

Geological Engineering

Queen's
UNIVERSITY

FACULTY OF
ENGINEERING AND
APPLIED SCIENCE

Get to know

GEOLOGICAL ENGINEERING

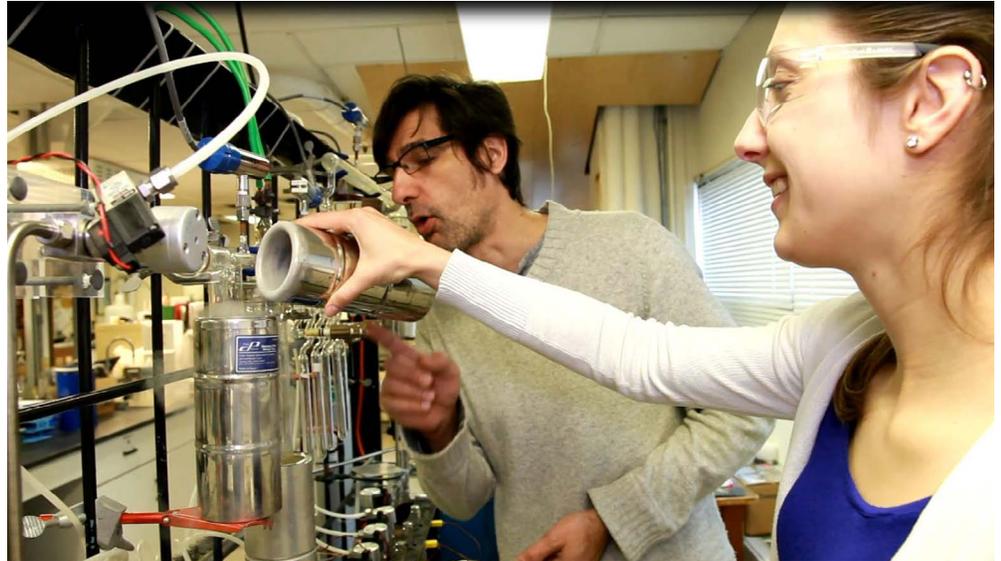
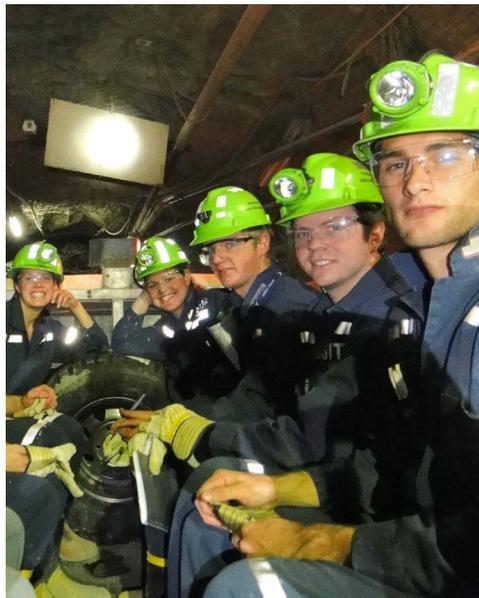
This program applies principles and techniques of the earth sciences to solve engineering challenges such as extracting mineral and energy resources, preventing soil and water contamination, managing natural hazards, and building infrastructure with, or within, earth materials. You will study physics, chemistry, applied mathematics and natural processes such as earthquakes, volcanoes, continental drift and mountain formation. You will also acquire field skills and training in state-of-the-art geological investigation and engineering analysis tools.

Degree OPTIONS

Bachelor of Science in Engineering

Bachelor of Science in Engineering with Professional Internship

Specializations in Geotechnical, Geoenvironmental, Resource Engineering, and Applied Geophysics



"Geological Engineering is the practical application of principles, concepts and techniques of the geological sciences to provide sustainable engineered solutions to human needs. The Earth is your classroom."

Queen's ADMISSIONS

Students apply to Queen's Engineering (QE) through the OUAC (Ontario University Application Centre) website. Secondary School prerequisites include six 4U and 4M courses, one of which must be English 4U. Calculus and Vectors 4U, Chemistry 4U, and Physics 4U are all required along with one of Advanced Functions 4U, Biology 4U, Data Management 4U, Computer Science 4U, Earth and Space Science 4U. A final grade of 70% must be obtained in English 4U. Applicants outside of Ontario may have additional requirements.

A Common START

Queen's is unique in offering a common First Year along with an open discipline choice. When you do choose your program, you don't have to worry about caps or quotas. Provided you pass all of your First Year courses, you are guaranteed a place in your engineering program of choice. Queen's also

offers J-Section, a special extended program for students struggling with First Year courses. Take things at a slower pace and recover in time for Second Year.

Course HIGHLIGHTS

Geological Engineering students have the opportunity to take a wide range of technical courses to help prepare them for the many possible career destinations available. Such courses include:

- Engineering Geology
- Geological Engineering Field School
- History of Life and Earth Dynamics
- Resource Geoscience and Engineering
- Geotechnical (Rock & Soil) Engineering
- Hydrogeology and Groundwater
- Pure and Applied Geophysics
- Exploration and Environmental Geochemistry

Acquire Skills. Gain Experience. Go Global.

That is a degree from Queen's.

queensu.ca/geol

Geological Engineering MAJOR MAP

BACHELOR OF APPLIED SCIENCE | BACHELOR OF APPLIED SCIENCE WITH PROFESSIONAL INTERNSHIP



CONSIDER A 12-16 MONTH QUIP INTERNSHIP

- Where could I go after graduation?**
- Architecture
 - Business administration
 - Climatology & meteorology
 - Coastal and river engineering
 - Community relations for the extractive industries
 - Contaminant remediation
 - Construction
 - Environmental conservation and management
 - Environmental engineering
 - Excavation design
 - Forestry
 - Geological engineering
 - Geology
 - Geomatics, surveying, and cartography
 - Geomechanics
 - Geophysics
 - International development
 - Law (environmental and/or regulations)
 - Mineral industry
 - Mining engineering
 - Natural hazard mitigation
 - Oceanography
 - Oil and gas exploration and extraction
 - Paleontology
 - Renewable energy
 - Toxicology
 - Tunneling
 - Waste management
 - Water resources
- *some careers may require additional training

Visit careers.queensu.ca/majormaps for the online version with links!

Geological Engineering

MAJOR MAP



How to use this map

Use the 5 rows of the map to explore possibilities and plan for success in the five overlapping areas of career and academics. The map just offers suggestions – you don't have to do it all! To make your own custom map, use the My [Major Map](#) tool.

A balanced approach leads to long-term success. While you will learn a lot from your studies, taking time to get relevant experience outside of the classroom, build your network, and gain international experience, will position you to be more competitive in your job search or grad school applications.

Get started thinking about the future now – where do you want to go after your degree? Having tentative goals (like careers or grad school) while working through your degree can help with short-term decisions about courses and experiences, but also help you keep motivated for success.

Get the help you need

Queen's provides you with a broad range of support services from your first point of contact with the university through to graduation. At Queen's, you are never alone. We have many offices dedicated to helping you learn, think and do.

Ranging from help with academics and careers, to physical, emotional, or spiritual resources – our welcoming living and learning environment offers the programs and services you need to be successful, both academically and personally, and Queen's wants you to succeed! Check out the [Student Affairs website](#) for available resources.

Succeed in the workplace

What employers want

The Canadian Council of Chief Executives list the top 6 skills sought by employers as:

- 1 People skills
- 2 Communication skills
- 3 Problem-solving skills
- 4 Analytical abilities
- 5 Leadership skills
- 6 Industry-specific knowledge

Take the time to think about the unique skills you have developed at Queen's, starting with the skills list here for ideas. Explaining your strengths with compelling examples will be important for applications to employers and further education. For help, check out the [Career Services skills workshop](#).

What can I learn studying GEOLOGICAL ENGINEERING?

- Knowledge of principles and techniques of the earth sciences
- Practical applications of geological science techniques to engineering design
- Understanding of the variability of earth materials and their changes with time
- Ability to think spatially and analyze in 4 dimensions
- Fieldwork skills – design and carry out site investigations to solve problems
- Technical skills – use up-to-date geological analysis tools, equipment and software
- Research skills – conduct scientific research and analyze quantitative information, develop multiple working hypotheses
- Management and leadership skills - confidence and independence in new situations, group work strategies, time and resource management
- Oral and written communication



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DEPARTMENT OF
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