Get to know CHEMISTRY

Frequently called the central science because it provides the basis for studies in many other disciplines ranging from biology to materials science, in addition to being a booming discipline of its own, chemistry explores the composition, structure and transformation of matter. Located in Chernoff Hall, Queen’s Department of Chemistry is regarded as one of the best in Canada for both teaching and research. Our aim is to offer a stimulating learning environment for undergraduate students, primarily through participating in engaging, practical laboratory work. In upper years, depending on your interests, undergraduates can specialize in one of the more fundamental branches of the discipline, such as analytical, inorganic, organic, physical, or theoretical chemistry. Others may choose to explore newer applications, such as environmental, materials, biological, computational, or polymer chemistry.

Professional chemists play major roles in such diverse and important areas as the design and synthesis of pharmaceuticals and polymers, the development of alternative energy sources, and the protection of the environment.

“A one of the top Chemistry teaching and research departments in Canada with accreditation by the Canadian Society of Chemistry.”

A Common START

Students in our Faculty are admitted into Arts, Science or Computing but the focus is on a common first year. Through self-exploration, and while you settle into university life, you have the opportunity to work with our advisors and faculty to discover your real interests and identify opportunities for success. Sometimes that discovery happens fairly quickly, and for other students it takes some work and time before the “ah-ha!” happens – either way your first year at Queen’s will be a great experience.

Degree OPTIONS

Bachelor of Science (Honours)
Major / Minor / Specializations in Chemistry, Environmental Chemistry
Bachelor of Science (General)
Bachelor of Arts (General)
Internship option available

Queen’s ADMISSION

Students apply to Queen’s Science (QS) through the OUAC (Ontario Universities Application Centre) website (ouac.on.ca). Secondary School prerequisites include English 4U, Calculus and Vectors 4U, Advanced Functions 4U and two of Chemistry 4U, Biology 4U or 4U Physics.

Course HIGHLIGHTS

The first year course in Chemistry is a survey of modern chemistry covering molecular structure, bonding, phases of matter, thermodynamics, electrochemistry, equilibrium, kinetics, polymers, organic and biochemistry with extensive lab participation. Some popular upper year courses include Synthetic Organic Chemistry, Biological Chemistry, Polymer Chemistry, Environmental and Green Chemistry and Quantum Mechanics.

That is a degree from Queen’s.
GET THE COURSES YOU NEED

In first year take CHEM 112, PHYS 106 (or 104, 117), MATH 121 (or 120), MATH 112 (or 110, 111).

Each Science Plan will have several required first-year courses, including minors. For details see the Arts and Science Academic Calendar.

Want to enhance your degree? Consider a certificate in Academic Writing or explore other certificates available.

GET RELEVANT EXPERIENCE

Join clubs on campus such as Let’s Talk Science or Women in Science and Engineering.

See the AMS Clubs Directory or the Queen’s Get Involved page for more ideas.

Get involved with the Departmental Student Council (DSC). Connect with professors at socials or attend speaker events. Start or continue volunteering.

GET CONNECTED WITH THE COMMUNITY

Volunteer on or off-campus with community organizations such as Science Rendezvous.

Consider joining an intramural sports or an athletics team. Check out the Athletics and Recreation site.

GET THINKING GLOBALLY

The Queen’s University International Centre is your first stop to learn how to internationalize your degree or to leverage your existing cross-cultural experience.

Speak to a QUIC advisor or get involved in their programs, events and training opportunities.

GET READY FOR LIFE AFTER GRADUATION

Grappling with program decisions? Go to Majors Night or get some help wondering about career options from Career Services.

Build your transferable skills in time management, problem-solving, writing and more with Student Academic Success Services.

1ST YEAR

2ND YEAR

If you are registered in a Chemistry Major or Specialization Plan, then you will take CHEM 211, 212, and 213 in the fall term, and CHEM 221, 222, and 223 in the winter term.

Complete the required MATH and PHYS courses if you did not do so in 1st year.

Please see the Academic Calendar to ensure you are taking the correct courses.

3RD YEAR

Try to complete all of the 3rd year core Chemistry course requirements (CHEM 311, 312, 313, and 397 in the Fall term, and 321, 322, 323, and 397 in the Winter term). For the Specialization Plan in Chemistry, 90.0 core/option units are required and planning for the extra 3rd and 4th year Chemistry courses is needed.

Need help mapping all of your core, option, supporting and elective courses (including those not listed above) to make sure you will have what you need to complete your degree? Use the Course Mapping Tool on the Arts and Science website.

4TH OR FINAL YEAR

The Honours Research Thesis project (CHEM 497) is a requirement for both the Major and Specialization Plans in Chemistry. Take option courses in your areas of interest.

By fourth year you should be working on your remaining option and elective courses. Make sure to map your minor and/or certificate(s) as well.

Apply to graduate in SOLUS.

Consider a 12-16 month QUIP internship

Investigate requirements for full-time jobs, graduate studies, or other opportunities. Assess what you’re lacking and fill in gaps – check out the Career Services skills workshop for help.

Consider presenting your research results at the Southern Ontario Undergraduate Student Chemistry Conference in the Spring.

Where could I go after graduation?

Agricultural sciences
Biomedical engineering
Botany
Complementary medicine
Conservation
Ecology
Education
Epidemiology and community health
Environmental research
Food science and technology
Forensic science
Genetics
Industrial processes
Journalism
Management (business and health administration)
Marketing
Medical laboratories
Medicine
Nutrition and dietetics
Patent law
Pharmaceuticals
Pharmacy
Physiology
Public health
Public or private research
Teaching
Technician
Toxicology
Veterinary medicine
Zoology

Some careers may require additional training.

Visit careers.queensu.ca/majormaps.html for the online version with links!
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 Major Map tool.

A balanced approach leads to long-term success. While you will learn a lot from your studies, taking time to get relevant experience outside of the classroom, build your network, and gain international experience, will position you to be more competitive in your job search or grad school applications.

Get started thinking about the future now – where do you want to go after your degree? Having tentative goals (like careers or grad school) while working through your degree can help with short-term decisions about courses and experiences, but also help you keep motivated for success.

Get the help you need

Queen’s provides you with a broad range of support services from your first point of contact with the university through to graduation. At Queen’s, you are never alone. We have many offices dedicated to helping you learn, think and do.

Ranging from help with academics and careers, to physical, emotional, or spiritual resources – our welcoming living and learning environment offers the programs and services you need to be successful, both academically and personally, and Queen’s wants you to succeed! Check out the Student Affairs website for available resources.

Succeed in the workplace

What employers want

The Canadian Council of Chief Executives list the top 6 skills sought by employers as:

1. People skills
2. Communication skills
3. Problem-solving skills
4. Analytical abilities
5. Leadership skills
6. Industry-specific knowledge

Take the time to think about the unique skills you have developed at Queen’s, starting with the skills list here for ideas. Explaining your strengths with compelling examples will be important for applications to employers and further education. For help, check out the Career Services skills workshop.

What can I learn studying CHEMISTRY?

- Research skills to conduct research, understand scientific journal articles, trouble-shooting, clearly explain and interpret research data
- Organizational skills to compile, organize and maintain accurate records
- Ability to operate laboratory equipment and to employ appropriate scientific lab techniques
- Proficiency in mathematics
- Sensitivity to the health and safety of others - safe handling, storage and disposal of hazardous chemicals
- Written and oral communication skills to prepare and present reports from research ideas and information using current technology
- Observation and decision making skills
- Resource and time management
- Logical reasoning