

PURE MATHEMATICS

CO-OP OR REGULAR

28 Pure Mathematics professors teaching and leading research

TOP 10 Mathematician ranked among top 10 jobs from 2011-2017 – Comcast.com

Search for a deeper understanding of mathematics

Pure mathematics is at the foundation of all mathematical reasoning. If first-year calculus teaches you how to drive the car, Pure Mathematics teaches you how to build one. Mathematicians know that there could be no general relativity without differential geometry, and no computer security without advanced number theory.

Pure Mathematics at Waterloo is a small, cohesive, and challenging program that will open countless doors for you. Our graduates have used the program as a springboard into careers in information technology, finance, business, science, education, and insurance, often by way of some of the most prestigious graduate programs in the world.

ALEX'S FAVOURITE COURSES

- › **PMATH 320 Euclidean Geometry:** This course is everything you love about Geometry: Euclid's axioms, isometries of the Euclidean plane and of Euclidean space, polygons, polyhedral, polytopes, and the kissing problem.
- › **PMATH 351 Real Analysis:** It's a very intuitive and natural approach to real analysis, and the complexity of the course builds very naturally to the end of the semester. It is a rewarding course with interesting assignments, and you end up proving some deep results by the end of the semester.
- › **CO 255 Introduction to Optimization (Advanced Level):** The course is challenging since the proofs tend to be quite technical despite the intuitive geometric nature of the topic: the class shows the process of formalizing an application-heavy topic and covers a large amount of material.
- › **PMATH 465 Geometry of Manifolds:** There is a lot of geometric intuition, but the techniques needed to develop the topic are very complex and bring together many different branches of mathematics.

96.6% of grads are employed within 2 years

ALEX

3B, PURE MATHEMATICS AND COMBINATORICS AND OPTIMIZATION

WHAT DO YOU LOVE ABOUT PURE MATHEMATICS?

The satisfaction from understanding an idea at a deeper level and tying together unrelated branches of mathematics or physics for the first time is the most rewarding part of learning and understanding mathematics. What I really enjoy is developing a deep understanding of a mathematical concept from many different perspectives.

uwaterloo.ca/pure-mathematics





WATERLOO IS A GLOBAL LEADER IN CO-OPERATIVE EDUCATION



In his spare time, Alex plays soccer and enjoys indoor rock climbing. He's also an avid outdoorsman who loves camping, hiking and travelling.

CO-OP STUDENTS AT WORK

Co-op bridges the gap between the classroom and the real world. Find opportunities to connect classroom theory with applications in a wide range of employment settings. During your co-op work terms, you will assume various job responsibilities, pick up new work-related skills, and earn competitive salaries.

TYPICAL CO-OP POSITIONS

- › Software Engineer, SAP
- › Software Analyst and Developer, Intentional Software Corp.
- › Software Engineer, ScribbleLive
- › Engineering Development Student, Bruce Power Inc., Kincardine
- › Design Engineer-Quality Assurance, Avvasi Inc., Waterloo
- › Defence Scientist, DRDC, Ottawa
- › Quality Assurance Specialist, Maplesoft, Waterloo
- › Radiation Effects Modeling Research Assistant, TRIUME, Vancouver

STUDY AND CO-OP SEQUENCE 1*

YR.	TERM	REGULAR	SEQ. 1
1	Fall	Study	Study
	Winter	Study	Study
	Spring	Off	Work
2	Fall	Study	Study
	Winter	Study	Work
	Spring	Off	Study
3	Fall	Study	Work
	Winter	Study	Study
	Spring	Off	Work
4	Fall	Study	Study
	Winter	Study	Work
	Spring		Study
5	Fall		Work
	Winter		Study

* This study-work sequence is one of 4 choices of co-op sequences.

UNDERGRADUATE RESEARCH OPPORTUNITIES

If you're curious about the research that professors conduct, research opportunities are available for strong undergraduate students. You could be paid for a part-time opportunity, or a full-time position may substitute as a co-op term. It's not uncommon for students to publish their work.

You can find details about the application, deadlines, and examples of research conducted by previous undergraduates in the department and school websites. Successful applicants are then matched with a professor.

CUSTOMIZE YOUR DEGREE

Pure Mathematics/Teaching (Co-op only)

Combine a major in Pure Mathematics with Mathematics/Teaching if you want to teach at the intermediate (grades 7 and 8) or senior (grades 9 to 12) level. You complete at least 2 of 6 work terms in the classroom, earning more experience than concurrent education programs provide. Math/Teaching guides you to complete a second teachable in subjects like chemistry, physics, French, or music. In fourth year, you apply to BEd programs to earn your professional teacher's certificate.

GRADS AT WORK

- › Chief Software Modeller, RPM Technologies, Toronto
- › Technology Development Fellow, Harvard School of Engineering and Applied Sciences, Boston
- › Research Assistant, Wyss Institute for Biologically Inspired Engineering, Boston
- › Field Applications Engineer, Nanometrics - Seismic Monitoring Solutions, Kanata
- › Technical Program Manager, Google, Waterloo
- › Data Analyst, Real Matters, Thornhill
- › Business Analyst, Bank of America Canada, Toronto
- › Manager, Liquidity and Interest Rate Risk, Scotiabank, Toronto
- › Compensation Manager, BlackBerry, Waterloo



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