

# Biotechnology (BSc)

## Admission Requirements

### Prerequisite Requirements for BSc:

- ENG4U, MHF4U, SBI4U, SCH4U
- Recommended: SPH4U
- Expected minimum admission average: low 80s – mid 80s

### Program Overview

Biotechnology, as a specialization within Biology, is important in areas such as the development of new methods for **the diagnosis of disease, the genetic modification of agricultural crops and animals.**

Biotechnology at York is offered as a stream in the Specialized Honours Biology program. A carefully selected set of courses in areas related to biotechnology will prepare you for an extensive list of employment possibilities or graduate studies.

In the final years of the program, you will have the opportunity to enhance and refine your knowledge of the theory and practice of molecular biology, biotechnology, and biochemistry while taking additional courses in Environmental and Advanced Analytical Chemistry. All students are required to complete an Honours Thesis course, which may provide the opportunity for first-hand experience in independent research and current laboratory technique.

### First Year Biotechnology Major Courses:

- Biology
- Chemistry
- Physics
- Calculus
- Computer Use
- Micro & Macro Economics

### Second Year Biotechnology Major Courses:

- Cell Biology and Biochemistry
- Genetics and Organic Chemistry
- Statistics for Biologists
- Analytic Chemistry
- Ethics

### Upper Year Biotechnology Major Course Options:

- Molecular Biology
- Microbiology
- Biotechnology
- Honours Thesis
- Management and Business
- Finance and Accounting
- Industrial Chemistry and the Environment
- Instrumental Methods of Chemical Analysis
- Regulation of Gene Expression
- Human Molecular Genetics
- Eukaryotic Genetics
- Plant Molecular Biology
- Genetic Stability and Change
- Virology
- Cell Regulation
- Neurobiology
- Immunobiology

## 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 Program provides 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
- Grande Prairie Regional College

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



## Career Pathways for Biotechnology

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

- Government Positions – Research and Development, Regulation
- Industry – Research and Development, Clinical Research, Quality Control, Regulatory Affairs
- Pathologist
- Biotech Lab Technician
- Biotech Analyst
- Health Sciences – clinical research, biomedical research, lab management, genetic counsellor, diagnostic
- Education – elementary, high school, college, university
- Professional schools – Medicine, Dentistry, Pharmacy, Law, Business, etc.
- Marketing and Sales, Direction and Development
- Clinical Research
- Forensics
- Graduate Studies/Academic Career