CHEMISTRY: BIOPHYSICAL CHEMISTRY MAJOR (B.SC.) (66 CREDITS)

Offered by: Chemistry (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 66

Program Description

This program trains students in the fundamentals of chemistry and develops the physical science, computational, and mathematical skills needed for advanced biophysical chemistry research in the biomedical and biotechnology industries. The program features integrative, interdisciplinary courses in bio-physical sciences. The program may be completed in 65 or 66 credits.

Degree Requirements — B.Sc.

This program is offered as part of a Bachelor of Science (B.Sc.) degree.

To graduate, students must satisfy both their program requirements and their degree requirements.

- The program requirements (i.e., the specific courses that make up this program) are listed under the Course Tab (above).
- The degree requirements—including the mandatory Foundation program, appropriate degree structure, and any additional components—are outlined on the Degree Requirements page.

Students are responsible for ensuring that this program fits within the overall structure of their degree and that all degree requirements are met. Consult the Degree Planning Guide on the SOUSA website for additional guidance.

Note: For information about Fall 2025 and Winter 2026 course offerings, please check back on May 8, 2025. Until then, the "Terms offered" field will appear blank for most courses while the class schedule is being finalized.

Program Prerequisites

Pre-Program Prerequisites

Pre-Program Requirements: Students entering from the Freshman program must have included CHEM 110 General Chemistry 1. and CHEM 120 General Chemistry 2.. BIOL 112 Cell and Molecular Biology., MATH 133 Linear Algebra and Geometry., MATH 140 Calculus 1./MATH 141 Calculus 2. or MATH 150 Calculus A./MATH 151 Calculus B., PHYS 101 Introductory Physics - Mechanics./PHYS 102 Introductory Physics - Electromagnetism., PHYS 131 Mechanics and Waves./PHYS 142 Electromagnetism and Optics., or their equivalents in their Freshman year. Quebec students must have completed the DEC with appropriate science and mathematics courses. Note that students who have successfully completed MATH 150 Calculus A. and MATH 151 Calculus B. do not have to take MATH 222 Calculus 3..

Required Courses (59 credits)

Completion of Mathematics MATH 222 Calculus 3. and MATH 315 Ordinary Differential Equations. during U1 is strongly recommended.

Bio-Physical Sciences Core

Expand allContract all

Course	Title	Credits
BIOL 219	Introduction to Physical Molecular and Cell Biology.	4
BIOL 319	Introduction to Biophysics.	3
BIOL 395	Quantitative Biology Seminar.	1
CHEM 242	Organic Chemistry 1 for Chemistry and Biochemistry.[1]	4
MATH 222	Calculus 3.[2]	3
MATH 223	Linear Algebra.	3
MATH 315	Ordinary Differential Equations.	3
MATH 323	Probability.	3
PHYS 329	Statistical Physics with Biophysical Applications.	3

1 Denotes courses with CEGEP equivalents.
The courses are omitted from the program of students who have successfully completed them at the CEGEP level. Students completing the program will not be eligible for admission to the Ordre des chimistes du Québec without additional chemistry electives. This program is not currently accredited by the Canadian Society for Chemistry.

2 Students who have successfully completed MATH 150 Calculus A. and MATH 151 Calculus B. are not required to take MATH 222 Calculus 3..

Chemistry

Expand allContract all

Course	Title	Credits
CHEM 213	Introductory Physical Chemistry 1: Thermodynamics.	3
CHEM 252	Organic Chemistry 2 for Chemistry and Biochemistry.[1]	4
CHEM 267	Introductory Chemical Analysis.	3
CHEM 273	Introductory Physical Chemistry 2: Kinetics and Methods.	3
CHEM 281	Inorganic Chemistry 1.	3
CHEM 345	Introduction to Quantum Chemistry.	3
CHEM 355	Applications of Quantum Chemistry.	3
CHEM 367	Instrumental Analysis 1.	3
CHEM 377	Instrumental Analysis 2.	3
CHEM 493	Advanced Physical Chemistry Laboratory.	2
PHYS 242	Electricity and Magnetism.	2

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Complementary Courses

(6-7 credits)

3 credits of:

Expand allContract all

Course	Title	Credits
CHEM 302	Introductory Organic Chemistry 3.	3
CHEM 381	Inorganic Chemistry 2.	3

3-4 credits of:

Expand allContract all

Course	Title	Credits
BIOL 300	Molecular Biology of the Gene.	3
BIOL 301	Cell and Molecular Laboratory.	4
BIOL 316	Biomembranes and Organelles.	3
BIOL 551	Principles of Cellular Control.	3
CHEM 302	Introductory Organic Chemistry 3.	3
CHEM 381	Inorganic Chemistry 2.	3
CHEM 502	Advanced Bio-Organic Chemistry.	3
CHEM 514	Biophysical Chemistry.	3
CHEM 520	Methods in Chemical Biology.	3
CHEM 555	Magnetic Resonance Spectroscopy.	3
CHEM 575	Chemical Kinetics.	3
COMP 208	Computer Programming for Physical Sciences and Engineering .	3