

# Biochemistry

BSc | [www.yorku.ca/science/biochemistry](http://www.yorku.ca/science/biochemistry)

## Admission Requirements

- ENG4U, MHF4U, SCH4U, SBI4U, MCV4U
- **Recommended:** SPH4U
- **Minimum admission average:** high 70s – mid 80s

## Program Overview

Students with a broad interest in the chemistry of biological systems will thrive in the Biochemistry Specialized Honours or Honours Major program as they examine the interface of Biology and Chemistry, and explore the functions, structure and regulation of living organisms at the cellular and molecular levels. These topics are largely aligned with the UN Sustainable Development Goal 3: Good Health and Well-being.

In the first year of the program, most students take Biology, Physics, Chemistry, Calculus and Computer Science. You will start your specialization in second year by taking courses such as Organic Chemistry, Cell Biology, Biochemistry, Physical Chemistry, Inorganic Chemistry and Genetics. Your final years will consist of a selection of advanced courses, including Nucleic Acid Metabolism, Biotechnology and Gene Expression, along with many of your own choosing.

Career opportunities for biochemists (like those for chemists) are fairly broad, ranging from agriculture, environmental, to pharmaceuticals and pharmacology, veterinary science, microbiology, biotechnology, as well as medicinal and clinical chemistry.

Toward the end of their studies, students will engage in a supervised research study, which can include original laboratory work, a theoretical project supported by studies of the relevant scientific literature and/or field investigations with the agreement of a professor to supervise you. There will also be additional opportunities for exceptional students to engage in laboratory work and research during summer terms or part time during the school year.

## First Year Courses:

- Chemistry
- Biology
- Physics
- Calculus
- Computer Use
- General Education Course

## Second Year Courses:

- Genetics
- Physical Chemistry
- Cell Biology and Biochemistry
- Organic and Inorganic Chemistry
- General Education Course

## Upper Year Options:

- Advanced Biochemistry
- Nucleic Acid Metabolism
- Biotechnology
- Advanced Biochemistry and Molecular Genetics Laboratory
- Macromolecules of Biochemical Interest
- Regulation of Gene Expression
- Bioanalytical Chemistry
- Honours Thesis
- Pharmaceutical Discovery

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**Experiential Education**

The Faculty of Science provides a rich diversity of opportunities for undergraduate students to engage in Experiential Education. Both the Co-op and Internship Programs provide students in this program with an opportunity to integrate their classroom learning with hands-on, paid, work experiences related to their field of study.

Here are just a few of the companies you could have the opportunity to work for:

- Sanofi Pasteur
- Health Gene Corporation
- Parks Canada
- City of Toronto
- Apotex
- Dalton Pharma Services
- Taro Pharmaceuticals
- GSK Canada
- Toronto Research Chemicals

Visit [yorku.ca/science/students/experiential-education/](http://yorku.ca/science/students/experiential-education/) for more information.

**Possible Career Pathways**

Your studies in Biochemistry at York will prepare you for a very diverse range of career options:

- Biochemistry Research – academic, government
- Pharmaceutical Research and Development
- Medical Research
- Hospital and Diagnostic Laboratories
- Professional Schools – Medicine, Dentistry, Pharmacy, etc.
- Biotech, Pharmaceutical or Chemical Industry – product development, technical information, product information, quality control, regulatory compliance

**Get In Touch**

**Domestic Students:**  
science@yorku.ca

**International Students:**  
intlsci@yorku.ca

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“York offers a unique biochemistry program that has allowed me to take a wide variety of courses that helped to build a well-rounded skillset and knowledge pertaining to biochemistry, chemistry, physics, and calculus. In addition to its comprehensible lecture format, the biochemistry program allows for student to gain laboratory experience in both the chemical and biological field, allowing students greater freedom to explore possible career opportunities. York Science in particular also offers many student services that aid in students’ learning, ensuring no student is alone in their academic career.”

**- Hannah, Biochemistry Student**