JOINT HONOURS BSC IN COMPUTER SCIENCE AND MATHEMATICS

Computer Science

Computer science at the School of Electrical Engineering and Computer Science combines the study of computation and information processing fundamentals with their application in the world around us. Computer scientists build fast, reliable, scalable and secure software systems to organize and analyze information. The honours curriculum comprises advanced topics in databases, artificial intelligence, computer graphics, security, distributed computing and algorithm design, culminating in an honours project.

This program teaches graduates how to use their creative and innovative talents to conceive, design and implement software systems. The French Immersion Stream is now available to all students in the Computer Science program. Our degrees are very flexible and include options, minors and a major, which can be used to explore connections between computer science and many other fields of study.

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.

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 2015-2016 calendars (http://www.uottawa.ca/academic/info/regist/1516/calendars/) for the previous requirements.

Program Requirements:

**Computer Science (51 course units)**

- CS1100 Introduction to Computing I 3 Units
- ITI 1100 Digital Systems I 3 Units
- ITI 1120 Introduction to Computing II 3 Units
- CEG 2136 Computer Architecture I 3 Units
- CSI 2101 Discrete Structures 3 Units
- CSI 2110 Data Structures and Algorithms 3 Units
- CSI 2120 Programming Paradigms 3 Units
- CSI 2132 Databases I 3 Units
- CSI 2911 Professional Practice in Computing 3 Units
- SEG 2105 Introduction to Software Engineering 3 Units
- CSI 3104 Introduction to Formal Languages 3 Units
- CSI 3105 Design and Analysis of Algorithms I 3 Units
- CSI 3131 Operating Systems 3 Units
- 3 course units from:
  - CEG 3185 Introduction to Data Communications and Networking 3 Units
  - CSI 3130 Databases II 3 Units
  - CSI 3140 WWW Structures, Techniques and Standards 3 Units
- 3 optional course units in computer science (CSI) or software engineering (SEG) at the 3000 or 4000 level 3 Units
- 6 optional course units in mathematics (MAT) at the 4000 level 6 Units
- 15 elective course units 15 Units

**Total:** 120 Units

**Note(s):**

1 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.

Students planning to go to graduate studies in mathematics or statistics must consult the Department of Mathematics and Statistics for their choices of optional courses.