

PHYSICS: BIOLOGICAL PHYSICS HONOURS (B.SC.) (82 CREDITS)

Offered by: Physics (Faculty of Science)
Degree: Bachelor of Science
Program credit weight: 82

Program Description

The B.Sc.; Honours in Physics; Biological Physics program contains a strong core of foundational physics and specializes in biology, mathematics, physiology, computer science, and chemistry. This Honours program offers a more rigorous preparation, with additional research experience, in biophysics. The program includes a research project within a biophysics lab in the department that is completed in the final year. This program may be completed in 81 or 82 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.

Required Courses (63 credits)

Bio-Physical Sciences Core (24 credits)

Expand all		Contract all	
Course	Title		Credits
BIOL 219	Introduction to Physical Molecular and Cell Biology.		4
BIOL 395	Quantitative Biology Seminar.		1
CHEM 212	Introductory Organic Chemistry 1.	1	4
MATH 247	Honours Applied Linear Algebra.		3
MATH 315	Ordinary Differential Equations.		3
MATH 323	Probability.		3
PHYS 319	Introduction to Biophysics.		3
PHYS 329	Statistical Physics with Biophysical Applications.		3

¹ Students who have taken the equivalent of CHEM 212 Introductory Organic Chemistry 1. can make up the credits with complementary 3 or 4 credit courses in consultation with the program adviser.

Biology and Mathematics (6 credits)

Expand allContract all		
Course	Title	Credits
BIOL 202	Basic Genetics.	3
MATH 248	Honours Vector Calculus.	3

Physics (33 credits)

Expand allContract all		
Course	Title	Credits
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 346	Majors Quantum Physics.	3
PHYS 350	Honours Electricity and Magnetism.	3
PHYS 352	Honours Electromagnetic Waves.	3
PHYS 459D1	Research Thesis.	3
PHYS 459D2	Research Thesis.	3
PHYS 519	Advanced Biophysics.	3

Complementary Courses (18-19 credits)

3 credits selected from:

Expand allContract all		
Course	Title	Credits
COMP 202	Foundations of Programming.	3
COMP 250	Introduction to Computer Science.	3

3 credits selected from:

Expand allContract all		
Course	Title	Credits
PHYS 328	Electronics.	3
PHYS 351	Honours Classical Mechanics 2.	3

3 credits selected from:

Expand all	Contract all	
Course	Title	Credits
PHYS 339	Measurements Laboratory in General Physics.	3
PHYS 359	Advanced Physics Laboratory 1.	3
PHYS 469	Advanced Physics Laboratory 2.	3

3 credits selected from:

Expand allContract all

Course	Title	Credits
CHEM 514	Biophysical Chemistry.	3
MATH 437	Mathematical Methods in Biology.	3
PHGY 425	Analyzing Physiological Systems.	3
PHYS 432	Physics of Fluids.	3
PHYS 434	Optics.	3
PHYS 447	Applications of Quantum Mechanics.	3

6 to 7 credits selected from:

Expand allContract all

Course	Title	Credits
BIOL 300	Molecular Biology of the Gene.	3
BIOL 301	Cell and Molecular Laboratory.	4
BIOL 303	Developmental Biology.	3
BIOL 306	Neural Basis of Behaviour.	3
BIOL 313	Eukaryotic Cell Biology.	3
BIOL 316	Biomembranes and Organelles.	3
BIOL 551	Principles of Cellular Control.	3