The study of mathematics is an intense but satisfying preparation for just about any career path you desire.

Employers want the analytical, quantitative, and creative problem-solving skills you acquire as a math student at Waterloo. If you think you love mathematics now, just wait until you get here!

You can find information about our business, accounting, and computer science programs in separate brochures.

I am so proud of the success of the Equithon. The presence and involvement of the hackers, sponsors, volunteers, mentors, university staff, and everyone else, showed me just how many of us want to take a collective step to what we hope our future society will be.

Meaghen
Honours Mathematics — Statistics
Minor in Computer Science

As a member of the Math HeForShe student committee, Meaghen wanted to get more students involved in the initiative. After a conversation with her faculty advisor, Waterloo’s Equithon came to life.

MORE THAN 36,000
Waterloo BMath and BCS graduates in 104 countries worldwide

94% of Waterloo mathematics graduates are employed within 2 years of graduation

#BeyondIdeas

UWaterloo is the first campus to host a gender-parity hackathon. Participants at our first Equithon were looking for solutions to everything from gendered racism to mental health. Meaghen and her team created the Waterloo Equithon in support of the UN Women’s HeForShe 10x10x10 initiative.

At Waterloo, your actions and opinions have the ability to create change.
In first year, it’s all about keeping your options open. You’ll take core courses such as algebra, calculus, communications, and computer science to prepare you for whichever major you decide to choose.

Travel to Europe with our Math in Europe program. Available exclusively to first-year students, Math in Europe lets you take Waterloo math courses from Waterloo professors while exploring the history of Europe.

#BEYONDIDEAS

HAVE A MAJOR IN MIND?
In most cases, you can wait until the end of your first year or later to choose a major. Most math majors start in second year. Descriptions for each major are found on the following pages.

NOT SURE IF YOU WANT CO-OP?
Most programs are offered as co-op or regular (non-co-op); some programs are co-op only. If your program is offered in either system of study, we recommend applying to co-op when you submit your application. More information regarding co-op is located at the back of this brochure.

SAMPLE FIRST YEAR SCHEDULE

<table>
<thead>
<tr>
<th>FALL</th>
<th>WINTER</th>
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<tbody>
<tr>
<td>MATH 135: Algebra</td>
<td>MATH 136: Linear Algebra 1</td>
</tr>
<tr>
<td>MATH 137: Calculus 1</td>
<td>MATH 138: Calculus 2</td>
</tr>
<tr>
<td>CS 115: Introduction to Computer Science 1</td>
<td>CS 168: Introduction to Computer Science 2</td>
</tr>
<tr>
<td>1 communications course</td>
<td>1 communications course</td>
</tr>
<tr>
<td>1 non-math elective</td>
<td>1 non-math elective</td>
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</tbody>
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COMMUNICATION COUNTS
Employers are looking for more than just technical skills. Strong communication skills are a top priority, and we’re doing everything we can to help you develop these skills in order to succeed academically and professionally. Through small classes, you’ll complete 2 communication courses that will expand on your current skill set and prepare you for success.

uwaterloo.ca/math/communication-counts

Waterloo Mathematics actively recruits the best students worldwide.

Students in the Faculty of Mathematics come from more than 80 DIFFERENT COUNTRIES
ACTUARIAL SCIENCE BMath

Actuarial Science is the application of statistics, probability, and risk theory to real-life financial problems involving future uncertainty. Actuaries address the uncertainties associated with life insurance, property insurance, and casualty insurance, annuities, and pensions or other employee benefit plans. You may begin working toward your professional designation as early as second year and complete as many as 4 or 5 related exams by graduation.

Focus your studies › Finance option, Predictive Analytics option

STATISTICS BMath

Statistics plays a role in all aspects of data-based investigation, from the design of studies and surveys to the discovery of patterns to the determination of principal causes of an important effect. It is the science of drawing reliable conclusions from data using data collection, analysis, interpretation, and presentation. Statisticians are skilled in hypothesis testing, forecasting and predicting, and inferring and deducing. They work collaboratively with various sectors including medicine, business, government, and academia.

STATISTICS FOR HEALTH BMath

Effective health-care research teams need members with strong quantitative and data-based decision-making skills. Drawing from Waterloo’s strengths in statistics, biostatistics, computer science, health studies, gerontology, and economics, Statistics for Health focuses on research in the areas of clinical, public, and population health. The only program of its kind in Canada, Statistics for Health uniquely positions its graduates for successful careers in the quantitative sector of the health-care field.

DATA SCIENCE BMath

Data Science is the study, application, and development of methods to learn from available data in order to understand, predict, and improve business strategy, products and services, marketing campaigns, medicine, and public health and safety. These methods include elements of computer science and statistics.

Bachelor of Computer Science in Data Science program also available

APPLIED MATHEMATICS BMath

Applied Mathematics is the application of mathematical methods to solve problems that arise in science, engineering, medicine, business, and industry — from quantum to cosmology and everything in between. Partnerships with the Institute for Quantum Computing and Perimeter Institute for Theoretical Physics position Applied Mathematics students for exclusive academic and career opportunities.

Focus your studies › Biology option, Earth Sciences option, Economics option, Physics option, Applied Mathematics with Engineering electives, Scientific Computation/Applied Mathematics

COMBINATORICS AND OPTIMIZATION BMath

Combinatorics is the study of discrete structures and their properties and thus is indispensable to computer science. Optimization, also known as mathematics programming, is the study of maximizing and minimizing functions subject to specific conditions or constraints. Besides its importance to various branches of mathematics, the functions to be optimized arise in management sciences, engineering, and physical sciences.
Which major is right for you?

MAJORS

MATHEMATICAL OPTIMIZATION BMath
APPLY TO MATHEMATICS
CHOOSE YOUR MAJOR AFTER FIRST YEAR

This field of mathematics quantifies complex management problems in business and government into mathematical models. Then, through sophisticated computing techniques, it identifies optimal solutions. Optimization, statistics, and computer science uniquely converge into this mathematics program with broad business applications. Students with these sophisticated business skills are in high demand.

Focus your studies › Operations Research specialization, Business specialization

MATHEMATICAL PHYSICS BMath
APPLY TO MATHEMATICS
CHOOSE YOUR MAJOR AFTER FIRST YEAR

Mathematical Physics is the application of advanced mathematical methods to solve problems rooted in physics. This field is exploding with advancements in everything from fundamental physics to quantum mechanics. You’ll take an integrated set of mathematics and physics courses during your undergraduate career.

Bachelor of Science available through the Faculty of Science

COMPUTATIONAL MATHEMATICS BMath
APPLY TO MATHEMATICS
CHOOSE YOUR MAJOR AFTER FIRST YEAR

Solving industrial-sized problems was next to impossible until recently. Now the power of computers can be harnessed to generate and run simulated mathematical models, producing data that can be mined for numerical solutions. Computational Mathematics is where math and computer science intersect to solve large-scale mathematical problems. These large problems arise in business, economics, engineering, finance, medicine, and science.

MATHEMATICS/TEACHING BMath, Co-op only
APPLY TO MATHEMATICS
CHOOSE YOUR MAJOR AFTER FIRST YEAR

Mathematics/Teaching is a co-op program that provides more classroom experience than any other bachelor of education preparation program in Canada. In addition to the academic and co-op terms taken through Waterloo, Mathematics/Teaching students spend 2 terms (8 months) in the classroom before attending a Faculty of Education. A second teachable subject can be chosen from the sciences or the arts. Graduates are prepared to apply to a faculty of education in Ontario to complete their BEd to teach at the intermediate and senior divisions, Grades 7 to 12.

Focus your studies › Mathematics/Teaching is a major that allows you to take a wide variety of math courses or focus your studies on one of the disciplines mentioned in this brochure.

MATHEMATICAL STUDIES BMath
APPLY TO MATHEMATICS
CHOOSE YOUR MAJOR AFTER FIRST YEAR

Mathematics is the foundation of commerce, computing, engineering, and science. This major is the most flexible of all the Math majors in the Faculty of Mathematics. It provides you with a broad education in mathematics, including algebra, calculus, combinatorics, computer science, geometry, number theory, and statistics. If you enjoy mathematics and want the opportunity to hone your analytical, technical, and problem-solving skills but don’t want to narrow your focus to one major only, then this program is for you.

Focus your studies › Business specialization

PURE MATHEMATICS BMath
APPLY TO MATHEMATICS
CHOOSE YOUR MAJOR AFTER FIRST YEAR

Pure Mathematics explores the boundary of mathematics and pure reason. It aims to creatively explore the “why and how” questions in mathematics. Pure Mathematics comprises algebra, number theory, analysis, geometry, topology, and logic. Most first-year students who lean towards majoring in Pure Mathematics take the advanced sections of calculus and algebra in preparation for upper-year courses. Pure Mathematics at Waterloo is a small, cohesive, and challenging program.

Focus your studies › Teaching
Numbers, calculators, code — they’re all part of the backbone of our faculty. However, they’re far from everything.

Here you’ll find your community, explore your ideas, and keep up with your favourite hobbies while gaining a world-class education.

uwaterloo.ca/math/get-involved

9 A.M. Head to the Math Coffee and Donut Shop to grab a coffee before class.  
9:30 A.M. Time for the first lecture of the day.  
NOON Wrap up morning classes and head off to the Davis Centre cafeteria for lunch.  
3 P.M. Dive into that calculus assignment.  
5 P.M. Grab some dinner and take a break.  
7 P.M. Attend an evening workshop to learn more about undergraduate research opportunities.

#BEYONDIDEAS

Waterloo has Canada’s only Faculty of Mathematics. That means you’ll study and work alongside people who are just as passionate about mathematics and computer science as you are!
BEYOND GRADUATION

Endless possibilities.

According to CareerCast, a degree in mathematics or computer science can lead to 6 OUT OF THE 10 BEST JOBS

- Data scientist
- Statistician
- Information security analyst
- Mathematician
- Software engineer
- Actuary

WONDERING WHAT YOU CAN DO WITH A DEGREE IN MATHEMATICS?

Graduating with a degree in mathematics opens plenty of doors for you. Our grads find challenging employment opportunities in sectors such as technology, finance, business, academia, government, education, and more.

Here are just a few examples of where your degree in mathematics can take you.

SECTOR: FINANCE AND BUSINESS

- Milenko Sajic
  BMath 2010
  Investment Banking Associate, Goldman Sachs

- Laura Chelaru
  BMath 2010
  Junior Portfolio Manager, TD Asset Management

- Angiela Hughes
  BMath 1990
  President and CEO, Xogen Technologies

- Chris Krempoic
  BMath 1992
  Consultant, Investors Group Financial Services

- Ajay Junnarkar
  BMath 1995
  CFO, East Bond Rating Agency

SECTOR: TECHNOLOGY

- Joanna Ritchie
  BCS 1993
  Vice President, Emerging Technologies, SAP

- Kyle Lenmore
  BCS 2012
  Software Development Engineer, Microsoft

- Michelle Chen
  BCS 2014
  UI Designer, Dolby Laboratories

SECTOR: RESEARCH AND ACADEMIA

- Mike Carter
  BMath 1971, MMath 1974, PhD 1980
  Professor, Centre for Healthcare Engineering, University of Toronto

- Nick Harvey
  BMath 1999
  Associate Professor, University of British Columbia

- Charisse R. Chin-Fatt
  BMath 2007
  Teaching Assistant, Research Intern, University of Texas at Dallas

- Rich Din
  BMath 1983, MMath 2012
  Mathematics Department Chair, Tanenbaum Community Hebrew Academy of Toronto

- Ann Elliott
  BMath 1983, MMath 2013
  Mathematics Teacher, Durham District School Board

- Daniel Pinizzotto
  BMath 2010
  Computer Science Teacher, Upper Grand District School Board
2018 REQUIREMENTS

PROGRAM MAJOR

Admission decisions are based on your high school grade average, including required courses. Students may be penalized on their Admission Information Form (AIF) score for repeated courses and required courses taken outside of regular day school without proper explanation.

If you are not offered admission to the program of your choice, you may be considered for other Mathematics programs.

Participation in the Euclid and the Canadian Senior Mathematics Contests is strongly recommended.

If you're not offered admission to the program of your choice, you may be considered for other Mathematics programs.

While the Euclid Mathematics Contest is not required for admission, your Euclid contest score may be an asset for admission to the David R. Cheriton School of Computer Science programs.

Students with an overall IELTS score of 7.0 and no band score below 6.0 will be given individual consideration for admission to full-time undergraduate studies. Get deadlines and other details: uwaterloo.ca/findoutmore/admissions

FINANCING YOUR EDUCATION

When thinking about university, it's important to prepare a realistic budget for your first 3 months (2 terms).

List your financial needs: tuition and other student fees, residence fees, books, supplies, living expenses. uwaterloo.ca/future/financing

List the financial resources available to fund your education: savings, RESP, co-op earnings (if applicable).

Augment your resources, if you're eligible, with scholarships, provincial financial aid (such as Ontario's ONAP program), and a Waterloo Entrance Bursary.

You only pay 4 months (one term) at a time.

Participate in CEMC contests and apply for entrance scholarships.

ENGLISH LANGUAGE REQUIREMENTS

If English is not your first language and your 4 most recent years of full-time education have not been taught in English, you'll be required to submit one of these English language test scores:

INTERNET-BASED TOEFL IELTS MELBRA CAEL PTE (academic)

Admission decisions are strongly based on academic performance, but extra-curricular activities and extenuating circumstances are also taken into consideration.

An individual selection* can be made in your high school on April 11, 2018.

The contest is required for Entrance Scholarship consideration. The contest is strongly based on academic performance, but extra-curricular activities and work experience are also taken into consideration.

Admission decisions are strongly based on academic performance, but extra-curricular activities and extenuating circumstances are also taken into consideration.

While the Euclid Mathematics Contest is not required for admission, your Euclid contest score may be an asset for admission to the David R. Cheriton School of Computer Science programs.

The CCC will be written on February 14, 2018.

Regular takes less than 4 YEARS to complete and you'll have summers off between academic terms to work, study, or travel.

Get contest preparation resources, registration details, and deadlines: cemc.uwaterloo.ca

CONTESTS

EUCLID MATHEMATICS CONTEST

While the Euclid Mathematics Contest is not required for admission, your participation is strongly encouraged, and is an asset to your application — approximately 50% of students who received offers in Fall 2017 wrote the Euclid. The contest is required for Entrance Scholarship consideration. The contest will be written in your high school on April 11, 2018.

CANADIAN COMPUTING COMPETITION (CCC)

The CCC is not required for admission, but a high score may be an asset for admission to the David R. Cheriton School of Computer Science programs. The CCC will be written on February 14, 2018.

Students with an overall IELTS score of 7.0 and no band score below 6.0 will be given individual consideration for admission to full-time undergraduate studies. Get deadlines and other details: uwaterloo.ca/findoutmore/admissions

MATH/ENGLISH LANGUAGE FOR ACADEMIC STUDIES (MATH/ELAS)

For strong applicants who need additional training to meet our English language requirements, you may receive an alternative offer of admission to Math/ELAS instead of receiving a direct offer of admission to the

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Mathematics

Regular/Co-op

Mathematics

Teaching; available

Statistics, Statistics for

Mathematical Studies,

Optimization,

Science, Mathematical

Mathematics, Data

Computational

Combinatorics

Actuarial Science,

Applied Mathematics,

Mathematics and

Statistics for

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