

# Bachelor of Science – Computer Science 2024-25

✓	YEAR ONE – Fall	✓	YEAR ONE – Winter
	COMP 1701 – Introduction to Problem Solving and Programming		COMP 1633 – Introduction to Computer Science II
	MATH 1200 – Calculus for Scientists I		PHIL 1179 – Introduction to Symbolic Logic
	GNED Foundation Cluster 1: one of GNE 1101 or GNE 1103		MATH 1203 – Linear Algebra for Scientists and Engineers
	GNED Foundation Cluster 2: one of GNE 1201, 1202, or 1203		GNED Foundation Cluster 4: one of GNE 1401, 1403 or GNE 1404
	Cognate Course, see pg. 2		Cognate Course, see pg. 2

Many courses are prerequisites for upper year courses. Check prerequisites at <http://catalog.mtroyal.ca/>  
Cognate course choices can be found on page 2.

✓	YEAR TWO – Complete the Following Courses	
	COMP 2631 – Information Structures	COMP 2633 – Foundations Software Engineering
	COMP 2655 – Computing Machinery I	COMP 2659 – Computing Machinery II
	MATH 1271 – Discrete Mathematics	MATH 2234 – Mathematical Statistics
	GNED Foundation Cluster 3: one of GNE 1301, 1303, or 1304	Cognate Course, see pg. 2
	GNED Tier 2 Cluster 2:	GNED Tier 2 Cluster 3:

✓	YEAR THREE – Complete the Following Courses	
	COMP 2613 – Introduction to Computability	COMP 3614 – Algorithms and Complexity
	COMP 3659 – Operating Systems	COMP 3649 – Programming Paradigms
	Approved Option:	Approved Option:
	GNED Tier 2 Cluster 4:	GNED Tier 3 (cluster ____):
	Elective course:	Elective course:

✓	YEAR FOUR – Complete the Following Courses	
	COMP 3309 – Information Technology and Society	Cognate Course, see pg. 2
	Approved Option:	Approved Option: 4xxx level or higher
	Approved Option: 4xxx level or higher	Approved Option: 4xxx level or higher
	GNED Tier 3 (cluster ____):	GNED Tier 3 (Cluster ____):
	Elective course:	Elective course:

**Approved Options List:** Choose **six** courses from below\*\*. (At least three courses must be numbered 4000 level or higher)

COMP 3533 – Network Infrastructure and Security  
 COMP 3553 – Human-Computer Interaction  
 COMP 3612 – Web Development for Computer Science  
 COMP 3625 – Artificial Intelligence  
 COMP 2626 – Evolutionary Computation  
 COMP 3654 – Usable Privacy and Security  
 COMP 4513 – Web III: Advanced Web Development  
 COMP 4555 – Games Development  
 COMP 4622 – Advanced Databases  
 COMP 4630 – Machine Learning  
 COMP 4633 – Advanced Software Engineering  
 COMP 4635 – Distributed Systems  
 COMP 5690 – Senior Computer Science Project

DATA 2721 – Data Science 1: Intro to Databases  
 MATH 2101 – Abstract Algebra  
 MATH 2200 – Calculus for Scientists II  
 MATH 3101 – Numerical Analysis  
 MATH 4111 – Cryptography

\*\*Courses used as approved options cannot also be used to satisfy cognate requirements

**PLEASE READ:**

**Prerequisites and course descriptions: can be found in the Academic Calendar under the ‘courses’ link at <https://catalog.mtroyal.ca/>**

**General Education:** General Education approved courses, otherwise known as “GNED requirements” are designed to give you a well-rounded knowledge base and are organized into 4 thematic clusters. Each Cluster has 3 levels: tier 1 (foundation), tier 2 and tier 3.

- Cluster 1: Numeracy & Scientific Literacy
- Cluster 2: Values, beliefs & Identity
- Cluster 3: Community & Society
- Cluster 4: Communication

Students must take a foundation level course from each of the four clusters, three tier 2 GNEDs (one from each of cluster 2, 3, and 4), and three tier 3 GNEDs from at least two clusters, for a total of 10 GNED courses.

**Junior courses** are courses at the 1000 level. Students are allowed a maximum of 16 junior courses.

**Advising Plan:** This a suggested sequence for taking the required courses for your major. This plan factors in prerequisite requirements and will allow you to complete your degree in four years, provided you complete 5 courses per semester. This is just one example of how you can complete your degree requirements; you may find that a different sequence or smaller course load works better for you. To be considered full time, a student must be enrolled in a minimum of three, 3-credit courses.

It is your responsibility to plan your schedule and make sure that you are meeting necessary requirements. Consider consulting your advisor if you are uncertain or require clarification.

This document is only intended to be a guide for students and should be used together with the Mount Royal University Academic Calendar which states academic policies and degree requirements. Be sure to consult with your Academic Advisor to confirm graduation requirements or if you have any questions.

**Approved Cognate Courses: choose one cognate subject area from the options below**

*Note: Courses used as approved options cannot also be used to satisfy the requirements for the cognate*

**Astronomy:**

MATH 2200 – Calculus for Scientists II

PHYS 1201 – Classical Physics I

One of:

ASTR 1301 – Planetary Astronomy

ASTR 1303 – Stars, Galaxies, and Cosmology

One of:

ASTR 2107 – Celestial Mechanics and Relativity

ASTR 3107 – Physical Cosmology

**Biology:**

BIOL 1202 – Introduction to Cell Biology

BIOL 1204 – The Evolution of Eukaryotes

Any two additional BIOL prefixed courses at the 2xxx–level or higher

**Chemistry:**

CHEM 1201 – General Chemistry – Structure and Bonding

CHEM 1202 – General Chemistry – Introduction to Quantitative Chemistry

Any two additional CHEM prefixed courses at the 2xxx–level or higher

**Data Science:** Choose any four from the following

DATA 2721 – Data Science I: Introduction to Databases

MATH 2200 – Calculus for Scientists II

MATH 2303 – Linear Algebra for Data Science

MATH 2444 – Statistical Data Analysis

MATH 3454 – Regression and Time Series Analysis

MATH 4303 – Fourier Analysis for Data Science

**Geographic Information Systems:**

GEOG 2553 – Geographic Information Systems

GEOG 3553 – Spatial Analysis and GIS

Any two additional GEOG prefixed courses (GEOG 1105 is recommended).

**Geoscience:**

GEOL 1101 – The Dynamic Earth

GEOL 1103 – Earth Through Time

Any two additional GEOL prefixed courses at the 2xxx–level or higher\*

***Note** \*GEOL 2151, 2153, 2155, and 2157 may not be used towards the cognate*

**Mathematics** (choose four from):

MATH 2101 – Abstract Algebra

MATH 2200 – Calculus for Scientists II

MATH 2311 – Linear Algebra II'

MATH 3101 – Numerical Analysis

MATH 3200 – Mathematical Methods

MATH 4111 – Cryptography

**Physics:**

MATH 2200 – Calculus for Scientists II

PHYS 1201 – Classical Physics I

PHYS 1202 – Classical Physics II

One of

PHYS 2201 – Acoustics, Optics, and Radiation

PHYS 2203 – Electromagnetism