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 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.

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 French Immersion 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:

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>CSI 4106</td>
<td>Introduction to Artificial Intelligence</td>
</tr>
<tr>
<td>CSI 4107</td>
<td>Information Retrieval and the Internet</td>
</tr>
<tr>
<td>CSI 4108</td>
<td>Cryptography</td>
</tr>
<tr>
<td>CSI 4139</td>
<td>Design of Secure Computer Systems</td>
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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.