

Co-op Program

APPLIED GEOMATICS AND REMOTE SENSING

MASTER'S DEGREE



This graduate program gives students a better understanding of the foundations, issues and applications of geomatic science and technology at a local, national and international level. Students will conduct in-depth applications of geomatic techniques in managing natural and human resources to guide decision making on environmental issues. They will also develop the knowledge and skills they need to conduct research, solve problems and carry out projects through one or more on-the-ground physical, regulatory or social intervention scenarios, and describe their physical and social impacts.

To enroll in this program, students must have a bachelor's degree in geomatics, science, engineering or a social sciences field in which geomatics plays an important role, or equivalent training. Future graduates will choose their specialization and have the opportunity to gain a sense of leadership and intellectual independence that gives them better decision-making capabilities and a greater understanding of a manager's role.

WHAT OUR STUDENTS CAN DO FOR YOU

Project management

- Business development and management
- Business geomatics
- International development
- Writing scientific proposals, reports and papers

Environment

- Environmental problem solving and analysis
- Health risk analysis (epidemiology)
- Establishing emergency interventions (emergency preparedness)
- Environmental impact assessments and prevention analyses
- Changing dynamics of natural environments
- Watershed management and monitoring
- Natural resource management
- Analysis of human impact on the environment
- Environmental assessment of case studies

Science and technology

- Digital mapping
- Design of geospatial database management systems
- Earth observation (environment, climate change, agriculture, urban environments)
- Geographic information systems (GIS) and spatial modelling
- Optical, thermal and radar remote sensing
- Remote sensing image processing
- Emerging technologies (artificial intelligence, virtual reality, augmented reality)



KNOWLEDGE AND SKILLS

Session	Description
S-1	<p>Introduction to geomatics</p> <p>Basic principles of satellite positioning; digital mapping theory; creation and dissemination of digital maps; design and implementation of geospatial databases; the systems approach and GIS; modelling; spatio-temporal analysis concepts; analysis, remote sensing and image processing.</p>
S-2	<p>Topic-specific courses</p> <p>Application and integration of geomatic principles and methods for management and decision making in urban environments and to prevent geohazards; implementation of advanced remote sensing applications in relation to relevant topics, especially the environment, climate change, agriculture and urban environments.</p> <p>Application and integration of geomatic principles; design and implementation of GIS and other online geomatic applications; integration of techniques and methods used in image interpretation for components, dynamics and changes in natural and human environments. Description and application of project management methods; development of a geomatics project proposal; national and international cooperation in geomatics.</p>
S-3	<p>Topic-specific courses</p> <p>Application and integration of geomatics principles and methods for management and decision making (integrated water management, health and safety management, natural resource management). Develop concepts for socio-economic and climate change, sustainable development and adjustment strategies. Analyze and conceptualize a geomatics problem, develop technology solutions to geomatics problems, understand emerging technologies to solve problems (artificial intelligence, big data, virtual reality, smart objects).</p>
S-4	<p>Applied geomatics essay</p> <p>Under a supervisor: write a comprehensive paper detailing a personal study on a topic applied to natural or human resource management to guide decision making on environmental issues; review current knowledge to understand and identify a problem in a specific field; reflection, critical analysis, knowledge transmission; incorporation of learning by applying skills acquired in the program; relevant and up-to-date sources and references.</p>

ORGANIZATION OF STUDY (S) AND WORK TERM (W)

1st year			2nd year	
FALL	WINT	SUM	FALL	WINT
S-1	S-2	W-1	S-3	S-4