

Chemistry PhD Map

Applying to and Navigating Graduate Studies

GRAD MAP FOR PhD STUDENTS 

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 26 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.



"My years at Queen's 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
- Chemistry Education
- 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](https://www.queensu.ca/chem) 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 them 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.



GRADUATE STUDIES AND
POSTDOCTORAL AFFAIRS

queensu.ca/grad-postdoc

Chemistry PhD Map

DOCTOR OF PHILOSOPHY (PhD)

YEAR I

YEAR II

YEAR III

YEAR IV
& TRANSITIONINGACHIEVE 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 WHMIS safety training.
- Complete Annual Research Progress Report (1/2) and meet with supervisor 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 School of Graduate Studies and Postdoctoral Affairs (SGSPA) Professional development.

- Continue to meet regularly with your supervisor, review research progress, and write your dissertation. Check out the SGSPA writing camps, such as Dissertation Boot Camp and Dissertation on the Lake.
- Use conference presentations to create, discuss, and explore ways to disseminate research findings.
- Begin discussion of potential thesis defence examiners.
- Complete the Annual Research Progress Report (2/2)

- 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.

MAXIMIZE
RESEARCH
IMPACT

- Think about audiences for your research.
- Complete CORE online module on research ethics if doing research regarding sensitive topics.
- Apply to NSERC, OGS, and other funding.

- Attend or present at the Queen's Graduate Chemistry Society Symposium.
- 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)

- Attend or present at a graduate conference such as the Canadian Chemistry Conference and Exhibition or the American Chemistry Society National Meeting.
- Consider participating in the 3 Minute Thesis (3MT) or GRADflix 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.

- Attend a major conference in your field and connect with fellow scholars and community partners
- Continue public outreach through social media and the Queen's Media Centre.
- Consider being interviewed on the SGSPA radio show Grad Chat to talk about your research.
- Consider putting an article in The Conversation.

BUILD
SKILLS AND
EXPERIENCE

- Serve on departmental, faculty, or university committees.
- Consider positions in student services, the SGPS, or media outlets like the Queen's Journal, CFRC, and the SGSPA 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. Enrol in SGS902 or the PUTL Certificate for more professional development in teaching and learning.
- Participate as a graduate representative on a department committee (i.e. Graduate Committee, Appointments Committee, Technical Resource Committee, Health and Safety Committee).

- Begin teaching as a departmental Teaching Fellow.
- Investigate internships from MITACS and other sources.
- Find opportunities for extra training through CTL, School of Graduate Studies and Postdoctoral Affairs Professional development, MITACS, or other sources to boost your skills.
- Prepare for work or studies in a multi-cultural environment by taking the Intercultural Awareness Training Certificate hosted by QUIC and Four Directions.

- 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.

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.

- 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.

- Do some targeted networking with people working in careers of interest, through LinkedIn, the Queen's Alumni Association, professional associations, and at conferences. Get help from a Career Services workshop.

- Consider joining professional associations like the Canadian Society for Chemistry, or the American Chemical Society.
- Join groups on LinkedIn reflecting specific careers or topics of interest.

LAUNCH YOUR
CAREER

- Finding career fit starts with knowing yourself. Take a Career Services workshop or meet with a career educator and coach for help.
- Start reading publications like University Affairs and the Chronicle of Higher Education. Browse non-academic labour market websites.
- Find impactful work that aligns with your values using the Queen's Career Guide to the UN Sustainable Development Goals.

- Start building your teaching portfolio including student evaluations, and seeking mentorship.
- Explore different careers of interest by using Queens LinkedIn to connect with Queen's alumni. 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 resume for potential positions of interest.
- Connect with Queen's Chemistry Innovation Council Members and chemistry alumni.

- 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.
- 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.

Knowledge & Workplace
Skills

A graduate degree in Chemistry can equip you with:

Knowledge and Technical Skills

- Chemical synthesis
- Spectroscopic characterization
- 3D printing/rapid prototyping
- Mass spectrometry analysis
- Experimental design
- Molecular modeling

Communications

- Manuscript writing
- Conference oral presentation
- Poster presentation (graphic)

Creativity and Innovation

- Scientific patent writing/patent protection
- Business skills in chemical industry
- Grant writing, problem solving

Leadership and Collaboration

- Committee participation
- Supervision of junior researchers
- Industrial engagement
- Research with international experts/partners

Career Possibilities

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.

- Biochemistry
- Chemical Education (University, College, Secondary/Primary)
- Consumer Protection
- Environmental Law
- Food Science
- Forensic Science
- Materials Science
- Patent Law
- Petroleum Engineering
- Pharmaceutical Chemistry
- Postdoctoral Fellowship
- Quality Control Chemistry

Taking time to explore career options, build experience, and network can help you have a smooth transition to the world of work after graduation.

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. To make your own custom map, use the My Grad Map tool: careers.queensu.ca/gradmaps.

Graduate Studies FAQs

How do I make the most of my time at Queen's?

Use the Grad Map to plan for success in five overlapping areas of your career and academic life. Everyone's journey is different - the ideas on the maps are just suggestions to help you explore possibilities. For more support with your professional development, take advantage of the SGSPA professional development framework and the new Professional Development Plan (PDP) process to set customized goals to help you get career ready when you graduate.

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 [SGSPA website](#) 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.



DEPARTMENT OF
CHEMISTRY

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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 following minimum scores are required: (1) TOEFL iBT: Writing (24/30); Speaking (22/30); Reading (22/30); Listening (20/30). Applicants must have the minimum score in each test as well as the minimum overall score, or (2) IELTS: 7.0 (academic module overall band score and a 7.0 for each test band), or (3) PTE Academics: 65, or (4) CAEL CE - 70 (minimum overall score).

KEY DATES & DEADLINES

- **Application Due:** While the department accepts applications throughout the year, those students wishing to be considered for awards should apply by March 1st.
- Available Intakes: September, January, and May
- **Notification of acceptance:** Students are accepted on an ongoing basis as their completed applications reviewed

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

What about FUNDING?

Doctoral students are currently guaranteed minimum funding of \$21,000 per year for years 1-4. The funding package may be comprised of graduate awards, graduate 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. For more information, see the School of Graduate Studies and Postdoctoral Affairs' information on awards and scholarships.

