

# COMPUTING - MINOR (SCIENCE)

## COMP-Z

**Subject:** Administered by the School of Computing.

**Plan:** Consists of 48.00 units as described below.

**Program:** The Plan, in combination with a Major plan in another subject, and with sufficient electives, will lead to an Honours Bachelors Degree.

| Code   | Title                                 | Units        |
|--|---------------------------------------|--------------|
| <b>1. Core</b>   |                                       |              |
| <b>A. Complete the following:</b>  |                                       |              |
| CISC 121   | Introduction to Computing Science I   | 3.00         |
| CISC 124   | Introduction to Computing Science II  | 3.00         |
| <b>B. Complete the following:</b>  |                                       |              |
| CISC 203   | Discrete Mathematics for Computing II | 3.00         |
| CISC 204   | Logic for Computing Science           | 3.00         |
| CISC 221   | Computer Architecture                 | 3.00         |
| CISC 223   | Software Specifications               | 3.00         |
| CISC 235   | Data Structures                       | 3.00         |
| CISC 360   | Programming Paradigms                 | 3.00         |
| <b>2. Option</b>   |                                       |              |
| <b>A. Complete 3.00 units from the following:</b>  |                                       | <b>3.00</b>  |
| CISC at the 300-level or above   |                                       |              |
| CISC_Subs at the 300-level or above  |                                       |              |
| COCA at the 300-level or above   |                                       |              |
| COGS at the 300-level or above   |                                       |              |
| <b>B. Complete 9.00 units from the following:</b>  |                                       | <b>9.00</b>  |
| CISC at the 200-level or above   |                                       |              |
| CISC_Subs at the 200-level or above  |                                       |              |
| COCA at the 200-level or above   |                                       |              |
| COGS at the 200-level or above   |                                       |              |
| <b>3. Supporting</b>   |                                       |              |
| <b>A. Complete 6.00 units from the following:</b>  |                                       | <b>6.00</b>  |
| CISC 102 Discrete Mathematics for Computing I & MATH 112 and Introduction to Linear Algebra        |                                       |              |
| CISC 102 Discrete Mathematics for Computing I & MATH 111 and Linear Algebra                        |                                       |              |
| MATH 110 Linear Algebra  |                                       |              |
| <b>B. Complete 6.00 units from the following:</b>  |                                       | <b>6.00</b>  |
| MATH 120 Differential and Integral Calculus  |                                       |              |
| MATH 121 Differential and Integral Calculus  |                                       |              |
| MATH 123 Differential and Integral Calculus I & MATH 124 and Differential and Integral Calculus II |                                       |              |
| <b>Total Units</b>   |                                       | <b>48.00</b> |

## 4. Notes

A. Students with no programming experience should review the Introductory Courses (<https://www.queensu.ca/academic-calendar/arts-science/schools-departments-programs/computing/>) paragraph included on the School of Computing overview page in the *Calendar*.

B. A maximum of 6.00 units from courses offered by other Faculties and Schools may be counted toward the program and/or Plan requirements. This includes courses in BMED, COMM, GLPH, LAW, NURS and courses in the Faculty of Engineering and Applied Science.

## Computing Course List

The following list contains courses offered through other Departments. In accordance with Academic Regulation **2.5** (Access to Classes), students do not have enrolment priority in all of these courses. Access to these courses may only be made available during the Open Enrolment period, and then only if space permits.

### CISC\_Subs

| Code   | Title   | Units |
|--|---|-------|
| <b>Courses in other departments usable as CISC options</b> |   |       |
| COMM 365   | Advanced Business Decision Modeling                       | 3.00  |
| ELEC 470   | Computer System Architecture                              | 3.00  |
| MATH 272   | Applications of Numerical Methods                         | 3.00  |
| MATH 337   | Stochastic Models in Operations Research                  | 3.00  |
| MATH 401   | Graph Theory  | 3.00  |
| MATH 402   | Enumerative Combinatorics                                 | 3.00  |
| MATH 434   | Optimization Theory with Applications to Machine Learning | 3.00  |
| MATH 474   | Information Theory  | 3.00  |