Bachelor of Science - Computer Science 2022-23

MOUNT ROYAL UNIVERSITY
Faculty of Science and Technology

✓	YEAR ONE - Fall	✓	YEAR ONE - Winter
	COMP 1631 - Introduction to Computer Science I (or COMP 1501 - Programming I)		COMP 1633 - Introduction to Computer Science II
	MATH 1200 - Calculus for Scientists I		MATH 1203 - Linear Algebra for Scientists and Engineers
	Cognate Course, see pg. 2		PHIL 1179 - Introduction to Symbolic Logic
	GNED Foundation Cluster 1: one of GNED 1101 or GNED 1103		Cognate Course, see pg. 2
	GNED Foundation Cluster 2: one of GNED 1201, 1202, or 1203		GNED Foundation Cluster 4: one of GNED 1401, 1403 or GNED 1404

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 - *Fall*
	COMP 2655 - Computing Machinery I - *Fall*
	MATH 1271 - Discrete Mathematics - *Fall*
	COMP 2633 - Foundations Software Engineering - *Winter*
	COMP 2659 - Computing Machinery II - *Winter*
	MATH 2234 - Mathematical Statistics
	Cognate Course, see pg. 2
	GNED Foundation Cluster 3: one of GNED 1301, 1303, or 1304
	GNED Tier 2 Cluster 2:
	GNED Tier 2 Cluster 3:

*The *Fall/Winter* notations indicate when you should be planning to take core courses. Certain core courses may have prerequisites that need to be completed in a particular sequence to avoid delays in graduation. In addition, some courses are only offered in one semester. If there is no notation, this course should be completed in year two but may be offered in either semester. 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.

YEAR THREE - complete the following courses			
✓	**CORE course requirements:**	✓	**General Education and Electives:**
	COMP 2613 - Introduction to Computability		GNED Tier 2 Cluster 4:
	COMP 3614 - Algorithms and Complexity		Elective course:
	COMP 3649 - Programming Paradigms		Elective course:
	COMP 3659 - Operating Systems		Elective course:
	Approved Option:		
	Approved Option:		

As you plan your courses be sure you are checking prerequisites at http://catalog.mtroyal.ca/
Approved Options and Approved Senior Options are listed on the right margin of this page

Course offerings in Fall or Winter semesters: to properly plan your courses, semesters and degree program please check with the departments directly for an indication of when a course is *normally* offered, some courses are only offered once per year

YEAR FOUR- complete the following courses			
✓	**CORE course requirements:**	✓	**General Education and Electives:**
	COMP 3309 - Information Technology and Society		GNED Tier 3 (cluster ___):
	Approved Option:		GNED Tier 3 (cluster ___):
	Approved Senior Option:		GNED Tier 3 (cluster ___):
	Approved Senior Option:		Elective course:
	Approved Senior Option:		
	Cognate Course, see pg. 2		

Take two Tier 3 courses from a minimum of two different clusters, take the third Tier 3 course from any cluster.

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.

Approved Options: (Choose three)
COMP 2521 - Database I: Data Mod. & Query Language
COMP 3533 - Network Infrastructure and Security
COMP 3553 - Human-Computer Interaction
COMP 3612 - Web Development for Computer Science
COMP 3625 - Artificial Intelligence
MATH 2101 - Abstract Algebra
MATH 2200 - Calculus for Scientists II
MATH 2444 – Statistical Data Analysis

Approved Senior Options: (Choose three)
COMP 3654 – Usable Privacy and Security
COMP 4513 - Web III: Advanced Web Development
COMP 4555 - Games Development
COMP 4622 - Advanced Databases or COMP 4522 Database-II: Advanced Databases
COMP 4630 - Machine Learning
COMP 4635 - Distributed Systems
COMP 5690 - Senior Computer Science Project
MATH 3101 - Numerical Analysis
MATH 4111 - Cryptography
**Courses used as approved options cannot also be used to satisfy cognate requirements

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 of if you have any questions at scitechadvising@mtroyal.ca

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:
ASTR 2107 - Celestial Mechanics and Relativity
MATH 2200 - Calculus for Scientists II
PHYS 1201 - Classical Physics I
One of:
ASTR 1301 - Planetary Astronomy
ASTR 1303 - Stars, Galaxies, and 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

Geographic Information Systems: (take in order listed)
GEOG 2553 - Geographic Information Systems
GEOG 3553 - Spatial Analysis and GIS
GEOG 1105 - Intro to Mapping, GIS and Remote Sensing
GEOG 1101 - The Physical Environment

Geoscience:
GEOL 1101 - The Dynamic Earth
GEOL 1103 - Earth Through Time
Any two additional GEOL prefixed courses at the 2xxx-level or higher*
**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 2307 - Differential Equations
MATH 2311 - Linear Algebra II
MATH 3200 - Mathematical Methods

Physics:
MATH 2200 - Calculus for Scientists II
PHYS 1201 - Classical Physics I
PHYS 1202 - Classical Physics II
PHYS 2201 - Acoustics, Optics, and Radiation