# Geodesy and Geomatics Engineering

## Diversity Within Our Program

- 30 Ph.D. students
- 15 M.Sc.E. students
- 10 M.Eng. students
- International enrollment from more than 20 different countries

## A Well-Funded Research Program

- $16 million in funds since 2009
- #1 in research ranking at UNB

## Numerous Research Collaborations

- Natural Resources Canada
- NASA Jet Propulsion Laboratory
- Cisco Systems Canada
- European Space Agency

## Top-Ranked Journal Publications

- IEEE Transactions on Geoscience and Remote Sensing
- GPS Solutions
- Transactions in GIS
- American Geophysical Union journals
- Computers, Environment and Urban Systems


# About UNB

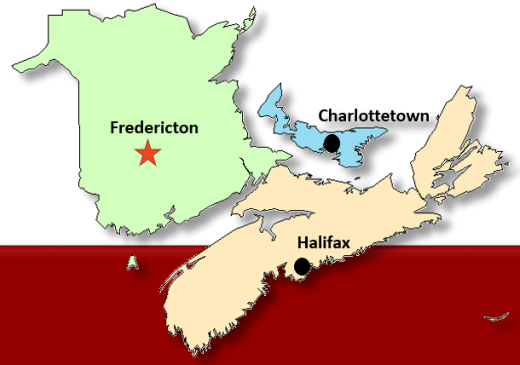
Canada's **oldest** English-language university and among the oldest public universities in North America

More than **11,000** graduate and undergraduate students

International students originating from more than **100 different countries**

Ranked **sixth** in Maclean's list of top **15** most comprehensive universities in Canada (2016)

Ranked the **most entrepreneurial** university in Canada by Startup Canada (2015)

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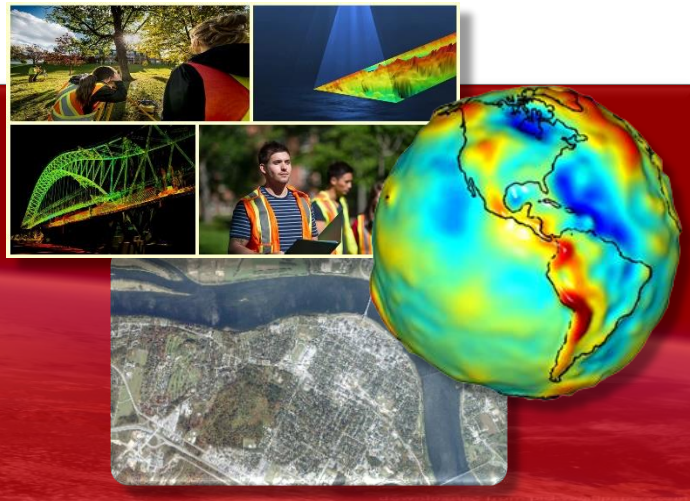
# Geodesy and Geomatics Engineering

# GRADUATE PROGRAM



# Graduate Degree Programs

## Master of Engineering (M.Eng.)

The M.Eng. graduate degree program is intended for students who wish to study one or more fields of geomatics engineering at an advanced level with exposure to new geospatial technologies and a variety of application domains. The course-based M.Eng. consists of 30 credit hours of course work. The degree is designed to be completed in 3 or 4 academic terms, depending on the student's background.

## Master of Science in Engineering (M.Sc.E.)

The M.Sc.E. graduate degree program requires the completion of an approved thesis on original research as well as 5 graduate-level courses relating to a selected area of specialization and two seminar papers/presentations. The degree is intended to be completed within 6 academic terms.

## Doctor of Philosophy (Ph.D.)

Candidates for the Ph.D. degree normally hold a Master's degree in geodesy and/or geomatics. For some research fields, consideration will be given to applicants whose previous degrees are not in geodesy and/or geomatics, but in appropriate related disciplines. The Ph.D. is a research degree for which a dissertation on original research is required. Completion of 5 graduate-level courses in the area of the selected major, 2 courses in the area of a selected minor, and 2 seminar papers/presentations are also required. Following acceptance, a program of study is laid down by an appropriate supervisory committee for each candidate. The degree is intended to be completed within 12 academic terms.

## GNSS

- Global navigation satellite systems (GNSS) as an atmospheric remote sensing tool
- Advanced precise point positioning algorithms
- GNSS deformation monitoring
- Unmanned aerial vehicle positioning and navigation
- Satellite-based augmentation system integration

## GIS

- Mobile mapping and location-based services
- Spatial information infrastructure
- Data generalization
- Web mapping and geospatial web
- Spatial analysis, decision support, and geovisualization
- Geospatial application development

## Remote Sensing

- Analysis of digital imagery
- Motion detection via photography
- Unmanned aerial vehicle photogrammetric techniques
- 3D visualization of Google Earth imagery

## Geodesy

- Geoid determination
- Downward continuation algorithms for gravity measurements
- Gravity field monitoring
- Numerical methods

## Big Data

- Real-time data streaming
- Spatio-temporal data mining
- Map-as-interface for internet of things (IoT)
- IoT use cases
- Visual analytics

## Ocean Mapping

- Multibeam sonar mapping and application development
- Hydrodynamic numerical modelling
- Autonomous underwater and surface vehicles (AUV/ASV)

# Geodesy and Geomatics Engineering Program Faculty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Ocean mapping and hydrodynamic modelling

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