

### Overall Major Requirements

- 42-60 non-duplicative computer science credits
- A minimum of 36 senior-level credits
- All Computer Science majors complete the same 18 credits in Specific Major Requirements, and an additional 24 to 42 credits in senior-level courses which are determined by a student's choice of either the (1) *General Computer Science Major*, or one of the (2) *Databases and Interactive Visualization*, (3) *System and Information Security*, or (4) *Gaming Streams*
- Students may use a maximum of 9 credits of independent work from CMPT 398, CMPT 496 and CMPT 498 to fulfill the minimum senior-level requirements.

### Declaration Process

Students need to have successfully completed MATH 114 (minimum final grade of D) and have completed or be currently enrolled in CMPT 200 during the winter term when declarations close before declaring the Computer Science Major. Students will submit their declaration by January 15. Students will be notified of the success or denial of their application to the Computer Science major no later than February 1.

### Required Courses for the Computer Science Major\*

Computer Science Majors are required to complete the following courses:

- CMPT 101 Introduction to Computing I or equivalent<sup>1</sup>
- MATH 114 Elementary Calculus I
- MATH 120 Basic Linear Algebra I **OR** MATH 125 Linear Algebra I
- STAT 151 Introduction to Applied Statistics

### Specific Major Requirements (Required for all Majors)

18 Credits

- CMPT 103 Introduction to Computing II
- CMPT 200 Data Structures and Algorithms
- CMPT 201 Practical Programming Methodology
- CMPT 305 Introduction to Object-Oriented Programming
- CMPT 395 Introduction to Software Engineering
- CMPT 496 Final Project

### Choose one of the following for the remaining 24-42 credits:

#### (1) General Computer Science Stream Requirements

24 to 42 Credits

Choose 6 credits:

- |  |  |
|--|--|
| <input type="checkbox"/> CMPT 204 Algorithms I                         | <input type="checkbox"/> CMPT 280 Introduction to Computer Security            |
| <input type="checkbox"/> CMPT 229 Computer Organization & Architecture | <input type="checkbox"/> CMPT 291 Introduction to File and Database Management |
| <input type="checkbox"/> CMPT 250 Human-Computer Interaction I         |  |

Choose 6 credits:

- |   |   |
|---|---|
| <input type="checkbox"/> CMPT 306 Non-Procedural Programming Languages    | <input type="checkbox"/> CMPT 361 Introduction to Networks          |
| <input type="checkbox"/> CMPT 315 Web Application Development             | <input type="checkbox"/> CMPT 370 Introduction to Computer Graphics |
| <input type="checkbox"/> CMPT 330 Introduction to Real Time Gaming        | <input type="checkbox"/> CMPT 380 Computer Systems Security         |
| <input type="checkbox"/> CMPT 355 Introduction to Artificial Intelligence | <input type="checkbox"/> CMPT 391 Database Management Systems       |
| <input type="checkbox"/> CMPT 360 Introduction to Operating Systems       |   |

Choose 12 to 30 credits:

- |  |                                     |                                     |
|--|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> CMPT <sup>1</sup> _____ | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              |                                     |                                     |

**(2) Databases and Interactive Visualization Stream Requirements**

24 to 42 Credits

- CMPT 250 Introduction to Human Computer Interaction
- CMPT 272 Formal Systems and Logic
- CMPT 291 Introduction to File and Database Management

Choose 12 credits:

- |   |   |
|---|---|
| <input type="checkbox"/> CMPT 315 Web Application Development           | <input type="checkbox"/> CMPT 450 Information Visualization         |
| <input type="checkbox"/> CMPT 351 Human Computer Interaction: Usability | <input type="checkbox"/> CMPT 491 Datamining and Advanced Databases |
| <input type="checkbox"/> CMPT 391 Database Management Systems           |   |

Choose 3 to 21 credits:

- |  |                                     |                                     |
|--|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> CMPT <sup>1</sup> _____ | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              |                                     |                                     |

**(3) Systems and Information Security Stream Requirements**

24 to 42 Credits

- CMPT 229 Computer Organization & Architecture
- CMPT 280 Introduction to Computer Security
- CMPT 360 Introduction to Operating Systems
- CMPT 361 Introduction to Networks
- CMPT 380 Computer Systems Security
- CMPT 464 Wireless Networks and Embedded Systems
- CMPT 480 Computer Network Security

Choose 3 to 21 credits:

- |  |                                     |                                     |
|--|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> CMPT <sup>1</sup> _____ | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              |                                     |                                     |

**(4) Gaming Stream Requirements**

24 to 42 Credits

- CMPT 230 Introduction to Computer Games
- CMPT 291 Introduction to File and Database Management
- CMPT 330 Introduction to Real Time Gaming
- CMPT 370 Introduction to Computer Graphics
- CRWR 295 Introduction to Creative Writing

Choose 3 credits:

- CMPT 250 Human-Computer Interaction I
- CMPT 280 Introduction to Computer Security
- CMPT 355 Introduction to Artificial Intelligence

Choose 6 to 24 credits:

- |  |                                     |                                     |
|--|-------------------------------------|-------------------------------------|
| <input type="checkbox"/> CMPT <sup>1</sup> _____ | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              | <input type="checkbox"/> CMPT _____ | <input type="checkbox"/> CMPT _____ |
| <input type="checkbox"/> CMPT _____              | <input type="checkbox"/> CMPT _____ |                                     |

**Computer Science Major (42 to 60 credits)**

**Total Credits:** \_\_\_\_\_

### **Important Planning Notes**

1. Students who complete CMPT 101 can use this course as one of the general CMPT requirement of the major or streams.
2. Courses required for the major may be used to satisfy the breadth requirements in a Bachelor of Arts or Science degree. Please refer to the applicable degree planner for details.
3. Students are required to consult the MacEwan University academic calendar to ensure they meet prerequisites for all courses they enrol in.
4. The prerequisites for CMPT 103 are CMPT 101 or, at the high school level, three credits of intermediate CSE including CSE 2120. If students possess high school level prerequisites, they are required to complete 3 credits of junior-level prerequisites for this major (CMPT 103). If students do not possess high school level prerequisites, they must complete 6 credits of junior-level prerequisites (CMPT 101 and CMPT 103).
5. Students who have taken CMPT 114 and 115 cannot take CMPT 103 or 200 for credit. Students will need to replace CMPT 200 with another senior-level Computer Science course.
6. Students may take CMPT 399 and CMPT 499 for credit a maximum of two times, as long as the course topic is different each time they take any of the courses.
7. Students may take CMPT 496 and CMPT 498 for credits a maximum of two times, as long as the course topic is different each time they take any of the courses.
8. \*Engineering students who have successfully completed MATH 100, MATH 101, MATH 102, ENCP 100 will have the equivalents of MATH 114, MATH 115, MATH 125 and CMPT 101. See an advisor for full details.
9. Please keep in mind that course offerings will vary from academic year to academic year.

### **Computer Science Course Offerings**

Please refer to the academic calendar or [MacEwan.ca/Science](http://MacEwan.ca/Science) > Disciplines > Computer Science for further information regarding course offerings.