

## Bachelor of Science - Chemistry 2021-22

### 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 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 [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 limits.

**Advising Plan:** Students are strongly advised to follow the progression of classes and course load indicated below. Deviation from the recommended course pattern may result in scheduling conflicts. To be considered full time, a student must be enrolled in a minimum of 9 credit hours or three, 3-credit courses.

### Chemistry Requirements:

MATH 1203 - Linear Algebra  
PHYS 2201 - Acoustics, Optics & Radiation  
MATH 3200 - Mathematical Methods  
CHEM 3202- Spectroscopic Methods  
CHEM 3602 - Elementary Quantum Mechanics  
CHEM 4701 - Molecular Modelling  
CHEM 5200 - CSL Project

### Senior General Chemistry Options:

Choose one of CHEM 4103 or CHEM 4301  
Then choose **two** of:  
BCEM 4212 - Biochemical Pharmacology  
CHEM 4213 - Drug Discovery  
CHEM 4411 - Organometallic Chemistry  
CHEM 4602 - Advanced Quantum Mechanics  
CHEM 4603 - Symmetry and Spectroscopy  
CHEM 4801 - Nuclear Chemistry

Community Service Learning requires three courses with the 'CSL' designation, learn more here: [mru.ca/csl](http://mru.ca/csl) – your Chemistry major may qualify.

✓	YEAR ONE - Fall	✓	YEAR ONE - Winter
	*MATH 1200 - Calculus for Scientists I		*CHEM 1202 - General Chemistry - Introduction to Quantitative Chemistry
	*CHEM 1201 - General Chemistry - Structure and Bonding		*PHYS 1202 - Classical Physics II
	*PHYS 1201 - Classical Physics I		COMP 2001 - Programming for the Sciences
	GNED Foundation Cluster 1: one of GNED 1101 or 1103		*MATH 2200 - Calculus for Scientists II
	GNED Foundation Cluster 4: one of GNED 1401, 1403 or 1404		GNED Foundation Cluster 2: one of GNED 1201, 1202, or 1203

Many courses are prerequisites for upper year courses. Check prerequisites at <http://catalog.mtroyal.ca/>

✓	YEAR TWO – complete the following courses*
	CHEM 2101 - Organic Chemistry I - <i>Fall</i>
	CHEM 2301 - Analytical Chemistry I - <i>Fall</i>
	CHEM 2601- Physical Chemistry - <i>Fall</i>
	CHEM 2102 - Organic Chemistry II - <i>Winter</i>
	CHEM 2302 - Analytical Chemistry II - <i>Winter</i>
	BCEM 2201 - General Biochemistry - <i>Winter</i>
	Chemistry Requirement:
	Chemistry Requirement:
	Chemistry Requirement:
	GNED Foundation Cluster 3: one of GNED 1301, 1303, or 1304

\*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 Requirements:	✓	General Education and Electives:
	CHEM 2401 - Inorganic Chemistry		GNED Tier 2 Cluster 2:
	CHEM 3200 - Research Methods in Chemistry		GNED Tier 2 Cluster 3:
	CHEM 3601 - Thermodynamics		GNED Tier 2 Cluster 4:
	Chemistry Requirement:		Elective course:
	Chemistry Requirement:		Elective course:

As you plan your courses be sure you are checking prerequisites at <http://catalog.mtroyal.ca/>

YEAR FOUR – complete the following courses			
✓	CORE Requirements:	✓	General Education and Electives:
	CHEM 4103 or CHEM 4301		GNED Tier 3 (Cluster ___):
	Chemistry Requirement:		GNED Tier 3 (Cluster ___):
	Chemistry Requirement:		GNED Tier 3 (Cluster ___):
	Senior General Chemistry Option:		Elective course:
	Senior General Chemistry Option:		Elective course:

Chemistry Requirements and Senior General Chemistry Options are listed on in the right margin on this page. Take two Tier 3 courses from a minimum of two different clusters, take the third Tier 3 course from any cluster.

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.