

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](#) 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.



YEAR I

YEAR II

YEAR III

YEAR IV

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 WHMIS safety training.
- Complete Annual Research Progress Report (1/2) and meet with supervisor committee.

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.

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.

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](#).

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.
- Stay on the lookout for special events like School of Graduate Studies and Postdoctoral Affairs Career Week to explore your career pathways.

- 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 Professional development](#).

- 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)

- 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).

- 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.

- Start building your teaching portfolio including student evaluations, and seeking mentorship.
- Explore different careers of interest by using [Queens Connects](#) on 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.

- 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)

- 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 \(3MT\)](#) 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.

- 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 FDISC.

- Do some targeted networking with people working in careers of interest, through [Queens Connects](#) 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.

- 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.
- Set up a meeting with the SGSPA to go on [Grad Chat](#) to discuss your research interests.
- Consider putting an article in [The Conversation](#).

- 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.

- 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.

- 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](#).

WHAT WILL I LEARN?

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

WHERE CAN I GO?

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. The map just offers suggestions – you don't have to do it all! To make your own custom map, use the [My Grad Map](#) tool.

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 [Individual Development Plan \(IDP\)](#) 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?

The minimum funding guarantee for Chemistry PhD students is \$28,152 per year, throughout 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 (Last year's minimum was \$27,600 with an average stipend of \$30,167).

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 and Postdoctoral Affairs' information on [awards and scholarships](#).

