

Mining Engineering Ph.D. Map

Navigating Graduate Studies and Beyond

GRAD MAP FOR PH.D. STUDENTS →

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.

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?**

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

—George McIsaac, PhD

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.

Why **KINGSTON?**

Described by students as both "quaint" and "eclectic," Kingston is big enough to provide all the conveniences of modern life, and small enough for students, staff, and faculty to feel instantly comfortable and at home.

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.

Program **STRUCTURE**

PhD (4 years): Course work, seminar, comprehensive exam, and research thesis.

RESEARCH Areas

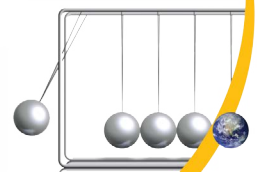
- Mining Engineering
- Mine-Mechanical
- Mineral Processing

Areas of **SPECIALIZATION**

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

School of
Graduate
Studies
Create an impact

www.queensu.ca/sgs



Mining Engineering PH.D. MAP

DOCTOR OF PHILOSOPHY (PH.D.)

Queen's
175
YEARS

YEAR I

YEAR II

YEAR III

YEAR IV & TRANSITIONING

ACHIEVE YOUR ACADEMIC GOALS

- Key priorities include your relationship with your supervisor, forming your research committee, coursework and comprehensive exams.
- Look to [Student Academic Success Services](#) and [Expanding Horizons](#) for supports and workshops.
- Complete the laboratory safety course (CHEM 801) or (MINE 862).

- 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.

- Continue to research and write your dissertation. Check out the SGS [Dissertation Boot Camp](#) or [Dissertation on the Lake](#).
- Consider publishing elements of your research. Learn from the Expanding Horizons [Publishing workshop](#).
- Use conference presentations to create and refine dissertation material.

- Complete and defend your research thesis (MINE 999).
- Continue to pursue publication options for your research.

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](#).

- Attend or present at a graduate conference such as the [Canadian Institute of Mining \(CIM\)](#) Annual Meeting.
- Expand your research audience through social media such as Twitter or a blog.
- Consider publishing elements of your research. Learn from the Expanding Horizons [Publishing workshop](#).

- Continue to present at conferences.
- Consider participating in the [3 Minute Thesis \(3MT\)](#) competition.
- Contact the [Queen's Media Centre](#) for guidance on speaking to news outlets about your work. List yourself on the [Faculty of Engineering and Applied Science research website](#).

- Continue to attend conferences and connect with scholars in your field and with community partners.
- Continue public outreach through social media and the Queen's Media Centre.

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](#), [QTV](#) and the [SGS Blog](#). Look in the [AMS Clubs Directory](#).
- Use a Teaching Assistant or Research Assistant position to develop your skills and experience.

- Hone skills for non-academic employment by continuing involvement on committees and in community.
- Start keeping an eportfolio of your skills, experiences and competencies.
- For help with teaching, get support from the [Centre for Teaching and Learning](#). Enroll in [SGS901](#) or the [PUTL certificate](#) for more professional development in teaching and learning.

- Find opportunities for extra training through CTL, Expanding Horizons, Mitacs, or other sources to boost your skills. Investigate internships from [Mitacs](#) and [other sources](#).
- Take part in the various international, multidisciplinary opportunities, and collaborate with other departments, such as Geological, Mechanical, Chemical and Civil Engineering.

- Practice articulating the skills you have been developing in settings outside the university, such as casual conversation, networking, and interviews. Get help with the [Skills and Experience workshop](#).
- Prepare for work or studies in a multi-cultural environment by taking [QUIC's Intercultural Competency Certificate](#).

ENGAGE WITH YOUR COMMUNITY

- Consider volunteering with different community organizations.
- Connect to broader communities of engineers.

- Participate in your graduate and professional community through activities such as graduate student outreach programs, organizing conferences, and research groups like [Material Matters](#).

- Do some targeted networking with people working in careers of interest, through [QueensConnects](#) on LinkedIn, the [Queen's Alumni Association](#), professional associations, and at conferences. Check out Career Services' [networking workshops](#).

- Consider joining professional associations like the [Mining Association of Canada \(MAC\)](#), the Canadian Institute of Mining (CIM) and the [International Society of Mining Engineers \(SME\)](#).
- Join groups on LinkedIn reflecting specific careers or topics of interest.

LAUNCH YOUR CAREER

- Finding career fit starts with knowing yourself. Take the [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 Week](#) to explore your career pathways.

- Start building your teaching portfolio including student evaluations, and seeking mentorship.
- Explore different careers of interest by reading [alumni profiles](#) on the SGS website, and using [QueensConnects](#) on LinkedIn to connect with Queen's alumni, or find alumni in various careers through ["Ask an Alum"](#). For more information check out [Career Cruising](#).
- Investigate requirements for professional positions or other opportunities related to careers of interest.

- 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.
- Check out the free online modules at [MyGradSkills](#) to help you plan your career.

- Build connections with faculty outside of your department. Pursue interviews for faculty positions and apply for post-doc fellowships and positions.
- Apply to jobs or make plans for other adventures. Get help from Career Services with [job searching, resumes, or interviews](#).
- If considering jobs abroad, research possible immigration regulations. If you are an international student interested in staying in Canada, consider speaking with an [International Student Advisor](#).

EMPLOYABILITY SKILLS

Knowledge and technical skills in area of specialization

Communication: effective and clear in written, oral and multimedia forms, for diverse audiences

Information management: prioritize, organize and synthesize large amounts of information

Time management: meet deadlines and responsibilities despite competing demands

Project management: develop ideas, gather information, analyze, critically appraise findings, draw and act on conclusions

Creativity and innovation to address complex, multifaceted challenges

Perseverance to work through challenges to achieve desired outcome

Independence and experience as a **collaborative** worker

Awareness and 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 discussions

Ph.D. Map FAQs

What do I need to know to apply?

ACADEMIC REQUIREMENTS

- MAsc degree in Mining Engineering.

ADDITIONAL REQUIREMENTS

- If English is not a native language, prospective students must meet the [TOEFL requirements](#) in writing, speaking, reading, and listening.

KEY DATES & DEADLINES

- **Application deadline:** March 1.
- **Notification of acceptance:** April 30.

Before you start your application, please review the [Graduate studies application process](#).

How do I find a supervisor?

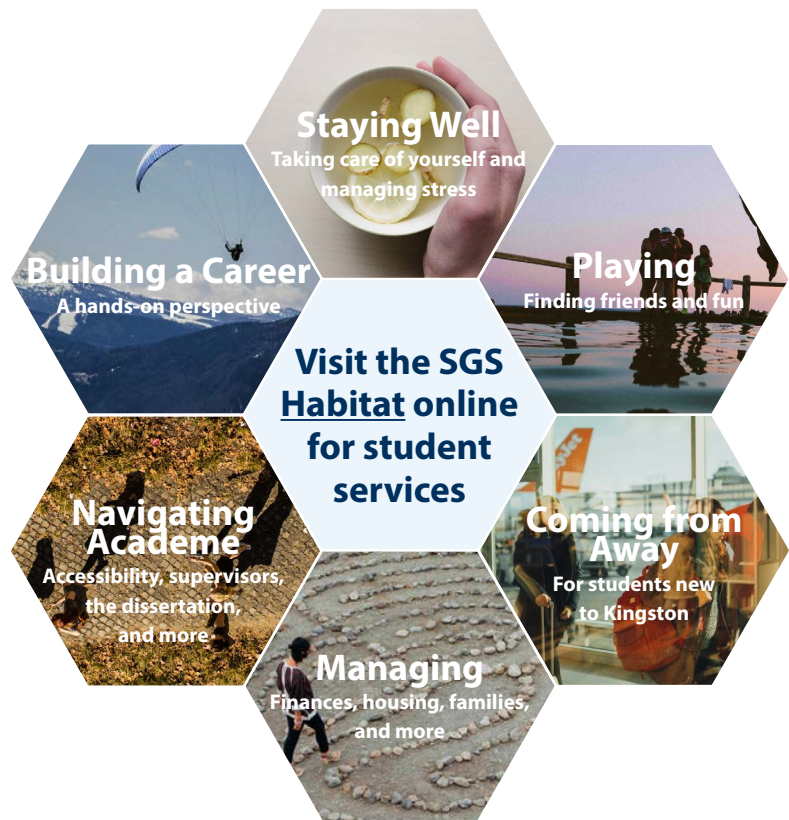
We encourage you to identify an area of research interest and contact a potential supervisor before applying.

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. This is also an opportunity for you to find out if the faculty member is accepting new graduate students to supervise. Meet with your potential supervisor at departmental events for prospective students.

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 top-up award to winners of federal government Tri-Council awards for PhD studies. For more information, see the School of Graduate Studies' information on [awards and scholarships](#).



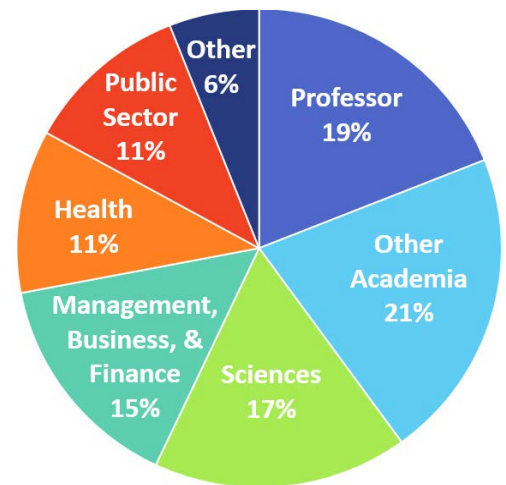
Where Can a Graduate Degree Take Me?

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.



Ph.D Career Outcomes in Canada

Edge, Jessica, and Daniel Munro. Inside and Outside the Academy: Valuing and Preparing PhDs for Careers. Ottawa: The Conference Board of Canada, 2015.



DEPARTMENT OF
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