

BS: Biophysics Curriculum Planner

Following is a sample curriculum for Biophysics majors. It may not be necessary to complete these courses in the order given; please consult your advisor. **Bold indicates major courses**; *asterisk indicates cognates; *italic indicates General Education requirements*.

Freshman Year

<input type="checkbox"/> PHYS277	0.5		Physics Colloquium
<input type="checkbox"/> CHEM131	4		*General Chemistry w/lab I
<input type="checkbox"/> CHEM132		4	*General Chemistry w/lab II
<input type="checkbox"/> MATH141	4		*Calculus I
<input type="checkbox"/> MATH142		4	*Calculus II
<input type="checkbox"/> HIST117	2		<i>Civilization and Ideas I</i>
<input type="checkbox"/> HIST118		3	<i>Civilization and Ideas II</i>
<input type="checkbox"/> ENGL115	3		<i>English Composition I</i>
<input type="checkbox"/> RELT100	3		<i>God and Human Life</i>
<input type="checkbox"/> BHSC100		2	<i>Philosophy of Service</i>
<input type="checkbox"/> COMM104		2	<i>Communication Skills</i>
<input type="checkbox"/> HLED120		<u>1</u>	<i>Fit and Well</i>
	16.5	16	

Sophomore Year

<input type="checkbox"/> BIOL165	5		Foundations of Biology w/lab I	
<input type="checkbox"/> BIOL166		5	Foundations of Biology w/lab II	
<input type="checkbox"/> PHYS241,271	5		Physics for Scientists w/lab I	
<input type="checkbox"/> PHYS242,272		5	Physics for Scientists w/lab II	
<input type="checkbox"/> MATH286		3	*Differential Equations	
<input type="checkbox"/> ENGL215	3		<i>English Composition II</i>	
<input type="checkbox"/> PEAC	1		<i>Physical Education Activity Course</i>	
<input type="checkbox"/> Religion	3		<i>(select one of the following)</i>	<input type="checkbox"/> RELB210 <i>Jesus in His Time and Ours</i>
			<input type="checkbox"/> ANTH124 <i>Introduction to Anthropology</i>	<input type="checkbox"/> RELT250 <i>Personal Spirituality and Faith</i>
<input type="checkbox"/> Soc. Science		3	<i>(select one of the following)</i>	<input type="checkbox"/> PLSC104 <i>American Government</i>
			<input type="checkbox"/> ECON225 <i>Macroeconomics</i>	<input type="checkbox"/> PSYC101 <i>Introduction to Psychology</i>
			<input type="checkbox"/> GEOG110 <i>Survey of Geography</i>	<input type="checkbox"/> SOCI119 <i>Principles of Sociology</i>
	17	16		

Junior Year

<input type="checkbox"/> PHYS411	2.5		Theoretical Mechanics	
<input type="checkbox"/> PHYS430		2.5	Thermodynamics	
or CHEM431,441	(4)		Physical Chemistry I[†]	
<input type="checkbox"/> PHYS431	3		Electricity and Magnetism	
<input type="checkbox"/> PHYS377		1	Advanced Physics Laboratory	
<input type="checkbox"/> CHEM231,241	4		*Organic Chemistry w/lab I	
<input type="checkbox"/> CHEM232,242		4	*Organic Chemistry w/lab II	
<input type="checkbox"/> PEAC	1		<i>Physical Education Activity Course</i>	
<input type="checkbox"/> Religion	3		<i>(select one of the following)</i>	<input type="checkbox"/> RELB210 <i>Jesus in His Time and Ours</i>
			<input type="checkbox"/> RELT225 <i>Doctrines of the Adventist Faith</i>	<input type="checkbox"/> RELT250 <i>Personal Spirituality and Faith</i>
<input type="checkbox"/> IDSC211	3	(3)	<i>Creativity and the Arts</i>	
<input type="checkbox"/> Humanities		3	<i>(select one of the following)</i>	<input type="checkbox"/> ARTH220 <i>Language of Art</i>
			<input type="checkbox"/> ENGL255 <i>Studies in Literature</i>	<input type="checkbox"/> PHTO210 <i>History of Photography</i>
			<input type="checkbox"/> MUHL214 <i>Enjoyment of Music</i>	<input type="checkbox"/> PHIL224 <i>Introduction to Philosophy</i>
<input type="checkbox"/> Soc. Science		3	<i>(select one of the following)</i>	<input type="checkbox"/> BHSC220 <i>Contemporary Social Issues</i>
			<input type="checkbox"/> IDSC237 <i>Individual, State, Marketplace</i>	<input type="checkbox"/> BHSC235 <i>Culture, Place, Interdependence</i>
	13.5-14.5	16.5-17		

Senior Year

<input type="checkbox"/> PHYS416		2.5	Biophysics
<input type="checkbox"/> PHYS495	1		Research
<input type="checkbox"/> BIOL371	3		Genetics, Cellular and Molecular Biology I
<input type="checkbox"/> BIOL372		3	Genetics, Cellular and Molecular Biology II
or BCHM421	(4)		Biochemistry I[†]
<input type="checkbox"/> PEAC		1	<i>Physical Education Activity Course</i>
<input type="checkbox"/> RELT340		3	<i>Religion and Ethics in Modern Society</i>
			<i>(or one of the following: RELB210, RELT225, RELT250)</i>
<input type="checkbox"/>			Service Fieldwork (or "S" designated class or waiver)
<input type="checkbox"/> Phys/Biol elect.	1		
<input type="checkbox"/> Electives [‡]	<u>6-9</u>	<u>6-9</u>	
	14-15	15.5	

[†]Selecting either the Physical Chemistry (instead of Thermodynamics) or Biochemistry (instead of Genetics II) options completes a Chemistry minor.

[‡]See back for list of suggested electives.

Suggested Electives and Second Majors and Minors

Students seeking to continue on to Medical School

The Biophysics major courses and cognate requirements fulfill the course requirements for admission to Medical School.

Students seeking the broadest possible foundation in the Sciences

A Chemistry minor or second major shows that you have broad competence in the three major sciences: Physics, Biology and Chemistry.

Chemistry Minor: 0-4 additional units

Students selecting the Physical Chemistry or Biochemistry option automatically qualify for a Chemistry Minor. All other Biophysics students take 4 units of Chemistry beyond the required cognates.

Chemistry Major: 17-25 additional units

Students take the required Biophysics cognates plus:

- CHEM200 4 Quantitative Analysis
- CHEM311,312 1 Seminar in Chemistry
- CHEM411,412 1 Seminar in Chemistry
- CHEM415 4 Advanced Inorganic Chemistry
- CHEM440 4 Instrumental Analysis
- CHEM431,441[†] 4 Physical Chemistry w/lab I
- BCHM421[†] 4 Biochemistry I
- CPTR125 or 151 3 Computer Science (cognate requirement)

[†]May apply towards both the Biophysics and Chemistry majors

Biochemistry Major: 10 - 18 additional units

Students take the required Biophysics cognates plus:

- CHEM200 4 Quantitative Analysis
- CHEM311,312 1 Seminar in Chemistry
- CHEM411,412 1 Seminar in Chemistry
- CHEM431,441[†] 4 Physical Chemistry w/lab I
- BCHM421[†] 4 Biochemistry I
- BCHM422.430 4 Biochemistry w/lab II

[†]May apply towards both the Biophysics and Biochemistry majors

Students seeking the mathematical foundation for Research

A Mathematics minor or second major shows that you have the mathematical foundation needed to do graduate level research.

Mathematics Minor: 9 additional units

Students take the required Biophysics cognates plus:

- MATH215 3 Introduction to Linear Algebra
- MATH240 4 Calculus III[‡]
- MATH315 3 Linear Algebra[‡]

Mathematical Studies Major: 19 additional units

Students take the required Biophysics cognates, plus:

- MATH215 3 Introduction to Linear Algebra
- MATH240 4 Calculus III
- MATH315 3 Linear Algebra[‡]
- STAT340 3 Probability Theory with Statistical Applications[‡]
- MATH405 3 Applied Mathematics[‡]
- MATH408 3 Complex Analysis[‡]

Mathematics Major: 31 additional units

Students take the required Biophysics cognates, plus:

- MATH215 3 Introduction to Linear Algebra
- MATH240 4 Calculus III
- MATH315 3 Linear Algebra
- STAT340 3 Probability Theory with Statistical Applications
- CPTR125 3 Introduction to Computer Programming (cognate requirement)
- MATH405 3 Applied Mathematics[‡]
- MATH408 3 Complex Analysis[‡]
- math electives 9 select three of the following:
 - MATH355 3 Discrete Mathematics
 - MATH426 3 Math Modeling in Biology
 - MATH475 3 Geometry
 - MATH431,432 3+3 Advanced Calculus
 - MATH441,442 3+3 Algebra
 - MATH487 3 Special Topics

[‡]Suggested courses; other upper-division mathematics courses may be substituted

Students with other interests: variable additional units

We strongly support and encourage development in other areas of personal interest. Our biophysics students have taken second majors in diverse areas such as anthropology, religion, music, and German. Consult your academic advisor for assistance in planning for other minors or second majors.