HONOURS BSC IN COMPUTER SCIENCE, DATA SCIENCE OPTION

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 Extended French Stream (EFS) 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.

This program is offered in English and in French.

Compulsory courses are offered in English and French.

Program Requirements

Co-operative education is available with this program.

The extended French stream is available with this program.

ENG 1112 Technical Report Writing 3 Units
ITI 1100 Digital Systems I 3 Units
ITI 1120 Introduction to Computing I 3 Units
ITI 1121 Introduction to Computing II 3 Units
MAT 1320 Calculus I 3 Units
MAT 1322 Calculus II 3 Units
MAT 1341 Introduction to Linear Algebra 3 Units
MAT 1348 Discrete Mathematics for Computing 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
MAT 2377 Probability and Statistics for Engineers 3 Units
SEG 2105 Introduction to Software Engineering 3 Units
CEG 3185 Introduction to Data Communications and Networking 3 Units
CSI 3104 Introduction to Formal Languages 3 Units
CSI 3105 Design and Analysis of Algorithms I 3 Units
CSI 3120 Programming Language Concepts 3 Units
CSI 3130 Databases II 3 Units
CSI 3131 Operating Systems 3 Units
CSI 3140 WWW Structures, Techniques and Standards 3 Units
CSI 4142 Fundamentals of Data Science 3 Units
CSI 4900 Honours Project 3 Units

One option from the following: 6 Units

Option 1:
6 optional course units in computer engineering (CEG), in electrical engineering (ELG) or in software engineering (SEG) at the 3000 level; or in computer science (CSI) at the 4000 level

Option 2:
CSI 2372 Advanced Programming Concepts With C++
and 3 optional course units in computer engineering (CEG), in electrical engineering (ELG) or in software engineering (SEG) at the 3000 level; or in computer science (CSI) at the 4000 level

9 course units from: 9 Units
CSI 4106 Introduction to Artificial Intelligence
CSI 4107 Information Retrieval and the Internet
CSI 4108 Cryptography
CSI 4139 Design of Secure Computer Systems
6 elective course units 6 Units
24 elective course units of non-computing 1 24 Units

Total: 120 Units

Note(s)

1 Students are encouraged to choose 12 course units of administration, humanities, science or social science courses that relate to the data science domain.