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

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

Program Description

This program may be completed in 81 or 82 credits.

The B.Sc.; Major in Physics; Biological Physics program keeps a strong core of foundational physics and specializes in biology, mathematics, physiology, computer science, and chemistry. Complementary courses provide background in molecular and cell biology, computer science, and organic chemistry, whereas introductory and advanced biophysics courses offered by the Physics Department as integrative courses

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 Science Core (27 credits)

Expand allContract 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 222	Calculus 3.[1]	3
MATH 223	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. or MATH 222 Calculus 3. can make up the credits with complementary 3 or 4 credits courses in consultation wit the program adviser.

Biology and Mathematics (6 credits)

Expand allContract all

Course	Title	Credits
BIOL 202	Basic Genetics.	3
MATH 314	Advanced Calculus.	3

Physics (30 credits)

Expand allContract all

Course	Title	Credits
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 340	Majors Electricity and Magnetism.	3
PHYS 342	Majors Electromagnetic Waves.	3
PHYS 346	Majors Quantum Physics.	3
PHYS 449	Majors Research Project.	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 331	Topics in Classical Mechanics.	3

3 credits selected from:

Expand allContract 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