

HONOURS BSC STATISTICS

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.

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 2023-2024 calendars (<http://catalogue.uottawa.ca/en/archives/>) for the previous requirements.

This program is accredited by the Statistical Society of Canada (SSC). To satisfy the requirements for the professional title of A. Stat. from the SSC, students must take three courses (9 units) at the 3000 level in one area other than mathematics and statistics. These three courses could be taken among the 9 elective units part of your Honours in Statistics or part of a minor in another area added to this program. Consult the Department of Mathematics and Statistics for details.

Basic Skills

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| 3 optional course units in English (ENG) at the 1000 or 2000 level | 3 Units |
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Compulsory Courses

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| ITI 1120 | Introduction to Computing I | 3 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 |

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| MAT 3172 | Foundations of Probability | 3 Units |
| MAT 3175 | Introduction to Mathematical Statistics | 3 Units |
| MAT 3375 | Regression Analysis | 3 Units |
| MAT 3378 | Analysis of Experimental Designs | 3 Units |
| MAT 3379 | Introduction to Time Series Analysis | 3 Units |
| MAT 4379 | Survey Sampling | 3 Units |

Optional Courses

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| 3 course units from: | 3 Units |
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| MAT 2141 | Honours Linear Algebra |
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| MAT 2342 | Introduction to Applied Linear Algebra |
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| 3 course units from: | 3 Units |
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| MAT 2324 | Ordinary Differential Equations and the Laplace Transform |
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| MAT 2335 | Introduction to Numerical Methods |
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| MAT 2384 | Ordinary Differential Equations and Numerical Methods |
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| 6 course units from: | 6 Units |
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| MAT 3341 | Applied Linear Algebra |
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| MAT 3373 | Methods of Machine Learning |
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| MAT 4371 | Applied Probability |
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| MAT 4374 | Computational Statistics |
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| MAT 4375 | Multivariate Statistical Methods |
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| MAT 4376 | Topics in Statistics |
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| MAT 4377 | Topics in Applied Probability |
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| MAT 4378 | Categorical Data Analysis |
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| MAT 4380 | Advanced Regression |
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| MAT 4381 | Bayesian Inference |
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| MAT 4382 | Generalized Linear Models |
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| MAT 4383 | Statistics Laboratory |
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| 15 optional course units in mathematics (MAT) at the 3000 or 4000 level ^{1, 2, 3} | 15 Units |
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Elective Courses

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| 9 elective course units offered by the Faculty of Arts, the Faculty of Education, the Faculty of Law, the Faculty of Social Sciences or the Telfer School of Management | 9 Units |
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| 36 elective course units ^{1, 2, 3} | 36 Units |
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| Total: | 120 Units |
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Note(s)

1

The following courses are strongly recommended for students intending to pursue graduate studies in probability or statistics: MAT 3120, MAT 3121.

2

Other courses in probability and statistics which may be of interest include: MAT 4170, MAT 4171, MAT 4372.

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.