PHYSICS MAJOR (B.SC.) (63 CREDITS)

Offered by: Physics (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 63

Program Description

The B.Sc.; Major in Physics program covers a range of fundamental physical concepts from classical physics to modern topics relevant to contemporary research. The program may be completed in 60-63 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

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
MATH 133	Linear Algebra and Geometry.	3
PHYS 131	Mechanics and Waves.	4
PHYS 142	Electromagnetism and Optics.	4

7-8 credits from:

Expand allContract all

Course	Title	Credits
MATH 140	Calculus 1.	3
MATH 141	Calculus 2.	4
MATH 150	Calculus A.	4
MATH 151	Calculus B.	4

Note: Either MATH 140 Calculus 1. and MATH 141 Calculus 2. or MATH 150 Calculus A. and MATH 151 Calculus B..

Required Courses (45 credits)

Expand allContract all

Course	Title	Credits
COMP 208	Computer Programming for Physical Sciences and Engineering .[1]	3
MATH 223	Linear Algebra.	3
MATH 314	Advanced Calculus.	3
MATH 315	Ordinary Differential Equations.	3
PHYS 230	Dynamics of Simple Systems.	3
PHYS 232	Heat and Waves.	3
PHYS 241	Signal Processing.	3
PHYS 257	Experimental Methods 1.	3
PHYS 258	Experimental Methods 2.	3
PHYS 331	Topics in Classical Mechanics.	3
PHYS 339	Measurements Laboratory in General Physics.	3
PHYS 340	Majors Electricity and Magnetism.	3
PHYS 342	Majors Electromagnetic Waves.	3
PHYS 346	Majors Quantum Physics.	3
PHYS 447	Applications of Quantum Mechanics.	3

[1] Students coming into the program with sufficient knowledge of computer programming may replace COMP 208 Computer Programming for Physical Sciences and Engineering . with PHYS 512 Computational Physics with Applications. or another 3-credit COMP course at the 200 level or above after consulting with an adviser.

Complementary Courses (15-18 credits)

0-3 credits from:

Expand allContract all

Course	Title	Credits
MATH 222	Calculus 3.[1]	3

[1] Students who did not complete an equivalent to MATH 222 Calculus 3. on entering the program must take this course.

3 credits from:

Expand allContract all

Course	Title	Credits
PHYS 329	Statistical Physics with Biophysical Applications.	3
PHYS 333	Thermal and Statistical Physics.	3

12 credits from:

Expand allContract all

Course	Title	Credits
PHYS 319	Introduction to Biophysics.	3
PHYS 320	Introductory Astrophysics.	3
PHYS 321	Data Science and Observational Astrophysics.	3
PHYS 328	Electronics.	3
PHYS 359	Advanced Physics Laboratory 1.	3
PHYS 404	Climate Physics.	3
PHYS 432	Physics of Fluids.	3
PHYS 434	Optics.	3
PHYS 449	Majors Research Project.[1]	3
PHYS 459D1	Research Thesis.[1,2]	3
PHYS 459D2	Research Thesis.[1,2]	3
PHYS 469	Advanced Physics Laboratory 2.	3
PHYS 479	Physics Research Project.	3
PHYS 512	Computational Physics with Applications.	3
PHYS 519	Advanced Biophysics.	3
PHYS 521	Astrophysics.	3

1 Note: A maximum of 6 credits of complementary courses may be from research courses PHYS 449 Majors Research Project., PHYS 479 Physics Research Project., and PHYS 459D1 Research Thesis./PHYS 459D2 Research Thesis..

2 NOTE: If chosen, PHYS 459D1 Research Thesis. and PHYS 459D2 Research Thesis. are taken together.

Note: It is possible for students to transfer from the Major to the Honours program after U1 year if they have passed all the 200-level required courses listed above and MATH 314 Advanced Calculus. and MATH 315 Ordinary Differential Equations. with a C or better, and obtained a cumulative GPA of 3.5 or better in these courses. The written permission of an adviser is required for this change of program. The missing MATH 249 Honours Complex Variables. and PHYS 260 Modern Physics and Relativity. from the U1 Honours year should be taken in U2.