

# Biochemistry

Queen's  
UNIVERSITY

FACULTY OF  
ARTS AND SCIENCE

## Get to know **BIOCHEMISTRY**

Biochemistry in the 21st century will continue to uncover the biochemical basis for life. Emerging knowledge in biochemistry will help to unravel the molecular basis for diseases such as cancer and hypertension, and in turn lead to the development of new tools for disease detection and new therapies for treatments and cures.

The biochemist applies the basic principles of chemistry, mathematics, physics, and biology to the study of cellular processes; thus a good grounding in these subjects is an integral part of the program. Biochemistry at Queen's offers a wide scope of diverse topics ranging from molecular genetics and structural biology to the functional basis of enzymes, hormones, and vitamins. These biochemistry courses incorporate an understanding of specific organisms, as well as organ systems such as musculoskeletal and cardiovascular.

The cooperative program in Biochemistry is an option that provides paid work placements totalling 12 months in industry, business, research institutes or government labs providing contacts and experience in the workplace. Participating in the cooperative program requires up to an additional year of study. Biochemistry students in the Specialization plan will undertake 4th year research projects in topics as diverse as protein structure and enzyme function, along with supporting courses.



*"A comprehensive program with a modern experimental approach to science."*

### 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.

### Course **HIGHLIGHTS**

The first two years of study in the Biochemistry program involve courses in general chemistry, organic chemistry, mathematics and biology, the latter giving also a first introduction to biochemical themes. The first full complement of courses in biochemistry are offered in the third year program, together with an extensive laboratory course. The fourth year is devoted almost entirely to biochemistry, covering some of the latest advances, and including a large proportion of advanced laboratory experience.

### Queen's **ADMISSION**

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

### Degree **OPTIONS**

Bachelor of Science (Honours)  
Major / Minor / Specialization in Biochemistry  
Bachelor of Science (General)  
Internship option available

**Acquire Skills. Gain Experience. Go Global.**  
That is a degree from Queen's.

[quartsci.com](http://quartsci.com)

# 2016 - 2017 Biochemistry MAJOR MAP

BACHELOR OF SCIENCE (HONOURS) (SPECIALIZATION, MAJOR, MINOR) | BACHELOR OF SCIENCE (GENERAL) | BACHELOR OF ARTS (HONOURS) (MINOR)

Queen's  
175  
YEARS



Visit [careers.queensu.ca/majormaps.html](http://careers.queensu.ca/majormaps.html) for the online version with links!

# Biochemistry

## MAJOR MAP



### 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 BIOCHEMISTRY?

- Knowledge of the chemical and biological processes within the human body and other organisms
- Understanding of organic, analytical and physical chemistry and biology (genetics)
- Understanding of general physics and mathematics
- Ability to use statistics and computer programs for data processing
- Familiarity with a laboratory environment and ability to troubleshoot laboratory equipment and instruments
- Knowledge of quality control and safety regulations
- Quantitative skills to solve quantitative problems
- Oral and written communication to write and summarize reports, along with giving oral presentations
- Time and resource management



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LIFE SCIENCES AND  
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