Why GRADUATE STUDIES in MINING ENGINEERING?

Mining is the foundation of industrial civilization. It is the process of extracting minerals like gold, silver, copper, nickel and uranium (metallic) and salt, potash, coal, limestone aggregate and oil (non-metallic) formations that concentrate naturally in the earth. It may surprise you, but other than agricultural products, the raw ingredients for everything else in our modern lives comes from mining.

Mining Engineering is one part technical design and one part business management. Mining engineers are responsible for deciding how valuable a mineral deposit is and how best to mine it, for planning the day-to-day schedule and path of mining to maximize extraction and profit, and for ensuring the safety of people and equipment through applications in areas such as mine ventilation and rock mechanics.

Check out whygradstudies.ca for more reasons to choose graduate studies in engineering.

Why QUEEN’S?

As a PhD student in Mining 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 mining engineering.

Queen’s Mining Engineers work in metals and industrial minerals, with consulting companies, geotechnical groups, environmental groups, heavy and light equipment manufacturing companies, computer software and hardware development organizations, banks, government institutions and university organizations. We are at the forefront in developing computer applications for engineering design in mineral extraction and work in close contact with the mineral industry.

Our students come from all over the world. At Queen’s, graduate students from all disciplines learn and discover in a close-knit intellectual community.

RESEARCH Areas

- Mining Engineering
- Mine-Mechanical
- Mineral Processing

Areas of SPECIALIZATION

- Management of Social Risk & Community Relations
- Mineral Planning & Design of Mechanical Systems
- Mineral Processing
- Geotechnical, Environmental, Sustainability, & Mineral Economics
- Geostatistics & Geometallurgy
- Occupational Health and Safety & Rock Mechanics
- Reliability, Maintenance, & Risk Assessment

We encourage you to identify an area of research interest and contact a potential supervisor before applying.

Visit the Mining Engineering website to read about faculty profiles and learn more about faculty members’ research areas. When you find a faculty member with similar research interests to yours, contact him/her and tell them about your interest in graduate work and related experience. You can also find out if the faculty member is accepting new graduate students to supervise by meeting your potential supervisor at departmental events for prospective students.

“I would recommend this program to anyone in the industry with a problem to solve.”

—George McIsaac, PhD
Mining Engineering PhD MAP *

DOCTOR OF PHILOSOPHY (PhD)

ACHIEVE YOUR ACADEMIC GOALS

- Key priorities include 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 and Expanding Horizons for supports and workshops.
- Complete the laboratory safety course (CHEM 801) or (MINE 862).

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 outlet like the Queen's Journal, CFRC- and the SGS Blog. Look in the AMS Clubs Directory.
- Use a Teaching Assistant or Research Assistant position to develop your skills and experience.

ENGAGE WITH YOUR COMMUNITY

- Consider volunteering with different community organizations.
- Connect to broader communities of engineers by joining an Engineering Society Design Team.

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.
- Start reading publications like University Affairs and the Chronicle of Higher Education. Browse non-academic labour market websites.
- Stay on the lookout for special events like Graduate Student Career Fairs to explore your career pathways.

YEAR I

- Key priorities include 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 and Expanding Horizons for supports and workshops.
- Complete the laboratory safety course (CHEM 801) or (MINE 862).

YEAR II

- Write and defend your thesis proposal. Embark on your substantive research.
- Present your research in a seminar to Mining Engineering graduate students and faculty (MINE 897).
- Complete your PhD comprehensive exam within 4-18 months after registering.
- Set up regular meetings with your supervisor to discuss progress and obstacles to timely completion.
- Seek experimental/professional development opportunities.

YEAR III

- Continue to meet regularly with your supervisor, review research progress and write your dissertation. Check out the PhD Dissertation Boot Camp or Dissertation on the Lake.
- Use conference presentations to create, discuss, and explore ways to disseminate research findings.
- Learn from the Expanding Horizons Publishing workshop.
- Begin discussion of potential thesis defence examiners.

YEAR IV & TRANSITIONING

- Complete and defend your research thesis (MINE 999).
- Present your research at conferences and work with your supervisor to prepare for defence.
- Review submission and examination guidelines.
- Secure necessary oral defence accommodations.
- Discuss career pathways, reference letters, and publication options with your supervisor.

WHAT WILL I LEARN?

A graduate degree in Mining 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 Mining Engineering can take your career in many directions. In Canada, less than 40% of all PhDs will work in post-secondary education – the majority will work in industry, government, or non-government organizations. Graduates from the Mining Engineering PhD program have found careers within:
- Academia and Research
- Consulting
- Mining Companies
- Mining Equipment and Technology Providers
- Non-Governmental Organizations
- Financial Institutions
- Taking time to explore career options, build experience, and network can help you have a smooth transition to the world of work after graduation.

This map is intended to provide suggestions for activities you might want to do or try as a PhD student, as most possibilities are driven by your personal goals. The map is provided to help students reflect on their personal goals, abilities, experiences, and interests and take steps to translate their plans into action. This philosophy provides a framework to help students make decisions about what to do next, but it is not limited to or fixed on what you should do. Your academic career is inherently dynamic and you will need to adapt to your circumstances in a flexible manner.

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Application FAQs

What do I need to know to APPLY?

ACADEMIC REQUIREMENTS
- A Master’s degree in Mining Engineering. Applicants with a Master’s degree in a cognate science may be admitted.

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: March 1st.
- Notification of acceptance: April 30th.

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

What about FUNDING?

The level of financial is at a guaranteed minimum level of $18,000 for PhD students. As part of the minimum funding package, you may also serve as a Teaching Assistant and gain additional pay for this service.

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.