

# Biophysics

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Faculty of the departments of Biology, Chemistry and Physics.

An interdisciplinary program to prepare students for graduate study and subsequent careers in Biophysics.

## Bachelor of Science Degree in Biophysics

Total credit hours required to complete major: 78-79

Basic Requirements		42 semester hours	
BIOL 116, 117, 119	General Biology Lectures and Laboratory		8
BIOL 222	Principles of Genetics OR BIOL 203 Principles of Ecology		3
BIOL 300	Cell Biology		3
BIPH 375	Biophysics		3
PHYS 123, 124 PHYS 125, 126	Analytical Physics I and Analytical Physics II		8
PHYS 223, PHYS 224	Analytical Physics III and Analytical Physics IV		6
PHYS 226	Optics and Modern Physics Laboratory		1
PHYS 228	Mathematical Methods in Physics		2
One of the following:			
PHYS 335 PHYS 344 PHYS 352	Intermediate Electricity and Magnetism I OR Statistical Thermodynamics OR Introduction to Quantum Mechanics I		3
PHYS 362	Intermediate Laboratory I		2
Elective(s) in biology or physics, 300-level			3

Related Requirements		37 semester hours	
MATH 221, 222, 223	Calculus I, II and III		12
MATH 326	Differential Equations		3
CHEM 120, 121, 122	General Chemistry I/II OR		
CHEM 116, 118	Chemistry I/II		6
CHEM 119	Quantitative Analysis Laboratory		2
CHEM 211	Organic Chemistry I		3
CHEM 216	Organic Chemistry Laboratory		2
CHEM 300	Elementary Biochemistry OR CHEM 302 Biochemistry I		3
CHEM 324	Principles of Physical Chemistry		3
One course from:			3
CSCI 119	Object-oriented Programming OR		
CSCI 120	Procedural Programming OR		

### Department Writing Requirement

Students in Biophysics will satisfy the writing requirement of either the department of Biology or Physics. The determination will be made by the program director and/or advisor upon review of the student's course selection. Students must consult with their advisors to ensure that they meet the College's writing requirement.

For information on writing requirements for "double" or "triple" majors consult the *Undergraduate Bulletin* under "Multiple Majors" or the Office of the Dean of the College.

## Biophysics Course

### BIPH 375 Biophysics

A study of the application of the fundamentals of physics to the problems of the biological sciences. Emphasis is placed upon representative topics demonstrating the analytical methods and the theory of those methods used in biophysics. Students will be

expected to read and discuss current literature. Examples of topics include biophysical modeling, organ systems, and electromagnetic interactions. Prerequisites: BIOL 203 or 222, PHYS 223, MATH 222; or permission of instructor. Credits: 3(3-0) Offered every fall

<b>B. S. in Biophysics</b>			
<b>Sample Program Outline/Advising Guide</b>			
FIRST YEAR			
Fall	Hours	Spring	Hours
BIOL 117	3	BIOL 119	3
BIOL 116	2		
PHYS 123/124	4	PHYS 125/126	4
MATH 221	4	MATH 222	4
CSCI 119 or 120	3	INTD 105	3
Total	16	Total	14
SECOND YEAR			
PHYS 223	3	PHYS 224	3
PHYS 226	1	PHYS 228	2
CHEM 116/119/N or CHEM 120/121/N	3-5	CHEM 118	3
MATH 223	4	CHEM 119 or	2
Foreign Language or S/	3	MATH 326	3
		Foreign Language or S/	3
Total	14-16	Total	14-16
THIRD YEAR			
CHEM 210 or CHEM 211	3	CHEM 300	3
CHEM 216	1	BIOL 300	3
HUMN 220	4	HUMN 221	4
BIOL 203 or BIOL 222	3	F/	3
PHYS 362	2	S/	3
Total	13	Total	16
FOURTH YEAR			
PHYS 335 or 344 or 352	3	BIOL/PHYS elective	3
BIPH 375	3	CHEM 324	3
M/	3	F/	3
Elective	3	U/	3
Elective	3	Elective	3
Total	15	Total	15
Total Semester Hours - 120			
<i>Note: Where no prerequisites apply, some variation in the order or semester in which courses are taken is possible. Students should consult their academic advisors for additional information.</i>			