

Biochemistry

BSc | www.yorku.ca/science/biochemistry

Admission Requirements

- ENG4U, MHF4U, SCH4U, SBI4U, MCV4U
- **Recommended:** SPH4U
- **Minimum admission average:** low –to – 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.

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 Science
- General Education Course

Second Year Courses:

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

Upper Year Options:

- Honours Thesis
- Advanced Biochemistry
- Nucleic Acid Metabolism
- Biotechnology
- Advanced Biochemistry and Molecular Genetics Laboratory
- Macromolecules of Biochemical Interest
- Regulation of Gene Expression
- Bioanalytical Chemistry
- 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 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/ for more information.

Possible Career Pathways

Graduates are well prepared for careers in medicine, biotechnology, management and policy development, medical and biological research, environmental biology, ecology and a diversity of other fields in Toronto's many Biology-related industries. Your studies in Biology at York will prepare you for a very diverse range of career options.

- Biology Research – academic, government, industry
- Biologist
- Biostatistician
- Botanist
- Geneticist
- Health & Safety Evaluator
- Education – elementary, high school, college, university
- Professional Schools – Medicine, Dentistry, Pharmacy, Law, Business
- Health Sciences – nurse, chiropract, biomedical technician, genetic counselor, diagnostic histologist, etc.
- Environmental – conservationists, government agencies, environmental consultants, zoo keepers, etc.
- Postgraduate Studies/Academic Career

Get In Touch

Domestic Students:
science@yorku.ca

International Students:
intlsci@yorku.ca

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“York’s biology program offers outstanding laboratory and research experiences, and opportunities to network. As a biology major, I took numerous courses in diverse areas from biochemistry, chemistry, physiology, molecular genetics and cell biology, and evolution to aid my future career as a teacher. I hope to offer the same care, support, and guidance my professors provide me.”

- Alexandra, Biology Student