

# JOINT HONOURS BSC IN MATHEMATICS AND ECONOMICS

## Mathematics

Mathematics and statistics are not only powerful problem-solving tools, but also highly creative fields of studies that combine imagination with logic, and precision with intuition.

Mathematics is much more than numbers! Its basic goal is to reveal and model general patterns to help explain our world, whether they be found in electrical impulses in the human nervous system, the evolution of animal populations in their habitats, fluctuations in stock-market prices, or electronic communications. Mathematics reaches far beyond science and engineering into medicine, business and the social sciences.

Advances in mathematics and statistics lie behind many discoveries that are now part of our daily lives, such as MRI scanners, digital compression of music and video, secure electronic communications, data mining, genomic algorithms, futures pricing, and many other innovations.

The Department of Mathematics and Statistics offers Honours, majors and minors both in mathematics and in statistics. Our Honours program in statistics is accredited by the Statistical Society of Canada, allowing graduates to earn the A.Stat. professional designation. Moreover, the Department offers a joint honours program in mathematics and economics, a joint honours program in mathematics and computer science, as well as a multidisciplinary program in financial mathematics and economics. All our honours programs also include the co-operative education option.

## Economics

Ever wonder why some countries are richer than others? Ever question why income inequality has been growing? Ever wonder why Canadian politicians worry when other countries may be going bankrupt? Economics can answer all these questions.

Economics examines how individuals and society make choices in a world where resources are limited. It focuses on the production, distribution and consumption of goods and services. Two important themes are efficiency (the absence of waste in the use of resources) and fairness. Since making choices is central to all human activities, studying economics often helps explain why people and governments behave in certain ways.

This program is offered in English and in French.

## Program Requirements

Co-operative education is available with this program.

The French immersion stream is available with this program.

Requirements for this program have been modified. Please consult the 2020-2021 calendars (<https://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

ENG 1100	Workshop in Essay Writing	3 Units
ENG 1120	Selected Topics in Literature and Composition	3 Units

### Mathematics (51 course units)

MAT 1320	Calculus I	3 Units
MAT 1322	Calculus II	3 Units
MAT 1341	Introduction to Linear Algebra	3 Units
MAT 1362	Mathematical Reasoning and Proofs	3 Units
MAT 2122	Multivariable Calculus	3 Units
MAT 2125	Elementary Real Analysis	3 Units
MAT 2371	Introduction to Probability	3 Units
MAT 2375	Introduction to Statistics	3 Units
3 course units from:		3 Units

MAT 2141 Honours Linear Algebra <sup>1</sup>

MAT 2342 Introduction to Applied Linear Algebra

6 course units from: 6 Units

MAT 2143 Introduction to Group Theory

MAT 2324 Ordinary Differential Equations and the Laplace Transform

MAT 2348 Discrete Mathematics

MAT 2355 Introduction to Geometry

MAT 2362 Foundations of Mathematics <sup>2</sup>

12 optional course units in mathematics (MAT) at the 3000 or 4000 level <sup>3,4</sup> 12 Units

6 optional course units in mathematics (MAT) at the 4000 level <sup>3,4</sup> 6 Units

### Economics (42 course units)

ECO 1102	Introduction to Macroeconomics	3 Units
ECO 1104	Introduction to Microeconomics	3 Units
ECO 2142	Macroeconomic Theory I	3 Units
ECO 2143	Macroeconomic Theory II	3 Units
ECO 2144	Microeconomic Theory I	3 Units
ECO 2145	Microeconomic Theory II	3 Units
ECO 2151	Introduction to Econometrics	3 Units
ECO 3152	Macroeconomic Theory III	3 Units
ECO 3153	Microeconomic Theory III	3 Units

9 optional course units in economics (ECO) at the 3000 or 4000 level 9 Units

6 optional course units in economics (ECO) at the 4000 level 6 Units

21 elective course units <sup>3,5</sup> 21 Units

**Total: 120 Units**

Note(s)

1

Students interested in graduate studies in mathematics should choose MAT 2141.

2

MAT 2362 is strongly recommended and is required for further study of logic.

3

The course MAT 3153 cannot be counted for units if you have previously passed MAT 4153. You may however take MAT 3153 and then subsequently take MAT 4153, and count both for units.

*This is a copy of the 2024-2025 catalog.*

4

Students planning to go to graduate school in Mathematics and Statistics must consult the Department of Mathematics and Statistics.

5

ITI 1120 is highly recommended.