Get to know GEOLOGICAL SCIENCES

Discovery, development and sustainability of water, mineral and energy resources as well as coping with climate change, human impact and natural hazards facing increasing global populations, all depend on a deep understanding of natural processes. Our students study the Earth in this context, with high-demand careers in diverse fields such as mineral and oil exploration, mining and hydrocarbon extraction, surface and underground construction, environmental assessment, protection and rehabilitation, groundwater investigation and resource management.

As a Geological Science student, you will learn in a variety of ways. Many courses involve laboratory and field work in a small group setting. Second and upper year courses include several extended field trips. When we aren’t in the field our students spend their time in one of our world-class teaching labs such as the Geochronology Lab that looks at items 100,000 years old or older, or the X-ray Diffraction and Clay Mineral Lab to separate and identify minerals and crystals. The Miller Museum collections of rocks and minerals provides students the opportunity to study samples collected from around the world.

We are one of the largest Geology departments in Canada - and yet we pride ourselves on our small group settings and classes. At the same time, most students rack up more than 240 hours of experience on various field trips.

“The Earth is our classroom, and hands-on learning is the way we learn.”

Degree OPTIONS

- Bachelor of Science (Honours)
- Major / Minor / Specializations in Geology, Environmental Geology
- Bachelor of Science (General)
- Bachelor of Arts (General)

*Internship option available

Queen’s ADMISSION

Students apply to Queen’s Science (QS) through the OUAC (Ontario Universities Application Centre) website. Secondary School prerequisites include English 4U, Advanced Functions 4U, Calculus and Vectors 4U, plus two of Biology 4U, Chemistry 4U or Physics 4U.

A Common START

Students in our Faculty are admitted into Arts, Science or Computing but the focus is on a common first year. Through self-exploration, and while you settle into university life, you have the chance to work with our advisors and faculty to uncover where your real interests and opportunities for success are. Sometimes that discovery happens fairly quickly, and for other students it takes some work and time before the “ah-ha!” happens – either way your first year will be a great experience at Queen’s.

Course HIGHLIGHTS

- Diamonds anyone? Learn about the role of gemstones in society through the study of works of art and popular literature (GEOL 102).
- Volcanoes, Earthquakes, Climate Change? Examine the relationship between human-kind and our ever-changing planet, focusing on geologic hazards such as volcanic eruptions, earthquakes, tsunamis and more (GEOL 106).
- Where did life begin? Take a 4.5 billion year roller coaster through time to see how our planet has evolved (GEOL 107).
In first year take CHEM 112, PHYS 106, MATH 121, GEOL 104, GEOL 107.

Each Plan will have at least one required first-year course, including minors. It is important to take a variety of first-year courses to keep as many pathways open as possible for you going into second year. For details see the Arts and Science Academic Calendar.

In second year take core courses GEOL 200, 221, 232, 238, 235, 249. Take STAT 263.

Please see the Academic Calendar to ensure you are taking the correct courses.

Want to enhance your degree? Consider a certificate in Geographic Information Science or explore other certificates available.

In third year take core courses GEOL 300, 301, 321, 365 and GEOL option courses. For more information on third year program requirements, including electives, see the Arts and Science Calendar.

Need help mapping all of your core, option, supporting and elective courses (including those not listed above) to make sure you will have what you need to complete your degree? Use the Course Mapping Tool on the Arts and Science website.

Join teams or clubs on campus such as the Queen's University Experimental Sustainability Team (QUEST) and the Queen's Project on International Development (QPID).

See the AMS Clubs Directory or the Queen's Get Involved page for more ideas.

Look into summer jobs by talking to the dept. or Career Services about work through SWEP or NSERC.

Take more responsibility within different clubs or extracurricular activities. Consider entrepreneurial opportunities via programs like the Queen's Innovation Connector Summer Initiative (QICSI).

Stay during the summer as an assistant to a faculty member or apply for an external summer research opportunity.

Consider applying to do a 12-16 month QUIP internship between your third and fourth year.

Volunteer on or off campus with different community organizations, such as the Earth Centre and Women in Science and Engineering.

Get involved with the Miller Club (the Departmental Student Council).

Start or continue volunteering with organizations such as Engineers Without Borders.

Do targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen's Connects.

If interested, attend the Oil and Gas Speakers Series and the Annual Advances in Earth Sciences Research Conference. Investigate the Association of Professional Geoscientists of Ontario (APGO) for the requirements to be qualified as a Professional Geoscientist.

The Queen's University International Centre is your first stop to learn how to internationalize your degree or to leverage your existing cross-cultural experience.

Speak to a QUIC advisor or get involved in their programs, events and training opportunities.

Is an exchange in your future? Start thinking about where you would like to study abroad. Apply in January for a 3rd year exchange through your Faculty's International Office. If exchange isn't for you, come talk to QUIC about some other options to gain international experience.

Build your intercultural competence by getting involved with other cultures or by practicing or improving your language skills. Check QUIC's resources for ideas to go abroad, and volunteer or attend one of their events.

Grappling with program decisions? Contact the Chair of Undergraduate studies in the Department of Geological Sciences and Geological Engineering.

Get some help wondering about career options from Career Services.

Explore different careers of interest by accessing resources in the Career Services Career Advising and Resource Area, such as the Geology Career Files. For more information check out Career Cruising or by finding and connecting with alumni on LinkedIn.

Start focusing on areas of interest. Research education requirements for careers of interest. If needed, prepare to take any required tests (like the LSAT or GMAT) and get help thinking about grad school from Career Services.
CONSIDER A 12-16 MONTH QUIP INTERNSHIP

3RD YEAR

In third year take core courses GEOL 300, 301, 321, 365 and GEOL option courses. For more information on 3rd year program requirements, including electives, see Arts and Science Calendar.

Consider applying to do a 12-16 month QUIP internship between your third and fourth year.

Investigate requirements for full-time jobs or other opportunities related to careers of interest.

Assess what experience you're lacking and fill in gaps with volunteering, clubs, or internships – check out the Career Services skills workshop for help.

Join targeted networking with alumni working in careers of interest by joining the LinkedIn group Queen's Connects. If interested, attend the Oil and Gas Speakers Series and the Annual Advances in Earth Sciences Research Conference. Investigate the Association of Professional Geoscientists of Ontario (APGO) for requirements to be qualified as a Professional Geoscientist.

Fifth year during the summer as an assistant to a faculty member or apply for an external summer research opportunity.

Stay focusing on areas of interest. Research education requirements for careers of interest. If needed, prepare any required tests (like the LSAT or GMAT) and get help thinking about grad school from Career Services.

Where could I go after graduation?

Agricultural sciences
Architecture
Business administration and management
Community relations for the extractive industries
Contaminant remediation
Ecology
Environmental remediation and management
Forestry
Geology
Geomatics
Geophysics
International development
Landscape architecture
Law
Meteorology
Mineral industry
Natural hazard identification and mitigation
Oceanography
Oil and gas exploration and extraction
Paleontology
Public administration
Renewable energy
Surveying and cartography
Toxicology
Volcanology
Waste management
Water conservation

*Some careers may require additional training

4TH OR FINAL YEAR

In fourth year take GEOL 488 and 401. You may wish to do an independent studies project (GEOL 543). Take your remaining GEOL option courses.

By fourth year you should be working on your remaining core, option, and elective courses. Make sure to map your minor and / or certificate(s) as well.

Apply to graduate in SOLUS.

Consider joining professional organizations such as the Geological Association of Canada, the Canadian Society of Petroleum Geologists, the International Association of Hydrogeologists and the National Ground Water Association.

Prepare for work or studies in a multi-cultural environment by taking QUIC’s Intercultural Competency Certificate, and research possible immigration regulations.

International students interested in staying in Canada can speak with an International Student Advisor.

Apply to jobs or future education, or make plans for other adventures. Get help from Career Services with job searching, resumes, interviews, grad school applications, or other decisions.

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

- Knowledge of principles and techniques of the earth sciences
- Practical applications of geological science techniques
- Understanding of the variability of earth materials and their changes with time and environment
- Fieldwork skills to design and carry out site investigations to solve problems
- Technical skills to use up-to-date geological analysis tools, equipment and software
- Research skills to conduct scientific research and analyze quantitative information, develop multiple working hypotheses
- Problem solving to approach a range of problems from various perspectives
- Ability to work independently and in a team on a project
- Oral and written communication to clearly explain technical information and write reports
- Resource and time management

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.