

Bachelor of Science – General Science 2019/20

Name: _____

Student #: _____ Admission Year: _____

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

PLEASE READ:

Major: Choose 2 concentrations for graduation from Biology, Physics, Math, Chemistry, Geology, or Geography (more info on 2nd page)

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 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.

Visit mtroyal.ca/gened/courses for more information and a list of GNED courses.

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

Electives: an elective is any 3 credit course. It is advised that students in this major select senior level electives wherever possible to avoid exceeding the 16 junior course limit.

Note: MATH may be chosen as one of Concentration A or B; if so then replace the MATH courses in this table with 4 General Science Options from a discipline different from A or B.

General Science Options: a listing of courses offered as GSO (General Science Options) is on the second page of this document. Please see your Science Advisor for more information on this requirement.

Prerequisites & Course descriptions: can be found in the Academic Calendar or by visiting: mtroyal.ca/ProgramsCourses/CourseListings

Courses may only be offered in the 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.



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Concentrations and General Science Options: 2017-2018 Academic Calendar

Students must choose 2 concentrations to follow for graduation. If the Mathematics Concentration is chosen as 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

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 3301 - Animal Behaviour

*restricted in Fall term, available in Winter term only

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
 CHEM 4103 - Advanced Organic Chem: Synthesis

Geography Concentration

GEOG 1101 - The Physical Environment
 GEOG 1103 - The Human Environment **OR** GEOG 1105 - Introduction to Mapping, GIS and Remote Sensing
 GEOG 2107 - Weather and Climate **OR** GEOG 2111 - Earth's Changing Surface
 GEOG 2445 - Environmental Problems and Resource Management **OR** GEOG 2553 - Geographic Information Systems
 GEOG 3107 - Conservation Biogeography
 GEOG 3445 Global Environmental Issues **OR** GEOG 3553 Spatial Analysis and Geographic Information Systems

*Geology Concentration

GEOL 1101 - Physical Geology
 GEOL 1103 - Historical Geology
 GEOL 2107 - Paleontology
 GEOL 2109 - Stratigraphy and Sedimentation
 GEOL 3107 - Geomorphology
 GEOL 4105 - Hydrogeology
 *NOTE: 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 (GSO)

A student may choose any of the courses above (from a concentration they did not choose) as a GSO. Alternatively, they may choose from any of the following supplemental courses:

ASTR 2105 - Astrobiology
 BCEM 2201 - General Biochemistry
 BCEM 3201 - Protein Biochemistry
 BCEM 3202 - Enzymes and Metabolic Systems
 BCEM 4212 - Biochemical Pharmacology
 CHEM 3802 - Science and Politics of Nuclear Energy
 COMP 1502 - Programming II: Object Oriented Programming
 COMP 2511 - Web 1: Client Development
 COMP 2503 - Programming III: Database Structures
 COMP 2521 - Database 1: Data Modeling and Query Languages
 COMP 2531 - Computer Architecture and Operating Systems
 COMP 3012 - Robotics
 COMP 3532 - Systems Administration and Maintenance
 COMP 3533 - Network Infrastructure and Security
 COMP 3553 - Human Computer Interaction
 GEOG 2437 - Biogeography
 GEOG 3447 - Parks and Protected Areas
 GEOL 2151 - Environmental Geology and Earth Resources
 GEOL 2153 - Natural Hazards and Disasters
 GEOL 2155 - History of Life
 GEOL 2157 - Water; Geologic and Geographic Issues
 MATH 2101 - Abstract Algebra
 MATH 2311 - Linear Algebra II
 PHYS 3103 - Introduction to Biophysics

please declare your concentrations at the Registrar's Office in A101 asap

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