CHEMISTRY (CHEM)

Updated April 24, 2024

Chair: Professor J. Hollett; **Professors:** D. Craig, D. Goltz, C. Wiebe; **Associate Professors:** M. Eze, J. Hollett, A. McCubbin, J. Ritch, D. Vanderwel, T. Wood; **Instructors:** K. Buffie, J. Galka, D. Latimer, K. Stevenson

DEGREES/PROGRAMS OFFERED

3-Year BSc
3-Year BSc (Business Stream)
4-Year BSc
4-Year BSc (Business Stream)
Honours BSc
Honours BSc (Business Stream)
4-Year BSc (UW/RRC Polytech) - NOTE: This program is being discontinued. No new students will be admitted.

INTRODUCTION

Chemistry is the study of the property and composition of matter, the transformations that matter may undergo, and the energies associated with such

REQUIREMENTS FOR THE 3-YEAR BSc IN CHEMISTRY

ADMISSION REQUIREMENT Students must consult with a department advisor in planning their course of study.

GRADUATION REQUIREMENT 90 credit hours

RESIDENCE REQUIREMENT

Degree:	Minimum 30 credit hours
Major:	Minimum 18 credit hours

GENERAL DEGREE REQUIREMENT

Major: Minimum 30 credit hours

GENERAL DEGREE REQUIREMENT

Humanities: 12 credit hours in Humanities.
Writing: Minimum 3 credit hours of Academic Writing.
Indigenous: 3 credit hours in designated Indigenous requirement courses
Maximum Introductory Courses: Students may use a maximum of 42 credit hours at the 1000 level. Of these, a maximum of 6 credit hours may be below the 1000 level. As a result, students must take a minimum of 78 credit hours at the 2000-level or above in order to not exceed the maximum number of introductory courses.
Distribution: Minimum three (3) credit hours from each of five (5) different subjects.

MAJOR REQUIREMENT

Single Major: Minimum 54 credit hours/Maximum 78 credit hours in the Major subject. Maximum total of cognate and major courses is 84 credit hours combined.
Double Major: Minimum 54 credit hours in Chemistry and specified number of credit hours in other Major.

Required courses:

CHEM-1111(3) Introduction to the Chemical Properties of Matter
CHEM-1112(3) Basic Principles of Chemical Reactivity
CHEM-2102(3) Thermodynamics and Kinetics
CHEM-2103(3) Atoms, Molecules and Spectroscopy
CHEM-2202(3) Organic Chemistry I
CHEM-2203(3) Organic Chemistry II
CHEM-2302(3) Quantitative Chemical Analysis
CHEM-2401(3) Inorganic Chemistry I
CHEM-2502(3) Introduction to Biochemistry
OR CHEM-3502(3) Intermediate Biochemistry I
CHEM-3302(3) Methods of Chemical Analysis
CHEM-3401(3) Inorganic Chemistry II: Coordination Chemistry
MATH-1101(6) Introduction to Calculus
OR MATH-1103(3) Introduction to Calculus I
AND MATH-1104(3) Introduction to Calculus II
PHYS-1101(6) Foundations of Physics I
OR PHYS-1301(6) Introduction to Physics

Minimum 3 credit hours selected from the following courses:

PSYC-2101(3) Introduction to Data Analysis
STAT-1301(3) Statistical Analysis I (or the former **STAT-1201(6)** Intro to Stat Analysis)
STAT-1501(3) Elementary Biological Statistics I
Any Mathematics course numbered 2000 or above (MATH-2xxx) with the exceptions of MATH-2901(3) (History of Calculus) MATH-2902 (Math Prior to 1640), MATH-2905 (MATH/PHIL-2305 Philosophy and Mathematics) and MATH-2801(6) (Fundamentals of Computing), MATH-2903 Math for Early/Middle Year Teachers I.

Plus an additional 21 credit hours of 2000-, 3000- and/or 4000-level Chemistry courses.

Selection of Chemistry Courses: The 4-Year major requires a minimum of 54 credit hours in Chemistry. Since some senior courses are given in alternate years, all 4-Year majors are urged to seek academic advising within the Department **EACH YEAR** to avoid potential scheduling problems.

The following pattern of Chemistry courses is suggested:

Year 1 - 6 credit hours: **CHEM-1111(3)** Introduction to the Chemical Properties of Matter; **CHEM-1112(3)** Basic Principles of Chemical Reactivity.

Year 2 - 12 to 18 credit hours of the following required courses: **CHEM-2102(3)** Thermodynamics and Kinetics; **CHEM-2103(3)** Atoms, Molecules and Spec

3 credit hours from CHEM-3101(3) Physical Chemistry of Condensed Phases, CHEM-3102(3) Quantum Chemistry and Spectroscopy

BIOL-2301(3) Genetics
BIOL-3303(3)

Required Courses:

COURSE LISTINGS

Students should consult Web Advisor or the appropriate Timetable on the website for courses to be offered in the upcoming term. **A number of senior courses are offered on a rotation basis and are given in alternate years.** Students are advised to consult with the Department **in advance** when planning their curriculum.

CHEM-0100(3) Foundations of Chemistry
CHEM-1111(3) Introduction to the Chemical Properties of Matter
CHEM-1112(3) Basic Principles of Chemical Reactivity
CHEM-2102(3) Thermodynamics and Kinetics
CHEM-2103(3) Atoms, Molecules and Spectroscopy
CHEM-2202(3) Organic Chemistry I
CHEM-2203(3) Organic Chemistry II
CHEM-2302(3) Quantitative Chemical Analysis
CHEM-2401(3) Inorganic Chemistry I
CHEM-2502(3) Introduction to Biochemistry
CHEM-2701(3) Computer Techniques and Applications for Chemistry
CHEM-2801(3) Environmental Issues: A Chemistry Perspective
CHEM-3101(3) Physical Chemistry of Condensed Phases
CHEM-3102(3) Quantum Chemistry and Spectroscopy
CHEM-3202(3) Reaction Mechanisms in Organic Chemistry
CHEM-3204(3) Organic Structure Determination
CHEM-3205(3) Organic Synthesis
CHEM-3206(3) Advanced Organic Chemistry Laboratory
CHEM-3302(3) Methods of Chemical Analysis
CHEM-3401(3) Inorganic Chemistry II: Coordination Chemistry
CHEM-3502(3) Intermediate Biochemistry I: Structure, Function, and Energetics of Biomolecules
CHEM-3503(3) Intermediate Biochemistry II: Intermediary Metabolism
CHEM-3601(3) Environmental Chemistry
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