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.

Pure mathematics develops problem-solving skills, logical reasoning, and abstract thinking. A degree in Mathematics not only prepares you for graduate study but also opens doors to diverse careers where creative and rigorous thinking make a difference. The program at York has options to study a wide range of areas of mathematics.

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 **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
- Introduction to Statistics
- Linear Algebra
- Problems, Conjectures and Proofs
- Statistics

The Math & Stats programs at York are designed so you can switch between the majority 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.

Second Year Courses

- Probability
- Differential Equations
- Multivariate Calculus
- Real Analysis

Upper Year Options

- Group Theory
- Measure Theory
- Metric Spaces
- Rings and Fields
- Complex Analysis
- Probability Theory
- Cryptography
- History of Mathematics
- Exploring Geometries
- Graph Theory
- Number Theory
- Combinatorics
- Topology
- Partial Differential Equations

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Experiential Education

Experiential Education (EE) gives students the opportunity to apply theories learned in the classroom to concrete experiences. 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.

Mathematics students can engage 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.

Additionally, there are many ways for students to participate in research opportunities through research practicum courses, Research at York (RAY), Capstone Project Courses, NSERC USRA Research Awards, and Dean Undergraduate Research Awards.

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

Possible Career Pathways

This program is a gateway to rewarding careers such as:

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

All York University students and recent grads have access to the **Career Centre**. Our Career Centre team provides resources and supports including, but not limited to, career fairs, employer networking events, a job board, skill development and job search workshops, career counselling, and interview practice sessions.

Visit careers.yorku.ca to learn more.

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**