PHYSICS HONOURS (B.SC.) (81 CREDITS)

Offered by: Physics (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 81

Program Description

The B.Sc.; Honours in Physics provides a broad view of physics from classical to modern topics as well as a choice of specialized high level courses relevant for contemporary research. The students have the opportunity to participate in research.

This is a demanding program. This program may be completed in 78 or 81 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 (51 credits)

Expand allContract all

Course	Title	Credits
MATH 247	Honours Applied Linear Algebra.	3
MATH 248	Honours Vector Calculus.	3
MATH 249	Honours Complex Variables.	3
MATH 325	Honours Ordinary Differential Equations.	3
MATH 475	Honours Partial Differential Equations.	3
PHYS 241	Signal Processing.	3
PHYS 251	Honours Classical Mechanics 1.	3
PHYS 253	Thermal Physics.	3
PHYS 257	Experimental Methods 1.	3
PHYS 258	Experimental Methods 2.	3
PHYS 260	Modern Physics and Relativity.	3
PHYS 350	Honours Electricity and Magnetism.	3
PHYS 351	Honours Classical Mechanics 2.	3
PHYS 352	Honours Electromagnetic Waves.	3
PHYS 357	Honours Quantum Physics 1.	3
PHYS 362	Statistical Mechanics.	3
PHYS 457	Honours Quantum Physics 2.	3

Complementary Courses (27-30 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 of MATH 222 Calculus 3. on entering the program must take this course in the first semester.

3 credits from:

Expand allContract all

Course	Title	Credits
PHYS 359	Advanced Physics Laboratory 1.	3
PHYS 469	Advanced Physics Laboratory 2.	3

6 credits selected from:

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

Expand allContract all

Course	Title	Credits
PHYS 359	Advanced Physics Laboratory 1.	3
PHYS 459D1	Research Thesis.	3
PHYS 459D2	Research Thesis.	3
PHYS 469	Advanced Physics Laboratory 2.	3
PHYS 479	Physics Research Project.	3

Note: Students cannot take both PHYS 359 Advanced Physics Laboratory 1. and PHYS 469 Advanced Physics Laboratory 2. to meet this requirement as one of them was taken to meet the previous requirement above.

18 credits selected from the list below (students may substitute one or more courses with any 3-credit course approved by the Department of Physics):

Expand allContract all

Course	Title	Credits
PHYS 404	Climate Physics.	3
PHYS 432	Physics of Fluids.	3
PHYS 434	Optics.	3
PHYS 479	Physics Research Project.	3
PHYS 512	Computational Physics with Applications.	3
PHYS 514	General Relativity.	3
PHYS 519	Advanced Biophysics.	3
PHYS 521	Astrophysics.	3
PHYS 534	Nanoscience and Nanotechnology.	3
PHYS 551	Quantum Theory.	3
PHYS 557	Nuclear Physics.	3
PHYS 558	Solid State Physics.	3
PHYS 559	Advanced Statistical Mechanics.	3
PHYS 562	Electromagnetic Theory.	3
PHYS 567	Particle Physics.	3