

Applied Mathematics (BA, BSc)

Admission Requirements

Prerequisite Requirements for BA:

- ENG4U, MHF4U,
- Recommended: MCV4U
- Expected minimum admission average: high 70s – mid 80s

Prerequisite Requirements for BSc:

- ENG4U, MHF4U, SBI4U or SCH4U or SPH4U
- Recommended: MCV4U
- Expected minimum admission average: high 70s – mid 80s

Program Overview

At York your studies in Applied Mathematics will give you a solid base of knowledge in mathematics with an emphasis on the **applications of mathematics and computing in the science, engineering, and business fields**. Your studies will begin with core courses in calculus and differential equations, problem, conjectures and proofs, linear algebra, computing and computation, probability and statistics, and you may then choose to specialize in areas like numerical analysis, operations research, probability and statistics, and you may then choose to combine your studies with other degree programs in Science and Engineering. Your studies in Applied Mathematics will prepare you for success in professional careers in operations research, numerical and computational modeling, industrial and scientific research, actuarial and financial analysis, education, government, and for further professional or postgraduate studies. Your studies in Applied Mathematics can also give you access to professional qualifications such as the Diploma in Operations Research or membership in the Society of Actuaries, or they may lead to graduate studies in Applied Math.

Applied and Industrial Mathematics involves the modern and traditional relationship of math to science and engineering. This area will allow you to examine the variety of applications of the computers and mathematics to real world needs. Courses include advanced study in symbolic computation and numerical methods. Mathematical modelling and computation are vital tools in many aspects of industrial research and development, including manufacturing design, process control, product testing, environmental assessment, controlling the spread of infectious disease and other biomedical applications, and image processing.

First Year Applied Mathematics Major Courses:

- Calculus
- Statistics
- Problems, Conjectures and Proofs
- Computing for Math and Statistics
- One of Biology, Chemistry, or Physics (BSc students only)

Second Year Applied Mathematics Major Courses:

- Elementary Probability
- Real Analysis
- Intermediate Economic Theory I and II
- Financial Economics
- Calculus of Several Variables with Applications
- Linear Algebra
- One of Biology, Chemistry, or Physics (BSc students only)

Upper Year Applied Mathematics Course Options:

- Abstract Algebra
- Vector Integral Calculus
- Introduction to Geometries
- Mathematical Analysis
- Number Theory and Theory of Equations
- Discrete Mathematics
- History of Mathematics
- Mathematics of Cryptography

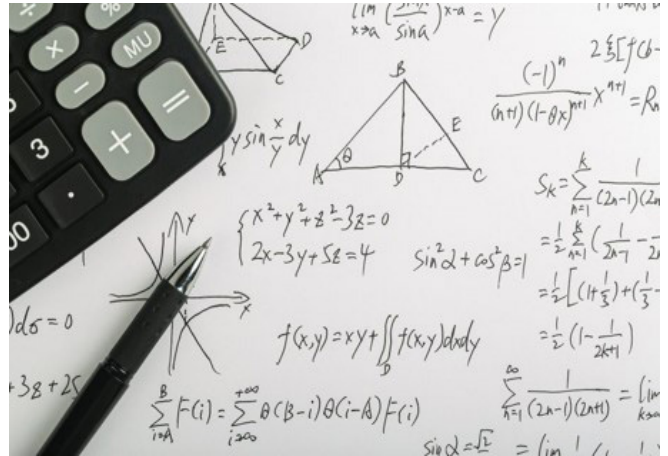
Experiential Education

The Faculty of Science provides a rich diversity of opportunities for undergraduate students to engage in Experiential Education. The Internship Program provides students in this program with the opportunity to integrate their classroom learning with hands-on, paid, work experiences related to their field of study. Internship students will begin their work term(s) after their third year of classroom study and can take part in 4, 8, 12, or 16 months of work before returning to school to complete their studies.

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/ for more information.



Career Pathways for Applied Mathematics

Our graduates go on to post-graduate and professional studies in mathematics and related science and social science fields, and establish rewarding careers in fields as diverse as biometrics, cryptography, data and research analysis, teaching and finance.

- Aerospace Engineer
- Accountant
- Actuary
- Architect
- Database Developer
- Engineering Consultant
- Financial Analyst
- Hardware Developer
- Laboratory Technician
- Mathematician
- Risk Analyst
- Statistician