

MATHEMATICAL FINANCE

CO-OP OR REGULAR

“ Quant trading: Mathematicians rule the market” – bbc.com

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

Focus on the math behind financial markets

Designed for students with outstanding mathematical skills who want a career in high-level quantitative finance, Mathematical Finance is an elite program for you. In one of the most advanced undergraduate finance programs in the world, you'll take courses on corporate finance, mathematical finance, asset-liability management, statistics, and forecasting. The program is offered jointly by the Department of Pure Mathematics and the Department of Statistics and Actuarial Science, and will launch you into a career in banking and finance.

SABRINA RECOMMENDS THESE COURSES:

- › **MATH 145 Algebra (Advanced Level):** This course is required as part of the Math Finance program and you'll be doing similar things in your upper-year courses. So if you enjoy this course, you'll know if you'll enjoy the program.
- › **ACTSC 372 Corporate Finance:** This course had a great balance between theory and practical applications in the marketplace. Learned tons about capital budgeting, real options, and investment decision making, and the theory and models that are really used.
- › **PMATH 351 Real Analysis:** In this course we studied functions, sequences, and sets of real R numbers, including properties like limits, continuity, and derivatives. An important theoretical course that interconnects with many mathematical areas. Plus more proofs.
- › **CO 487 Applied Cryptography:** This course was really challenging, but I really learned a lot in class. Working on the hard assignments was a good opportunity to bond with other students and make friends.
- › **ACTSC 445 Quantitative Enterprise Risk Management:** This is a quantitative course that introduces enterprise risk management, with a focus on quantitative analysis and economic capital research. I'll need this if I want a job on Bay or Wall Street.

“ Math nerds are taking over Wall Street” – money.cnn.com

SABRINA

**3B MATHEMATICAL FINANCE,
STATISTICS CO-OP**

WHAT MATTERS AT WATERLOO?

I really like the culture at Waterloo. It's so inclusive – you get to meet a lot of students from different backgrounds and a lot of other people who are passionate about math. Interacting with them on a daily basis is really exciting.

uwaterloo.ca/math/math-finance



**UNIVERSITY OF
WATERLOO**



WATERLOO IS A GLOBAL LEADER IN CO-OPERATIVE EDUCATION



Sabrina has traveled abroad for a co-op term in Switzerland. In her spare time, she's part of the Archery Club, and plays the piano.

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

- › Quantitative Analyst, BMO, **Sabrina's third work term**
- › Product Manager Assistant, AVIVA – COFCO Life Insurance, Guangzhou
- › Portfolio Analyst – GCM – Derivatives, CPP Investment Board, Toronto
- › Audit Co-op Student – Market Risk, Scotiabank, Toronto
- › Quantitative Analyst, Manulife Financial, Waterloo

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. You'd be well suited for a research position if you want to pursue a master's and/or doctoral degree after completing your undergraduate studies.

CUSTOMIZE YOUR DEGREE

In addition to a mix of actuarial science and pure math courses, you'll also take courses in business, economics, and accounting. You still have electives too – choose from 100 subject areas. You'll have the chance to explore your interests in finance and theoretical mathematics at the same time.

GRADS AT WORK

- › Derivatives Analyst, Canada Pension Plan Investment Board, Toronto
- › Director, International Strategy & Banks Research, China Construction Bank International, Hong Kong
- › Finance Operation Analyst, GE Canada Inc., Mississauga
- › Investment Analyst, Dancap Global Asset Management, North York
- › Treasury Manager, Avolon, Hong Kong

For decades, investors imagined a time when data-driven traders would dominate financial markets. That day has arrived.

[wsj.com](https://www.wsj.com), May 2017



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