IUPUI School of Science – Bachelor of Science in Physics Teaching

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
6 credits total. See Note A.

History of Western Civilization II H114 3 cr._____
or Perspectives on the World H109 3 cr. _____

One course each from List C: 3 cr. _____
(See School of Science Course List)

B. Junior/Senior Integrator – *not required*

C. Physical and Biological Sciences - 4 lecture courses
minimum 18 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.) _____

Science elective sequence either BIOL K101 and K103
or GEOL G109/G119

_____ _____

D. Math and Computer Course Requirements
minimum 27 credits total

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

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

Multidimensional Math. MATH 171 (3 cr.) _____

Multivariate Calculus MATH 261 (4 cr.) _____

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

6 more credits are required beyond MATH 266 as approved by the Dept. of Physics:

_____ _____

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 – 38 credits total

A. Physics Courses – 27 credits total

Mechanics PHYS 152 (4 cr.) _____

Heat, Electricity, & Optics PHYS 251 (5 cr.) _____

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 Laboratory PHYS 353 (2 cr.) _____

Quantum Mechanics PHYS 442 (3 cr.) _____

B. Education – 40 credit hours
Amer. Culture and Educ. EDUC H341 3 cr. _____

Block I

Diversity and Learning: Reaching every Adolescent EDUC M322 6 cr. _____
Field Experience EDUC M403 1 cr. _____
Content Area Literacy EDUC M469 3 cr. _____

Block IIa

Teaching Students with Special Needs in Secondary Classroom EDUC K306 3 cr. _____
Field Experience: Middle School EDUC M404 0 cr. _____
Teaching/Learning in the Middle School EDUC S420 3 cr. _____

Block IIb

Methods of Teaching Sr. High/Jr High/MS Science EDUC M446 3 cr. _____

Block III

Teaching/Learning in the High School EDUC S430 3 cr. _____
Field Experience: EDUC M405 0 cr. _____

Student Teaching

Student Teaching in the High School EDUC M451 8 cr. _____
Student Teaching in the Middle School EDUC M480 8 cr. _____

Notes:

A. The School of Science H list, S list, and Jr/Sr integrator requirements are satisfied by EDUC H341, M322, and M446. The capstone requirement is satisfied by EDUC M451/M480
B. Independent Study (correspondence) course for general electives up to a maximum of 12 credits may be taken with the permission of the Associate Dean for Academic Programs and Student Development in the School of Science.
C. Courses taken on the PASS/FAIL option can be applied only as general electives and not toward degree area requirements of the school or department.
D. A minimum of 129 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.
E. It may be a good alternative for students to take their science elective sequence during a Summer I and II either between years 2 and 3 or between years 3 and 4
F. Students begin the application process to the Teacher Education Program as sophomores, ~8 months prior to the semester they wish to begin. The Praxis I exam must be taken 6 weeks before the application deadline. Application deadlines are Feb 7 to start in Fall, and September 7 to start in Spring. Ideally, EDUC H341 is taken during the semester the student applies to the Teacher Education Program. For more information, see http://education.iupui.edu/soe/applying/undergraduate/sublttl/index.aspx.

Bachelor of Science in Physics Teaching Sample Program

First Semester – Freshman Year

CHEM C105/C125 Principles of Chemistry I	5
ENG W131 Elementary Composition I	3
MATH 163 Integrated Calculus and Analytic Geometry I	5
SCI I120 Windows on Science	1
Total	14

Second Semester

PHYS 152 Mechanics	4
CHEM C106/C126 Principles of Chemistry II	5
MATH 164 Integrated Calculus and Analytic Geometry II	5
Second Composition Course	3
Total	17

Third Semester – Sophomore Year

PHYS 251 Heat, Electricity, and Optics	5
MATH 261 Multivariate Calculus	4
HIST H114 History of Western Civilization II	3
F200 Examining Self as a Teacher	3
Total	15

Fourth Semester

PHYS 342 Modern Physics	3
COMM R110 Fundamentals of Speech Communication	3
MATH 262 Linear Algebra and Differential Equations	4
EDUC H341 (American Culture and Education)	3
Total	15

Fifth Semester – Junior Year {Block I}

PHYS 310 Intermediate Mechanics	4
Science Elective 1 (BIOL K101 or GEOL G109/G119)*	4-5
Math Elective 1	3
EDUC M301 Field Experience	1
EDUC M322 Diversity and Learning	6
Total	18-19

Sixth Semester {Block II} =

PHYS 330 Intermediate Electricity and Magnetism	3
Science Elective 2 (BIOL K103 or GEOL G110/G120)*	4-5
EDUC M408 Field Experience: Middle School	1
EDUC S420 Teaching and Learning in Middle School	3
EDUC M469 Content Area Literacy	3
EDUC M446 Methods of Teaching High School Science	3
Total	17-18

Seventh Semester – Senior Year {Block III}

PHYS 353 Electronics Laboratory	2
Physics Elective	3
Comparative World Cultures Elective	3
Computer Science Elective	3
Math Elective 2	3
EDUC M304 Field Experience	1
EDUC S430 Teaching and Learning in High School	3
Total	18

Eighth Semester {Block IV}

EDUC M451 Student Teaching in Middle School	8
EDUC M480 Student Teaching in High School	8
Total	16