Bachelor of Science - General Science 2025/26

MOUNT ROYAL UNIVERSITY
Faculty of Science and Technology

✓	YEAR ONE - Fall	✓	YEAR ONE - Winter
	Concentration A (1XXX):		Concentration A (1XXX):
	Concentration B (1XXX):		Concentration B (1XXX):
	MATH 1200 - Calculus for Scientists I		MATH 2234 – Concepts of Mathematical Statistics
	GNED Foundation Cluster 1: one of GNED 1101 or 1103		GNED Foundation Cluster 2: one of GNED 1201, 1202, or 1203
	GNED Foundation Cluster 4: one of GNED 1401, 1403 or 1404		GNED Foundation Cluster 3: one of GNED 1301, 1303, or 1304

Concentration courses are listed on page 2. Many 1XXX courses are prerequisites for future courses. Check prerequisites at http://catalog.mtroyal.ca/

✓	YEAR TWO - complete the following courses*
	Concentration A (2XXX):
	Concentration A (2XXX):
	Concentration B (2XXX):
	Concentration B (2XXX):
	COMP 2001 - Computer-Based Problem Solving for the Sciences - *Fall*
	COMP 2008 - Scientific Computing I: Modeling and Simulation - *Winter*
	One of: MATH 1203, MATH 2200 (prereq: MATH 1200), or MATH 2444 (prereq: *MATH 2234*)
	GNED Tier 2 Cluster 2:
	GNED Tier 2 Cluster 3:
	GNED Tier 2 Cluster 4:

*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 once per year. 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, ensure you meet prerequisites and graduation requirements. If you require a reduced course load, please consult your advisor for guidance when planning.

YEAR THREE - complete the following courses

✓	CORE requirements:	✓	General Education and Electives:
	SCIE 3010 – Understanding & Translating Scientific Research		GNED Tier 3 (Cluster___):
	Concentration A (3XXX):		Elective course:
	Concentration A (3XXX):		Elective course:
	Concentration B (3XXX):		
	Concentration B (3XXX):		
	General Science Option: 1XXX		
	General Science Option: 1XXX		

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

YEAR FOUR - complete the following courses

✓	CORE requirements:	✓	General Education and Electives:
	General Science Option: 2XXX+		GNED Tier 3 (Cluster___):
	General Science Option: 2XXX+		GNED Tier 3 (Cluster___):
	General Science Option: 3XXX+		Elective course:
	General Science Option: 3XXX+		Elective course:
	SCIE 5010 - Senior Student Seminar (Fall)		BIOL 5201 - Independent Projects I CHEM 5201 - Independent Projects I GEOL 5201 - Independent Research Project PHYS 5201 - Independent Projects I
	One of: SCIE 5020, SCIE 5030, **or** an Independent Projects course→		

PLEASE READ:

Prerequisites and course descriptions: can be found in the current Academic Calendar under the *courses* link at http://catalog.mtroyal.ca/

Major: Choose two concentrations from Biology, Chemistry, Geography, Geology, Mathematics or Physics (more info on page 2).

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

General Education: General Education courses, otherwise known as "GNED requirements", are designed to give you a well-rounded knowledge base and are organized into four thematic clusters.

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

Each Cluster has 3 levels: tier 1 (foundation), tier 2 and tier 3. Students must take a foundation level from each of the four clusters, three tier 2 GNEDs (one from each of cluster 2, 3, and 4), and a total of three tier 3 GNEDs from at least two clusters, for a total of 10 GNED courses.

For more information and a list of GNED courses, visit mru.ca/GNED and click 'courses' on the left-hand navigation.

Junior courses: are courses at the 1000 level. Students are allowed a maximum of 16 junior courses for graduation purposes.

Electives: are any three-credit course. It is advised that students select senior-level electives wherever possible to avoid exceeding the limit of sixteen junior courses.

More information about General Science Options and Concentrations are listed on page 2.

This document is only intended as a guide for students and should be cross-referenced with the most recent Mount Royal University Academic Calendar which states updated academic policies and degree requirements. This can change yearly and improve to allow for more options and new courses. Be sure to consult with your Academic Advisor to confirm these changes, graduation requirements, or if you have any questions at scitechadvising@mtroyal.ca

Biology Concentration

BIOL 1202 – Introduction to Cell Biology
BIOL 1204 – Evolution of Eukaryotes
BIOL 2101 – Genetics WINTER
One of:
BIOL 2202 – Cellular and Molecular Biology
BIOL 2203 – Human Anatomy
BIOL 2213 – Principles of Ecology & Evolution
Two of:
BIOL 3103 – Introduction to Biophysics**
BIOL 3107 – Evolution in Health & Disease
BIOL 3108 – Conservation Biology
BIOL 3203 – Genomes or BIOL 3202 Bioinformatics
BIOL 3204 – Histology
BIOL 3208 – Molecular & Genomic Revolutions in Biology
BIOL 3216 – Human Physiology & Environmental Stress
BIOL 3301 – Animal Behaviour

***Requires PHYS 1202 as prerequisite, can count as GSO*

Some senior Biology courses are restricted to Biology majors at the beginning of registration; restrictions are usually removed by June 1 for Fall and by Nov 1 for Winter. Sometimes restrictions alternate semesters, so be sure to check Fall, Winter, and Spring for sections without restrictions.

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 FALL OR WINTER
One of:
*BCEM 3201 – Protein Biochemistry FALL
*BCEM 3202 – Enzymes & Metabolic Systems WINTER
*BCEM 4212 – Biochemical Pharmacology FALL OR WINTER
CHEM 4103 – Advanced Organic Chemistry: Synthesis WINTER

**Requires BCEM 2201 prerequisite, can count as GSO*

Geography Concentration

GEOG 1101 – The Physical Environment
One of:
GEOG 1103 – The Human Environment
GEOG 1105 – Intro to Mapping, GIS & Remote Sensing
One of:
GEOG 2107 – Weather and Climate
GEOG 2111 – Earth's Changing Surface
One of:
GEOG 2445 – Environmental Problems & Resource Mgmt.
GEOG 2553 – Geographic Information Systems
One of:
GEOG 3107 - Conservation Biogeography
GEOG 4440 - Sustainable Development Geography
One of:
GEOG 3445 – Global Environmental Issues
GEOG 4553 – Advanced Spatial Analysis and GIS

Geology Concentration

GEOL 1101 – The Dynamic Earth FALL OR WINTER
GEOL 1103 – Earth Through Time WINTER
GEOL 2109 – Stratigraphy & Sedimentation FALL
GEOL 2107 – Paleontology WINTER
GEOL 3107 – Geomorphology FALL
GEOL 4105 – Hydrogeology FALL

Mathematics Concentration*

MATH 1200 – Calculus for Scientists I
MATH 1203 – Linear Algebra for Scientists & Engineers
MATH 2200 – Calculus for Scientists II
MATH 2234 – Concepts of Mathematical Statistics
MATH 3101 – Numerical Analysis
MATH 3200 – Mathematical Methods

***If selecting Mathematics as a concentration,** replace the MATH courses in the above table with four courses from another discipline listed on this page. Please consult with your Academic Advisor.*

Physics Concentration

PHYS 1201 – Classical Physics I
PHYS 1202 – Classical Physics II
*PHYS 2201 – Acoustics, Optics & Radiation FALL
*PHYS 2203 – Electromagnetism WINTER
**PHYS 3601 – Thermodynamics FALL
*PHYS 3602 – Elementary Quantum Mechanics WINTER

*requires MATH 2200 prerequisite
**requires MATH 2200, CHEM 1201, CHEM 1202 prerequisites

General Science Options (GSOs) = any GSO attributed science, comp, or math course you are not already planning to take. 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 the course prerequisites.

Any one General Science course cannot be used to satisfy more than one requirement within the major. General Science Option attributes can be found using the search function at *mymru.ca > Register & Pay > Look Up Courses or Add/Drop/Withdraw, Attribute: General Science Option*

***Declaring concentrations**:* students are encouraged to declare their concentrations by email to studentrecords@mtroyal.ca as soon as possible.

Please note: Some senior courses are only offered once per year and seats will be limited. Prerequisites, scheduling, and availability for all courses and prerequisites are subject to changes each semester and year.

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