Why GRADUATE STUDIES in CHEMISTRY?

A degree from Queen's Department of Chemistry is highly regarded and an important consideration in today's competitive science and technology job market. Our $56 million state-of-the-art building is home to the Nuclear Magnetic Resonance facility and its eight high-field instruments, an on-site Mass Spec facility with four mass spectrometers, an X-ray diffractometer, a CFI-funded facility for materials characterization and more unique equipment in faculty labs.

Why QUEEN'S?

Queen's University and the Department of Chemistry enjoy international reputations. With 27 award-winning faculty, and over 130 graduate students, post-doctoral fellows and research associates performing cutting-edge research in a multitude of areas, you will find this an exciting place to do research. Research is performed in the areas of analytical, inorganic, organic, physical, polymer, and theoretical chemistry. Research in these areas ranges from the most fundamental to very applied.

“...have left me with nothing but good memories. It was a great experience, a great city and a great education. It was a solid foundation to launch a career.”

– Will N. Rogers, PhD

Program STRUCTURE

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

RESEARCH Areas

- Analytical/Environmental
- Biological
- Inorganic/Organometallic
- Materials/Polymer
- Organic
- Physical
- Theoretical/Computational

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

Visit the Chemistry Department website to read 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.
**ACHIEVE YOUR ACADEMIC GOALS**

- Key priorities include forming your committee and coursework.
- 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.
- Complete WHMS safety training.

**MAXIMIZE RESEARCH IMPACT**

- Think about audiences for your research.
- Complete CORE online module on research ethics if doing research with living people or sensitive topics.
- Apply to NSERC, OGS, and other funding.
- Attend conferences in your field.

**BUILD SKILLS AND EXPERIENCE**

- Serve on departmental, faculty or university committees. Talk to the Queen's Graduate Chemistry Society about getting involved.
- Consider positions in student services, the SGPS, or media outlets like the Queen's Journal, CPEtv, 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 such as Science Rendezvous.
- Take part in events put on by the Queen's Chemistry Innovation Council, Let's Talk Science, or Women in Science & Engineering (WISE).

**LAUNCH YOUR CAREER**

- Finding career fits starts with knowing yourself. Take the Career Services workshop or meet with a career counsellor for help. Check out books like So What Are You Going to Do With That? or Planning a Scientific Career in Industry from the Career Resource Area 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 School of Graduate Studies Career Week to explore your career pathways.

**YEAR II**

- Complete the Annual Research Progress Report (1/3) and meet with supervisory committee.
- Write your PhD candidacy exam and defend your thesis proposal.
- Embark on your substantive research.
- Set up regular meetings with your supervisor to discuss progress and obstacles to timely completion.
- Find your way through the academic process with the help of Expanding Horizons.

- Attend or present at a graduate conference such as the Canadian Chemistry Conference and Exhibition.
- Expand your research audience through social media such as Twitter or a blog.
- Apply for the Graduate Dean's Travel Grant for Doctoral Field Research.
- Conduct research at an International Collaborative University (i.e. Stuttgart, Nagoya, Poitiers).

- 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. Enrol in SGS102 or the PTEL certificate for more professional development and teaching support. Participate as a graduate representative on a department committee (i.e. Graduate Committee, Appointments Committee, Technical Resource Committee, Health and Safety Committee).
- Participate in your graduate and professional community through activities such as graduate student outreach programs, organizing conferences, and research groups.
- Consider becoming an executive member of the Queen's Graduate Chemistry society.

**YEAR III**

- Continue to meet regularly with your supervisor, review research progress, and write your dissertation. Check out the SGS 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.
- Complete the Annual Research Progress Report (2/3).

- 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 Arts and Science University Research website.
- Discuss patenting your results and exploring intellectual property with supervisor and the Office of Partnerships and Innovation.

**YEAR IV & TRANSITIONING**

- Begin teaching as a departmental Teaching Fellow.
- Find opportunities for extra training through CTL, Expanding Horizons, Mitacs, or other sources to boost your skills. Investigate internships from Mitacs and other sources.
- Prepare for work or studies in a multi-cultural environment by taking the Intercultural Awareness Training Certificate hosted by QUC and FDISC.

- Practice articulating the skills you have been developing in settings outside the university, such as casual conversation, networking, and interviews. Get help from a Career Services workshop.
- Take advantage of the state-of-the-art research facilities, which feature NMR, mass spectrometry, X-ray diffractometer, a laser lab, and more.

- Do some targeted networking with people working in careers of interest, through Queen'sConnects on LinkedIn, the Queen's Alumni Association, professional associations, and at conferences. Get help from a Career Services workshop.
- 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 resume for potential positions of interest.
- Connect with Queen's Chemistry Innovation Council Members and chemistry alumni.

- Plan date of thesis submission for examination.
- Present your research to graduate students and faculty or at conferences and work with supervisor to prepare for defence.
- Review submission and examination guidelines.
- Secure necessary oral defence accommodations.
- Discuss career pathways, references letters, and publication options with your supervisor.
- Complete the Annual Research Progress Report (3/3).

**WHAT WILL I LEARN?**

- A graduate degree in Chemistry 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-profits.
- Knowledge and Technical Skills
  - Chemical synthesis
  - Spectroscopic characterization
  - 3D printing/rapid prototyping
  - Mass spectrometry analysis
  - Experimental design
  - Molecular modelling
- Communications
  - Manuscript writing
  - Conference oral presentation
  - Poster presentation (graphic)
- Creativity and Innovation
  - Scientific patent writing/patent protection
  - Business skills in chemical industry
- Leadership and Collaboration
  - Grant writing, problem solving
  - Leadership and Collaboration
  - Committee participation
  - Supervision of junior researchers
- Career Resource Area
  - Industrial engagement
  - Research with international experts/partners

**WHERE CAN I GO?**

- Consider a PhD in Chemistry 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-profits.
- Chemical Education (University, College, Secondary/Primary)
- Industrial engagement
- Research with international experts/partners
- Quality Control Chemist
- Postdoctoral Fellowship
- Forensic Scientist
- Environmental Law
- Patent Law
- Food Scientist
- Biochemistry
- Consumer Protection
- Pharmaceutical Chemist
- Materials Scientist
- Petroleum Engineer

- Chemical Education (University, College, Secondary/Primary)
- Career Cruising
- QueensConnects on the SGS website, and using other sources
- • 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
- • Continue public outreach through social media and the Queen's Media Centre.
- • Set up a meeting with the School of Graduate Studies for a Grad Chat to discuss your research interests.
- • Consider putting an article in The Conversation
- • Continue to attend conferences and connect with scholars in your field and with community partners.
- • Continue to meet regularly with your supervisor, review research project, and write your dissertation. Check out the SGS 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.
- • Complete the Annual Research Progress Report (3/3).
- • Plan date of thesis submission for examination.
- • Present your research to graduate students and faculty or at conferences and work with supervisor to prepare for defence.
- • Review submission and examination guidelines.
- • Secure necessary oral defence accommodations.
- • Discuss career pathways, references letters, and publication options with your supervisor.
- • Complete the Annual Research Progress Report (3/3).
Graduate Studies FAQs

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
- MSc in Chemistry of equivalent, or direct entry from BSc for exceptional candidates with extensive research experience.
- Grade requirements: minimum upper second class standing (B+ average).

ADDITIONAL REQUIREMENTS
- Two official transcripts for all post-secondary studies.
- Two letters of recommendation (academic)
- Curriculum Vitae
- Correspond with potential supervisors
- 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 due: February 1st for International applicants; Flexible deadline for Domestic applicants.
- Notification of acceptance: Domestic students are notified on an ongoing basis as their applications are reviewed. International students are notified at the end of March.

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

What about FUNDING?

The minimum funding guarantee for Chemistry PhD students is $26,010 per year, throughout years 1-4. The funding package may be comprised of graduate awards, research fellowships, and research and/or teaching assistantships. Many students are awarded scholarships and awards, which allow them to exceed this level of income.

We encourage all students to apply for external funding from OGS, NSERC and other sources. Queen's will automatically issue a one time $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.

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