

IUPUI School of Science – Bachelor of Science in Physics: Biophysics Option

FIRST-YEAR EXPERIENCE

Windows on Science SCI I120 1 cr. _____
(With permission another Learning Community may be substituted. Waived only for students who transfer in more than 18 credit hours.)

AREA I - COMMUNICATION

A. English Composition - 6 credits total
(grade of C or better in each course)

English Composition ENG W131 3 cr. _____

Choose from: ENG W132, W150, W231, W250, W290, W331 or W350, TCM 320 3 cr. _____

B. Speech Communication - 3 credits total

Speech Communication COMM R110 3 cr. _____

AREA II - FOREIGN LANGUAGE - not required

AREA III - GENERAL REQUIREMENTS

A. Humanities, Social Sciences, & Comparative World Cultures
15 credits total

History of Western Civilization II H114 3 cr. _____

OR: Perspectives on the World H109 3 cr. _____

One course each from Lists H, S, and C (9 cr.):

(See School of Science Course List)

B. Junior/Senior Integrator – not required

Replace with general educ. course (3 cr.) _____

C. Physical and Biological Sciences – 4 lecture courses
minimum 16 credits total

Principles of Chemistry I CHEM C105 (3 cr.) _____

Experimental Chemistry I CHEM C125 (2 cr.) _____

Principles of Chemistry II CHEM C106 (3 cr.) _____

Experimental Chemistry II CHEM C126 (2 cr.) _____

Two additional physical or biological science courses approved by the Dept. of Physics:

D. Mathematics and Computer Course Requirements
minimum 21 credits total

Analytic Geom. & Calc. I MATH 165 (4 cr.) _____

Analytic Geom. & Calc. II MATH 166 (4 cr.) _____

Multidimensional Math. MATH 171 (3 cr.) _____

Multivariate Calculus MATH 261 (4 cr.) _____

Ordinary Differential Eqns. MATH 266 (3 cr.) _____

One course in Computer Science (3-4 cr.) _____
(CSCI 230, N305, N331, or higher)

NOTE: Students must have grades of C– or higher in Area IIID. A grade of D or D+ will be allowed for one course only.
AREA IV - MAJOR COURSES

A. Physics - minimum of 26 credits required

Introductory Physics:

PHYS P201 (5 cr.) or PHYS 152 (4 cr.) _____

PHYS P202 (5 cr.) or PHYS 251 (5 cr.) _____

Choose two from the following three courses:

Mathematical Physics PHYS 300 (3 cr.) _____

Intermediate Mechanics PHYS 310 (4 cr.) _____

Intermediate E & M PHYS 330 (3 cr.) _____

Modern Physics PHYS 342 (3 cr.) _____

Electronics Lab PHYS 353 (2 cr.) _____

Quantum Mech. PHYS 442 (3 cr.) _____

Capstone Experience PHYS 490 (3 cr.) _____

(See departmental sections of the bulletin for more information.)

B. Biology - minimum of 15 credits required

Introductory Biology:

BIOL K101 (5 cr.) _____

BIOL K103 (5 cr.) _____

Choose 5 additional credits from:

Cell Biology & Lab BIOL K324/K325 (5 cr.) _____

Microbiology & Lab BIOL K356/K357 (5 cr.) _____

Biological Chemistry BIOL K483 (3 cr.) _____

Cellular Biochemistry BIOL K484 (3 cr.) _____

C. Chemistry - minimum of 23 credits required

Introductory Chemistry:

CHEM C105/C125 (5 cr.) _____

CHEM C106/C126 (5 cr.) _____

Organic Chemistry:

CHEM C341/C343 (5 cr.) _____

CHEM C342/C344 (5 cr.) _____

Physical Chemistry: choose one course

CHEM C360 (3 cr.) or CHEM C361 (3 cr.) _____

AREA V - ELECTIVES

A minimum of 124 credits must be completed for graduation. This total must include at least 32 credits in courses at the 300-400 level taken at the IUPUI campus. Residence of at least two semesters at the IUPUI campus is also required for graduation.

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**B.S. in Physics – Biophysics Option Sample Program
(Minimum 124 cr. required)**

First Semester - Freshman Year

PHYS P201 General Physics I	5
CHEM C105 Principles of Chemistry I	3
CHEM C125 Experimental Chemistry I	2
MATH 165 Analytic Geometry and Calculus I	4
<u>SCI I120 Windows on Science</u>	<u>1</u>
Total	15

Second Semester

PHYS P202 General Physics II	5
CHEM C106 Principles of Chemistry II	3
CHEM C126 Experimental Chemistry II	2
MATH 166 Analytic Geometry and Calculus II	4
<u>MATH 171 Multidimensional Mathematics</u>	<u>3</u>
Total	17

Third Semester - Sophomore Year

BIOL K101 Concepts of Biology I	5
CHEM C341 Organic Chemistry I	3
CHEM C343 Organic Chemistry Laboratory I	2
MATH 261 Multivariate Calculus	4
<u>ENG W131 Elementary Composition I</u>	<u>3</u>
Total	17

Fourth Semester

PHYS 300 Mathematical Physics	3
BIOL K103 Concepts of Biology II	5
CHEM C342 Organic Chemistry II	3
CHEM C344 Organic Chemistry Laboratory II	2
<u>MATH 266 Ordinary Differential Equations</u>	<u>3</u>
Total	16

Fifth Semester - Junior Year

PHYS 310 Intermediate Mechanics	4
BIOL K324 Cell Biology	3
BIOL K325 Cell Biology Laboratory	2
CSCI Course	3-4
<u>HIST H114 History of Western Civilization II</u>	<u>3</u>
Total	15-16

Sixth Semester

PHYS 342 Modern Physics	3
PHYS 353 Electronics Laboratory	2
CHEM C360 Physical Chemistry	3
Second composition course	3
One course from List H, S, or C	3
<u>Elective</u>	<u>2</u>
Total	16

Seventh Semester - Senior Year

PHYS 442 Quantum Mechanics	3
PHYS 490 Capstone Experience	3
One course from remaining two Lists H, S, or C	3
General education elective	3
<u>Elective</u>	<u>3</u>
Total	15

Eighth Semester

COMM R110 Fundamentals of Speech Communication	3
One course from remaining List H, S, or C	3
Electives	8
<u>CAND 991 Candidate for Graduation</u>	<u>0</u>
Total	14