

(Pure) Mathematics

BA, BSc | www.yorku.ca/science/mathstats/mathematics

Admission Requirements

BA

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

BSc

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

Program Overview

Have you wondered how real numbers are defined? How spheres differ from donuts? Are you curious about the mathematics used in your cell phone? What about the mathematics behind cryptography, financial models, machine learning, or quantum algorithms? Or are you interested in mathematics simply for its elegance and beauty? Then Mathematics at York is the program for you.

The emphasis in this program is on understanding mathematical concepts, abstraction, and reasoning. You will also get an excellent foundation for a wide range of applications beyond mathematics and for many occupations demanding skills in mathematical reasoning and techniques.

In the first year course *Problems, Conjectures, and Proofs*, with class sizes of at most 35 students, you can interact with your peers and get personal attention from professors.

In the **Bachelor of Arts (BA) program**, you may also take courses in humanities, social sciences, economics, and languages. In the **Bachelor of Science (BSc) program** you may also take courses in other science fields in biology, chemistry, physics, computer science, and the earth and atmospheric science.

First Year Courses:

- Calculus
- Computing for Math and Statistics
- Linear Algebra
- Problems, Conjectures and Proofs
- Statistics

The Math & Stats programs at York are designed so you can switch between any of our programs in the first three semesters and still finish your degree on time.

Students in the BSc degree will also take courses in other science fields such as Biology, Chemistry, or Physics.

Upper Year Options:

- Group Theory
- Measure Theory
- Metric Spaces
- Rings and Fields
- Complex Analysis

Additional Course Options:

- Probability Theory
- Cryptography
- History of Mathematics
- Exploring Geometries
- Graph Theory
- Number Theory
- Combinatorics
- Topology
- Partial Differential Equations

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Experiential Education

You can participate in leading edge research in a research project supported by the Natural Science and Engineering Research Council of Canada. York is also a sponsoring member of the Fields Institute for Research in Mathematical Sciences.

In this program, you can work on problems in the classroom and in personalized reading courses. You can also participate in events outside the classroom like mathematics contests.

Students can participate in the Internship programs through the Science Academic Services office in the Faculty of Science.

Visit yorku.ca/science/students/experiential-education/ for more information.

Possible Career Pathways

This program is a gateway to rewarding careers such as:

- Mathematician
- Teacher/Professor
- Data Scientist
- Tech Start-Up
- Machine Learning Analyst
- Risk Manager
- Derivatives Trader
- Operations Research
- Software Engineer
- Industry and Scientific Research
- Cryptologist/Cryptographer
- Computer Programmer/System Analyst
- Applied Science Technologist
- Quality Control Analyst
- Accountant/Financial Auditor/Financial Analyst
- Demographer

Get In Touch

Domestic Students:
science@yorku.ca

International Students:
intlsci@yorku.ca

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“One of the major strengths of the Mathematics and Statistics department is it’s amazing faculty. Many professors are willing to take the time out of their busy schedule to help you succeed in the classroom and in your career, some of whom have mentored me in my career and research.”

- Xavier, Mathematics & Statistics Student