PHYSICS AND COMPUTER SCIENCE MAJOR (B.SC.) (66 CREDITS)

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

Program Description

The Major Physics and Computer Science is designed to give motivated students the opportunity to combine the two fields in a way that will distinguish them from the graduates of either field by itself. The two disciplines complement each other, with physics providing an analytic problem-solving outlook and basic understanding of nature, while computer science enhances the ability to make practical and marketable applications, in addition to having its own theoretical interest. Graduates of this program may be able to present themselves as being more immediately useful than a pure physics major, but with more breadth than just a programmer. They will be able to demonstrate their combined expertise in the Special Project course which is the centrepiece of the final year of the program.

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

Students entering Physics programs from the Freshman program must have successfully completed the courses below or their equivalents. Quebec students must have completed the DEC with appropriate science and mathematics courses.

Expand allContract all

Course	Title	Credits
CHEM 110	General Chemistry 1.	4
CHEM 120	General Chemistry 2.	4
PHYS 131	Mechanics and Waves.	4
PHYS 142	Electromagnetism and Optics.	4

One of:

Expand allContract all

Course	Title	Credits
BIOL 111	Principles: Organismal Biology.	3
BIOL 112	Cell and Molecular Biology.	3

MATH 133 Linear Algebra and Geometry. and either MATH 140 Calculus 1./MATH 141 Calculus 2. or MATH 150 Calculus A./MATH 151 Calculus B..

Expand allContract all

Course	Title	Credits
MATH 133	Linear Algebra and Geometry.	3
MATH 140	Calculus 1.	3
MATH 141	Calculus 2.	4
MATH 150	Calculus A.	4
MATH 151	Calculus B.	4

U1 Required Courses (21 credits)

Expand allContract all

Course	Title	Credits
COMP 250	Introduction to Computer Science.	3
MATH 222	Calculus 3.	3
MATH 223	Linear Algebra.	3
MATH 240	Discrete Structures.	3
PHYS 230	Dynamics of Simple Systems.	3
PHYS 257	Experimental Methods 1.	3
PHYS 258	Experimental Methods 2.	3

U2 Required Courses (24 credits)

Expand allContract all

Course	Title	Credits
COMP 206	Introduction to Software Systems.	3
COMP 251	Algorithms and Data Structures.	3
COMP 302	Programming Languages and Paradigms.	3
COMP 350	Numerical Computing.	3
MATH 314	Advanced Calculus.	3
MATH 315	Ordinary Differential Equations.	3
PHYS 232	Heat and Waves.	3
PHYS 241	Signal Processing.	3

U3 Required Courses (21 credits)

Expand allContract all

Course	Title	Credits
COMP 360	Algorithm Design.	3
MATH 323	Probability.	3
PHYS 331	Topics in Classical Mechanics.	3

PHYS 339	Measurements Laboratory in General Physics.	3
PHYS 340	Majors Electricity and Magnetism.	3
PHYS 346	Majors Quantum Physics.	3
PHYS 489	Special Project.	3