Why GRADUATE STUDIES in GEOLOGICAL ENGINEERING?

Geological Engineering is the application of geological knowledge to working with earth materials – whether for sustainable development of resources including water, oil, gas and minerals; for construction of projects on, in or of soil and rock; or to safeguard the public from geohazards. At Queen’s, students in these fields will be exposed to geology from the field to the laboratory scale, and to analysis and decision-making in Earth Sciences, enjoying multiple field trips, and utilizing world-class labs for chemical and physical characterization of Earth materials, and numerical modelling of their behaviour.

Graduate students and their work are an important part of an ongoing research process that provides the community with ways of understanding natural, cultural, imaginative, social and technological phenomena.

Why QUEEN’S?

As a PhD student in Geological Engineering at Queen’s you are part of one of the most research intensive universities in Canada. Our research program is internationally renowned with a wide range of research activities in all of the major specialization areas of geological engineering.

The Department of Geological Sciences and Geological Engineering provides opportunities for advanced studies and research in the Earth Sciences. Faculty interests span disciplines in Applied Geoenvironmental Sciences and Geotechnique, Geophysics and Geochronology, Economic Geology and Mineral Exploration, Petrology and Structural Geology, Sedimentology, Sedimentary Geochemistry and Paleobiology often in a multi-disciplinary fashion and including applications to economic and environmental problems.

Our students come from countries all over the world, such as Brazil, Chile, Greece, and China. At Queen’s, graduate students from all disciplines learn and discover in a close-knit intellectual community.

“I wanted a challenge and saw geomechanical engineering as the answer; it would provide that challenge while simultaneously providing me an opportunity to use my structural engineering background. I came to Queen’s for my Masters, which developed into a PhD candidacy, and I haven’t looked back since.”

— Jeffrey Oke, PhD

Program STRUCTURE

PhD (4 years): Required to take a minimum of four term length graduate courses (or equivalent) beyond the Master’s degree course requirement and thesis.

RESEARCH Areas

With high-tech geochemistry and geophysics labs, geomechanics computing tools and Queen’s Facility for Isotope Research lab, our students have the opportunity to engage in cutting-edge geoscience and geoenengineering research. As well, students collaborate with industrial partners, government laboratories and surveys, academic institutions worldwide and engage in extensive fieldwork on six continents, making our program truly a world-class experience. Students can avail themselves of opportunities to collaborate with other departments at Queen’s, including the GeoEngineering Centre at Queen’s and RMC, Mining, Environmental Studies and Civil Engineering.

We suggest that you review the specific research projects currently being investigated by faculty members to identify a potential supervisor. Please note, however, that contacting a faculty member does not guarantee acceptance and you will need to submit your full application in order to be considered.
DOCTOR OF PHILOSOPHY (PHD)

YEAR I

ACHIEVE YOUR ACADEMIC GOALS

- Key priorities include your relationship with your supervisor, forming your research committee, coursework and comprehensive exams.
- Meet early with your supervisor to set expectations and discuss roles, responsibilities, program requirements, resources, research/occupational goals, timelines, and any required accommodation plans.
- Look to Student Academic Success Services for a variety of supports.

MAXIMIZE RESEARCH IMPACT

- Think about audiences for your research.
- Complete ROMEO online module on research ethics if doing research with living people or sensitive topics.
- Apply to NSERC, OGS, and other funding.
- Apply for the Graduate Dean’s Travel Grant for Doctoral Field Research.

BUILD SKILLS AND EXPERIENCE

- Serve on faculty or university committees. Talk to the Society of Graduate and Professional Students (SGPS) for tips on getting involved.
- Consider positions in student services, the SGPS, or media outlets like the Queen’s Journal, CFRC, and the SGG Blog. Look in the AMS Club Directory.
- Use a Teaching Assistant or Research Assistant position to develop your skills and experiences.

ENGAGE WITH YOUR COMMUNITY

- Consider volunteering with different community organizations, such as Sustainable Kingston.
- Connect to broader communities of engineers by joining an Engineering Society Design Team.
- Participate in your graduate and professional community through activities such as graduate student outreach programs, organizing conferences, and research groups.

LAUNCH YOUR CAREER

- Finding career fit starts with knowing yourself. Take a Career Services career planning workshop or meet with a career counsellor for help. Check out books like So What Are You Going to Do With That? for advice on various career options.
- Explore different careers of interest by reading alumni profiles on the SGS website, and using Queen’sConnects on LinkedIn to connect with Queen’s alumni, or find alumni in various careers through “Ask an Alum” for more information.
- Participate in hiring committees and attend job talks. Research academic careers of interest. Craft your CV and job application materials.
- Start focusing on non-academic areas of interest. Research organizations of interest and start putting together your industry resume and begin your job search plan.

WHAT WILL I LEARN?

A graduate degree in Geological Engineering can equip you with valuable and versatile skills, such as:

- Knowledge and technical skills
- Effective communication skills in multiple forms for diverse audiences
- Information management: prioritize, organize and synthesize large amounts of information
- Time management: Meet deadlines and manage responsibilities despite competing demands
- Project management: develop ideas, gather information, analyze, critically appraise findings, draw and act on conclusions
- Creativity and Innovation
- Perseverance
- Independence and experience as a collaborative worker
- Awareness, an understanding of sound ethical practices, social responsibility, responsible research and cultural sensitivity
- Professionalism in all aspects of work, research, and interactions
- Leadership: initiative and vision leading people and discussion

WHERE CAN I GO?

A PhD in Geological Engineering can take your career in many directions. In Canada, most of the market will work in government, non-profits, or industry. Graduates from the Geological Engineering PhD program have found careers within:

- Academia and Research
- Consulting
- Mineral and oil exploration
- Mining and hydrocarbon extraction
- Policy analysis
- Surface and underground construction
- Environment assessment
- Protection and rehabilitation
- Resource management

Taking time to explore career options, build experience, and network can help you have a smooth transition to the world of work after graduation.
How do I use this map?

Whether you are considering or have embarked on graduate studies at Queen's, use this map to plan for success in five overlapping areas of your career and academic life. The map helps you explore possibilities, set goals and track your individual accomplishments. Everyone's journey is different—the guide offers options for finding your way at Queen's and setting the foundation for your future. To make your own customized map, use the online My Grad Map tool.

Where can I get help?

Queen's provides you with a broad range of support services from your first point of contact with the university through to graduation. Ranging from help with academics and careers, to physical, emotional, or spiritual resources—our welcoming environment offers the programs and services you need to be successful, both academically and personally. Check out the SGS HABITAT for available resources.

What is the community like?

At Queen's, graduate students from all disciplines learn and discover in a close-knit intellectual community. You will find friends, peers and support among the graduate students enrolled in Queen’s more than 130 graduate programs within 50+ departments & research centres. With the world’s best scholars, prize-winning professional development opportunities, excellent funding packages and life in the affordable, historic waterfront city of Kingston, Queen’s offers a wonderful environment for graduate studies. Queen’s is an integral part of the Kingston community, with the campus nestled in the core of the city, only a 10-minute walk to downtown with its shopping, dining and waterfront. For more about Kingston’s history and culture, see Queen’s University’s Discover Kingston page.

Application FAQs

What do I need to know to APPLY?

ACADEMIC REQUIREMENTS

- Master’s degree in Geological Sciences or Geological Engineering, Mining Engineering, or Civil Engineering are acceptable. Degrees in related fields such as Biology, Chemistry, Physics, Environmental Sciences or Geography are considered, but may require additional Geology courses.

ADDITIONAL REQUIREMENTS

- If English is not a native language, prospective students must meet the English language proficiency requirements in writing, speaking, reading, and listening. The School of Graduate Studies requires the following minimum scores: TOEFL (paper-based): 550, (2) TOEFL iBT: Writing (24/30); Speaking (22/30); Reading (22/30); Listening (20/30), for a total of 88/120 (applicants must have the minimum score in each test as well as the minimum overall score), or (3) IELTS: 7.0 (academic module overall band score), or (4) PTE Academics: 65.

KEY DATES & DEADLINES

- Application deadline: February 1 for September admission.
- Notification of acceptance: Typically, 4 weeks after the full application has been received.

Before you start your application, please review the Graduate studies application process.

What about FUNDING?

The level of financial support consequently varies among graduate students in the Department, with a guaranteed minimum level of $23,000 for PhD students. As part of the minimum funding package, you may serve as a Teaching Assistant.

You are encouraged to apply for external funding from OGS, NSERC and other sources. Queen’s will automatically issue a $10,000 award to incoming PhD students who have won federal government tri-council awards. For more information, see the School of Graduate Studies’ information on awards and scholarships.

Kelly McCaugherty, Graduate Assistant
(613) 533-2597
geolgradassistant@queensu.ca
queensu.ca/geol/graduate