

# Bachelor of Science - General Science 2020 - 21

STUDENT NAME:

STUDENT ID #:

ADMISSION YEAR/CATALOGUE YEAR:



YEAR ONE - FALL		
Concentration A (1xxx)		
Concentration B (1xxx)		
MATH 1200 <sup>FW</sup>	Calculus for Scientists I	
GNEC Foundation Cluster 1 <sup>FW</sup>		
GNEC Foundation Cluster 4 <sup>FW</sup>		
YEAR ONE - WINTER		
Concentration A (1xxx)		
Concentration B (1xxx)		
MATH 2200 <sup>FW</sup>	Calculus for Scientists II	
GNEC Foundation Cluster 2 <sup>FW</sup>		
GNEC Foundation Cluster 3 <sup>FW</sup>		
YEAR TWO - FALL		
Concentration A (2xxx)		
Concentration B (2xxx)		
COMP 2001 <sup>FW</sup>	Introduction to Computer-Based Problem Solving for the Sciences	
MATH 1203 <sup>FW</sup>	Linear Algebra for Scientists and Engineers	
GNEC Tier 2 Cluster 2 <sup>FW</sup>		
YEAR TWO - WINTER		
Concentration A (2xxx)		
Concentration B (2xxx)		
COMP 2008 <sup>W</sup>	Scientific Computing 1: Modeling and Simulation	
MATH 2234 <sup>FW</sup>	Concepts of Mathematical Statistics	
GNEC Tier 2 Cluster 3 <sup>FW</sup>		
YEAR THREE - FALL		
Concentration A (3xxx)		
Concentration B (3xxx)		
General Science Option		
General Science Option		
GNEC Tier 2 Cluster 4 <sup>FW</sup>		
YEAR THREE - WINTER		
Concentration A (3xxx)		
Concentration B (3xxx)		
General Science Option		
General Science Option		
GNEC Tier 3		
YEAR FOUR - FALL		
SCIE 5010 <sup>F</sup>	General Science Senior Student Seminar	
General Science Option		
GNEC Tier 3		
Elective		
Elective		
YEAR FOUR - WINTER		
SCIE 5020 <sup>W</sup>	General Science Interdisciplinary Project	
General Science Option		
GNEC Tier 3		
Elective		
Elective		

**PLEASE READ:**

**Major: Choose two concentrations from Biology, Physics, Mathematics, Chemistry, Geology, or Geography (more info on page two).**

**General Education:** General Education approved courses, otherwise known as “GNEC 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 from each of the four clusters, three tier 2 GNECs (one from each of cluster 2, 3, and 4), and a total of three tier 3 GNECs from at least two clusters, for a total of 10 GNEC courses.

For more information and a list of GNEC courses, visit [mtroyal.ca/gened](http://mtroyal.ca/gened) and click ‘courses’ on the left-hand navigation.

**Junior courses:** are courses at the 1000 level. Students are allowed a maximum of sixteen junior courses for graduation purposes.

**Electives:** an elective is any three-credit course. It is advised that students in this major select senior level electives wherever possible to avoid exceeding the sixteen junior course limit.

**If selecting Mathematics as a concentration:** replace the MATH courses in this table with four courses from a concentration other than A or B.

**Selecting General Science Options:** information related to GSOs (General Science Options) is on the second page of this document. Please see your Academic Advisor for more information on this requirement.

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

**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.

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.

## Concentrations and General Science Options: 2020-2021 Academic Calendar

Students must choose two concentrations for graduation purposes. If the Mathematics Concentration is chosen as concentration A or B, then the student must take four courses from another concentration.

### Biology Concentration

BIOL 1202 – Introduction to Cell Biology

BIOL 1204 – Evolution of Eukaryotes

\*BIOL 2101 – Genetics (Winter term)

One of:

BIOL 2202 – Cell and Molecular Biology

BIOL 2203 – Human Anatomy

BIOL 2213 – Ecology

Two of:

BIOL 3107 – Evolution in Health and Disease

BIOL 3108 – Conservation Biology

BIOL 3203 – Genomes

BIOL 3204 – Histology

BIOL 3216 – Human Physiology and Adapt. to Envir. Stress

BIOL 3301 – Animal Behaviour

*\*Restricted in Fall term, available in Winter term*

### Chemistry Concentration

CHEM 1201 – General Chemistry I

CHEM 1202 – General Chemistry II

CHEM 2101 – Organic Chemistry I

CHEM 2102 – Organic Chemistry II

CHEM 3201 – Structure Determination

One of:

\*BCEM 3201 – Protein Biochemistry

\*BCEM 3202 – Enzymes and Metabolic Systems

\*BCEM 4212 – Biochemical Pharmacology

CHEM 4103 – Advanced Organic Synthesis

*\*Requires BCEM 2201 as a prerequisite*

### Geography Concentration

GEOG 1101 – The Physical Environment

GEOG 3107 – Conservation Biogeography

One of:

GEOG 1103 – The Human Environment

GEOG 1105 – Introduction to Mapping, GIS and Remote Sensing

One of:

GEOG 2107 – Weather and Climate

GEOG 2111 – Earth's Changing Surface

One of:

GEOG 2445 – Environmental Problems and Resource Mgmt.

GEOG 2553 – Geographic Information Systems

One of:

GEOG 3445 – Global Environmental Issues

GEOG 3553 – Spatial Analysis and Geographic Information Systems

### \*Geology Concentration

GEOL 1101 – The Dynamic Earth

GEOL 1103 – Earth Through Time

GEOL 2107 – Paleontology

GEOL 2109 – Stratigraphy and Sedimentation

GEOL 3107 – Geomorphology

GEOL 4105 – Hydrogeology

*\*Enrollment spaces in senior level Geology courses will be limited.*

### Mathematics Concentration

MATH 1200 – Calculus for Scientists I

MATH 1203 – Linear Algebra for Scientists and Engineers

MATH 2200 – Calculus for Scientists II

MATH 2234 – Concepts of Mathematical Statistics

MATH 3101 – Numerical Analysis

MATH 3200 – Mathematical Methods

### Physics Concentration

PHYS 1201 – Classical Physics I

PHYS 1202 – Classical Physics II

PHYS 2201 – Acoustics, Optics and Radiation

PHYS 2203 – Electromagnetism

PHYS 3601 – Thermodynamics

PHYS 3602 – Elementary Quantum Mechanics

### General Science Options

Students must complete six General Science Options (GSOs) to meet graduation requirements in this program. The General Science Options must include:

- two GSOs at any course level
- two GSOs at the 2000 level or higher
- two GSOs at the 3000 level or higher

A student may choose any course with a *General Science Option attribute* provided they are able to:

- i. access the course, meaning the course is offered in the semester and is not restricted, and,
- ii. the student meets any course prerequisites listed

The General Science attributes can be found using the advanced search function at [mymru.ca](http://mymru.ca).

**Declaring concentrations:** students are encouraged to declare their concentrations at the Registrar's Office in A101 as soon as possible.