'s website.

## Program Requirements

Requirements for this program have been modified. Please consult the 2021-2022 calendars (<http://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

## MSc with Thesis

### Compulsory Courses:

9 course units from: <sup>1</sup>	9 Units
GEG 5310 Selected Topics in Physical Geography	
GEG 5311 Environmental Change in Cold Regions	
GEG 5707 Milieux nordiques	
GEG 6101 Data Analysis and Modelling	
GEG 6102 Practical GIS for Graduate Studies	
GEG 6103 Spatial Data Science	
GEG 7910 Directed Readings	

### Second Language Proficiency Test <sup>2</sup>

### Thesis Project:

GEG 7996 Preparation and Presentation of the MSc Thesis Project	3 Units
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### Thesis:

THM 7999 Master's Thesis	
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### Note(s)

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Three course units may be replaced by three other units approved by the Department of Geography. The following course, GEO 5143, is recommended by the Department.

Students whose mother tongue is either English or French must demonstrate passive knowledge of the second official language of Canada. This can be done by passing a language test in the first year of their studies, or by completing a language course at the Official Languages and Bilingualism Institute. For additional information, please contact your supervisor or the director of graduate studies at [geddirg@uottawa.ca](mailto:geddirg@uottawa.ca).

## Collaborative Program in Science, Society and Policy

The requirements of the MSc in Geography and the collaborative program must be met. The units completed for the specialization count also towards the degree in Geography.

- Satisfactory completion of the core course (ISP 5101 or ISP 5501, 3 units);
- Satisfactory completion of the thesis (THM 7999).

For further information, please consult the web page for the Science, Society and Policy (<https://www.uottawa.ca/graduate-studies/future-students/programs/science-society-and-policy-collaborative/>) program.

## Fast-track from Master's to PhD

Students enrolled in the MSc program may be allowed to transfer to the PhD program without being required to write a master's thesis. For additional information, please consult the "Admission Requirements" section of the PhD program.

## Duration of Program

Students are expected to complete all requirements within two years. The thesis must be submitted within four years of the date of initial enrollment in the program.

## Minimum Standards

The passing grade in all courses is C+. A student who has incurred two failures is withdrawn from 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.

uOttawa focuses research strengths and efforts in four Strategic Areas of Development in Research (SADR):

- Canada and the World
- Health
- e-Society
- Molecular and Environmental Sciences

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

## Research at the Faculty of Arts

The Faculty of Arts is proud of the state of the art research conducted by its professors. In the spirit of showcasing its research to the university

community as well as to the general public, the Faculty has created three activities: Dean's Lecture Series, Treasures of the Library, and Excellence Lectures.

## Facilities, Research Centres and Institutes at the Faculty of Arts

- Centre de recherche en civilisation canadienne-française (<http://arts.uottawa.ca/crcf/>),
- Institute of Indigenous Research and Studies (<http://arts.uottawa.ca/canada/en/>),
- Institute for Science, Society and Policy (<http://issp.uottawa.ca/en/>),
- Official Languages and Bilingualism Institute (OLBI) (<http://olbi.uottawa.ca/>)
- Morisset Library (<http://biblio.uottawa.ca/en/morisset-library/>).

For more information, refer to the list of faculty members and their research fields on Uniweb (<https://uniweb.uottawa.ca/#!arts/themes>).

## Courses

### GEG 5105 Selected Topics in Human Geography (3 units)

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

**Course Component:** Seminar

### GEG 5109 Place and Social Transformations (3 units)

Interplay between social and spatial transformations and its implications for meanings and representations from global to local scales.

**Course Component:** Seminar

### GEG 5310 Selected Topics in Physical Geography (3 units)

**Course Component:** Seminar

### GEG 5311 Environmental Change in Cold Regions (3 units)

Dynamics of cold environments with particular emphasis on their sensitivity to climate variability and climate change, natural and anthropogenically induced.

**Course Component:** Seminar

### GEG 5505 Thèmes choisis en géographie humaine (3 crédits)

**Volet :** Séminaire

### GEG 5510 Espaces et lieux entre société et culture (3 crédits)

Espaces de référence, lieux d'appartenance et territoire dans le contexte des mutations sociales contemporaines et de la fragmentation des identités culturelles.

**Volet :** Séminaire

### GEG 5707 Milieux nordiques (3 crédits)

Les milieux glaciaires ou périglaciaires, anciens ou actuels. Approches géomorphologique, hydrologique et paléobotanique.

**Volet :** Séminaire

### GEG 5710 Thèmes choisis en géographie physique (3 crédits)

**Volet :** Séminaire

### GEG 5914 Problèmes géographiques du Canada de l'Est / Geographical Problems of Eastern Canada (2 crédits / 2 units)

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

### GEG 5970 Lectures dirigées / Directed Readings I (3 crédits / 3 units)

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

### GEG 5973 Élaboration du projet de thèse (3 crédits / 3 units)

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

**GEG 60001 Séminaires Phipps-Langlois (1/2) / Phipps-Langlois Seminars (1/2)**

Séminaires Phipps-Langlois de 45 à 60 minutes par des étudiants diplômés, des professeurs ou d'autres conférenciers invités. / Phipps-Langlois seminars of 45- to 60-minute by graduate students, professors, or other invited speakers

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

**GEG 60002 Séminaires Phipps-Langlois (2/2) / Phipps-Langlois Seminars (2/2) (3 crédits / 3 units)**

Séminaires Phipps-Langlois de 45 à 60 minutes par des étudiants diplômés, des professeurs ou d'autres conférenciers invités. / Phipps-Langlois seminars of 45- to 60-minute by graduate students, professors, or other invited speakers

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

**GEG 6001 Stage I / Internship I (3 crédits / 3 units)**

Stage supervisé dans un organisme externe ou avec un professeur au sein du département de géographie, environnement et géomatique ou d'autres unités sur le campus. Les étudiants sont responsables de trouver leur propre stage. Durée de 100 heures de travail non-rémunéré avec une organisation, approuvé par le directeur du programme d'études supérieures et certifié par l'organisation qui accueille le stage. Noté S (Satisfaisant) ou NS (Non-satisfaisant). / Supervised Internship at an external agency or with a professor within the Department of Geography, Environment and Geomatics or other units on campus. Students are responsible for finding their own internship. 100 hours of volunteer work, approved by the graduate program director and certified by the organization hosting the internship. Grade: S (Satisfactory) / NS (Not Satisfactory).

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

**GEG 6002 Stage II / Internship II (3 crédits / 3 units)**

Stage supervisé dans un organisme externe ou avec un professeur au sein du département de géographie, environnement et géomatique ou d'autres unités sur le campus. Les étudiants sont responsables de trouver leur propre stage. Durée de 100 heures de travail non-rémunéré avec une organisation, approuvé par le directeur du programme d'études supérieures et certifié par l'organisation qui accueille le stage. Noté S (Satisfaisant) ou NS (Non-satisfaisant). / Supervised Internship at an external agency or with a professor within the Department of Geography, Environment and Geomatics or other units on campus. Students are responsible for finding their own internship. 100 hours of volunteer work, approved by the graduate program director and certified by the organization hosting the internship. Grade: S (Satisfactory) / NS (Not Satisfactory).

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

**GEG 6003 Mémoire / Major Research Paper (6 crédits / 6 units)**

Le mémoire vous permet de mener un travail de recherche approfondi sur un sujet précis. Noté S (satisfaisant) ou NS (non satisfaisant). / The major research paper (MRP) allows you to conduct in-depth research work on a specific subject. Graded S (Satisfactory) / NS (Not Satisfactory).

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

**GEG 6101 Data Analysis and Modelling (3 units)**

Techniques of analysis of empirical data: quantitative, semi-quantitative and qualitative. Multivariate and time-series data analysis.

**Course Component:** Seminar

**GEG 6102 Practical GIS for Graduate Studies (3 units)**

Think you might want to use geographic information systems (GIS) in your thesis research? Are you fascinated by the potential of spatial data science to enhance your research? If you answered yes to either of those questions then this introductory level course is for you. The course is specifically focused on the practical and pragmatic aspects of working with digital earth data including vector, raster and satellite imagery. A strong emphasis is given to horizontal coordinate systems, transformations, georeferencing, spatial data manipulation, geoprocessing, geocoding, and scripting for workflow automation and modeling. By the end of the course, you will be confident in using the concepts and capabilities of geographic information systems science, to work with real-world spatial data.

**Course Component:** Seminar

**GEG 6103 Spatial Data Science (3 units)**

Spatial data science is useful in many fields, including big data, population health sciences, biological sciences, earth sciences, medicine, engineering and social sciences. In this course, you will learn how to manipulate, analyze and model spatial data. Sections of the course focus on stochastic simulation and Monte Carlo methods in point-pattern analysis, spatial autocorrelation and geostatistics. Practical applications utilize the open-source software and data science computing languages (e.g. R, Python), no previous experience required. At the end of this course, you will have a toolbox of spatial analytical skills and a solid understanding of their appropriate applications to real-world questions.

**Course Component:** Seminar

Also offered as GEG 4120.

**GEG 6501 Analyse de données et modélisation (3 crédits)**

Modes de traitement appropriés à différents types de données empiriques : quantitatives, semi-quantitatives et qualitatives. Examen des méthodes d'analyse multivariées et temporelles.

**Volet :** Séminaire

**GEG 6502 SIG pratique pour les études supérieures (3 crédits)**

Pensez-vous que vous voudrez peut-être utiliser des systèmes d'information géographique (SIG) dans votre recherche de thèse? Êtes-vous fasciné par le potentiel de la science des données spatiales pour améliorer votre recherche? Si vous avez répondu oui à l'une de ces questions, ce cours d'introduction est pour vous. Le cours est spécifiquement axé sur les aspects pratiques et pragmatiques du travail avec des données terrestres numériques, y compris des images vectorielles, matricielles et satellitaires. Un accent particulier est mis sur les systèmes de coordonnées horizontales, les transformations, le géoréférencement, la manipulation des données spatiales, le géotraitement, le géocodage et la création de scripts pour l'automatisation et la modélisation des flux de travail. À la fin du cours, vous serez confiant dans l'utilisation des concepts et des capacités de la science des systèmes d'information géographique pour travailler avec des données spatiales du monde réel.

**Volet :** Séminaire

**GEG 6503 Science des données spatiales (3 crédits)**

La science des données spatiales est utile dans de nombreux domaines, notamment 'big data', les sciences de la santé de la population, les sciences biologiques, les sciences de la terre, la médecine, l'ingénierie et les sciences sociales. Dans ce cours, vous apprendrez à manipuler, analyser et modéliser des données spatiales. Les sections du cours se concentrent sur la simulation stochastique et les méthodes de Monte Carlo dans l'analyse des motifs de points, l'autocorrélation spatiale et la géostatistique. Les applications pratiques utilisent les logiciels et les langages informatique de la science des données à source ouverte (p.ex. R, Python), aucune expérience préalable requise. À la fin de ce cours, vous aurez une boîte à outils de compétences analytiques spatiales et une solide compréhension de leurs applications appropriées aux questions du monde réel sur les données spatiales.

**Volet :** Séminaire

Aussi offert sous la cote GEG 4520.

**GEG 7906 Recherche dirigée / Directed Research (6 crédits / 6 units)**

Recherche dirigée pendant une session, évaluée par trois membres de la Faculté des études supérieures et postdoctorales. L'inscription à temps plein est obligatoire. La note donnée sera S (satisfaisant) ou NS (non satisfaisant). N.B. Inscription limitée aux étudiants désirant transférer de la maîtrise au doctorat. / One session of directed research, evaluated by three members of the Faculty of Graduate and Postdoctoral Studies. The student must be enrolled full-time for this session. The course will be graded S (satisfactory) / NS (Not satisfactory). NOTE: Restricted to students intending to transfer from master's to PhD.

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

**GEG 7910 Lectures dirigées / Directed Readings (3 crédits / 3 units)**

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

Permission du Département est requise. / Permission of the Department is required.

**GEG 7996 Élaboration et présentation du projet de thèse de maîtrise ès sciences / Preparation and Presentation of the MSc Thesis Project (3 crédits / 3 units)**

Le projet de recherche doit normalement s'inscrire dans un champ d'études reconnu par le CRSNG. / The research project must normally be in a research field recognized by NSERC.

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

**GEG 7998 Élaboration et présentation du projet de thèse de maîtrise ès arts / Preparation and Presentation of the M.A. Thesis Project (3 crédits / 3 units)**

Le projet de recherche doit normalement s'inscrire dans un champ d'études reconnu par le CRSHC. / The research project must normally be in a research field recognized by SSRHC.

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

**GEG 8900 Lectures dirigées / Directed Readings (3 crédits / 3 units)**

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

Permission du Département est requise. / Permission of the Department is required.

**GEG 9001 Élaboration du projet de thèse de doctorat / Preparation of Ph.D. Thesis Project (6 crédits / 6 units)**

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

**GEG 9998 Examen de synthèse / Comprehensive Examination**

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

**ISP 5101 Decision at the Interface of Science and Policy (3 units)**

This course explores a number of critical issues in the design and implementation of science (or, more generally, evidence)-based policy. Topics will include: the nature of scientific evidence; who has standing in the provisioning of scientific evidence; the science and non-science of risk assessment; ethical dimensions of policy design and implementation; the role of science in policy design and implementation; the policy making process; and science policy performance evaluation.

**Course Component:** Lecture

**ISP 5102 Science and Technology Governance and Communication (3 units)**

This course explores a number of critical issues in the governance of science and technology (S&T) in democratic societies, with particular emphasis on the Canadian context. Topics will include the following: the history of S&T governance and communication in both Canada and abroad; an overview of the Canadian S&T policy and regulatory landscape; the role of government, the private sector and civil society in S&T governance; policy and regulatory experiments in fostering innovation (and the success thereof); the evolution of public S&T communication strategies and governance of emerging technologies.

**Course Component:** Lecture

**ISP 5103 Capstone Seminar in Science, Society and Policy (3 units)**

Involves partnering with organization(s) working on an issue relating to science, society and policy. In consultation with a member of the organization, students analyze the issue and complete a written report, either singly or in interdisciplinary teams, under the direction of the seminar professor who is responsible for evaluating the report.

**Course Component:** Lecture

**ISP 5501 Prise de décision à l'interface de la science et des politiques (3 crédits)**

Ce cours approfondit un certain nombre d'enjeux critiques liés à la conception et à la mise en oeuvre de politiques scientifiques (ou, de façon plus générale, fondées sur des preuves). Les sujets abordés incluent les suivants : la nature de la preuve scientifique; qui a qualité pour fournir des preuves scientifiques; le côté scientifique et le côté non scientifique de l'évaluation des risques; les dimensions éthiques de la conception et de la mise en oeuvre des politiques publiques; le rôle de la science dans la conception et la mise en oeuvre des politiques publiques; le processus d'élaboration des politiques publiques; et l'évaluation du rendement des politiques publiques en matière de sciences.

**Volet :** Cours magistral

**ISP 5502 Gouvernance et communication en science et technologie (3 crédits)**

Ce cours approfondit un certain nombre d'enjeux critiques liés à la gouvernance des sciences et de la technologie (S et T) dans les sociétés démocratiques et, en particulier, dans le contexte canadien. Les sujets abordés incluent les suivants : l'histoire de la gouvernance et de la communication en sciences et technologie au Canada et à l'étranger; un aperçu du paysage réglementaire et politique canadien ayant trait aux sciences et à la technologie; le rôle du gouvernement, du secteur privé et de la société civile dans la gouvernance des sciences et de la technologie; les expériences relatives aux politiques et à la réglementation menées en vue de favoriser l'innovation (et leur réussite); l'évolution des stratégies de communication publique concernant les sciences et la technologie et la gouvernance des nouvelles technologies.

**Volet :** Cours magistral

**ISP 5503 Séminaire d'intégration en science, société et politique publique  
(3 crédits)**

Involves partnering with organization(s) working on an issue relating to science, society and policy. In consultation with a member of the organization, students analyze the issue and complete a written report, either singly or in interdisciplinary teams, under the direction of the seminar professor who is responsible for evaluating the report.

**Volet :** Cours magistral