B.S. EDUCATION: SCIENCE (PHYSICS)

This Bachelor of Science in Education degree enables you to teach Middle School/Junior High or High School students. Course requirements for this program are valid at IUB as reflected in the School of Education Bulletin. A 4 year college plan requires completion of 15-16 credits each semester. A 2.5 GPA overall is required for retention and graduation. A total of 124 credits are required for graduation.

May 2011-MD

ADMISSION REQUIREMENTS
(Competitive enrollment. Meeting minimum requirements does not guarantee admission.)

1. Students may satisfy the Academic Skills Assessment requirement for admission to the TEP by using any of the following options:
   • Qualifying scores on PRAXIS I
     o Reading 176, Writing 172, Math 175
   • PRAXIS I combined score of at least 527
     o Sum of Reading + Writing + Math scores = 527
   • SAT combined score of at least 1100
     o Sum of MA + VE = 1100
   • ACT composite score of at least 24
     o Sum of EN + MA + RE + SR scores divided by 4 = 24
2. 2.5 GPA overall.
3. 21 credits and a 2.5 GPA in the content field with at least 15 credits completed and 6 credits in progress. Grade of C or higher is required in each content field course.
4. Completion of or enrollment in prerequisites: Grade of C or higher is required in each EDUC course.
   - EDUC-M 300 Teaching in a Pluralistic Society *(D) 3 credits
   - EDUC-P 312 Learning Theory into Practice AND 3 credits
   - EDUC-P 313 Adolescents in a Learning Community 3 credits
   - EDUC-W 200 Using Computers in Education *(IF) 3 credits
5. Apply by October 1 for Spring Semester Block I courses.
6. Submit TEP Application Online:
   - http://www.iu.edu/~bulletin/iub/general
   - Submit TEP Application Online:
   - http://info.educ.indiana.edu/teachered/

I. IUB & SCHOOL OF EDUCATION
GENERAL EDUCATION REQUIREMENTS
(Careful selection & completion of courses with a “C” or higher grade may allow double counting within General Education, Professional Education &/or Content Field.)

Oral Expression (Select one)
(Grade of C or higher required) 3 credits
   - CMCL-C 121 Public Speaking *(A&H) 3 credits
   - CMCL-C 122 Interpersonal Communication *(S&H) 3 credits
   - EDUC-G 203 Communication in the Classroom *(S&H) 3 credits

English Composition (EC) (Select one)
(Grade of C or higher required) 0-3 credits
   - CMLT-C 110 Writing the World 3 credits
   - ENG-W 131 Elementary Composition OR 3 credits
   - ENG-W 131EX Elementary Composition-Exempt 0 credits
   - ENG-W 170 Intro to Argumentative Writing (Topic: Projects in Reading & Writing) 3 credits

Intensive Writing Course (IW) (Select one) 3 credits
   - EDUC-H 205 Intro to Educational Thought *(P: English Comp) *(S&H) 3 credits
   - EDUC-H 340 Education & American Culture *(P: English Comp & Soph. Standing) 3 credits

Mathematical Modeling (MM) (Select one) 3-4 credits
   - MATH-A/M/S/V 118 Finite Mathematics 3 credits
   - MATH-D 116 Intro to Finite Mathematics I *(AND) 2 credits
   - MATH-D 117 Intro to Finite Mathematics II *(Note: D116 must have a grade of C- or higher & D117 must have a passing grade to fulfill the MM requirement) 2 credits
   - MATH-J 113 Intro to Calculus with Applications 3 credits
   - MATH-M 119 Brief Survey of Calculus I 3 credits
   - MATH-M 211 Calculus I 4 credits
   - MATH-M 213 Accelerated Calculus 4 credits

Arts & Humanities (A&H) 6 credits
   - Complete at least 2 courses for a total of at least 6 credits.

Social & Historical Studies (S&H) 6 credits
   - Complete at least 2 courses for a total of at least 6 credits.

Natural & Mathematical Sciences (N&M)
(Complete ONE of the following options.) 5+ credits
   - Option I: Complete at least 2 courses for a total of at least 5 credits. At least 1 of these courses must be a Natural Science (* *) course.
     • ___________________________ 3 credits
   - Option II: Complete a 5 credit science course.
     • ___________________________ 5 credits

World Languages (WL)/World Cultures (WC)
(Complete ONE of the following options.) 6 credits
   - Option I: Language Study (WL): Complete the study of an approved single language through the second semester of the second-year level of college-level coursework.
     • ___________________________ 3 credits
   - Option II: World Culture (WC): Complete at least 2 courses for a total of at least 6 credits.
     • ___________________________ 6 credits
   - Option III: International Experience (IE): Complete an approved study abroad program or internship of at least 6 credits & at least 6 weeks abroad in duration.
     • ___________________________ 6 credits

Rules for Educator Preparation and Accountability (REPA) requirements.

This program sheet is effective for all students starting at IUB between summer 2011 and spring 2012.

Program is under revision to meet the emerging Indiana Rules for Educator Preparation and Accountability (REPA) requirements. Please see an education advisor for more details.
II. PROFESSIONAL EDUCATION

48 credits/2.5 GPA
(C or higher grade is required in each course listed below.)

Prerequisite Education Courses 12 credits

These courses must be taken before admission to the TEP.
EDUC-M 300 Teaching in a Pluralistic Society (P: Soph. Standing) 3
EDUC-P 312 Learning Theory into Practice (P: Soph. Standing) 3
EDUC-P 313 Adolescents in a Learning Community (P: Soph. Standing) 3
EDUC-W 200 Using Computers in Education (IF) 3

Required Non-Authorized Course 3 credits

Complete ONE of the following before student teaching:
EDUC-H 205 The Study of Education & Practice of Teaching (P: English Comp) (S&H) (IF) 3
EDUC-H 340 Education & American Culture (P: English Comp & Soph. Standing) (IF) 3

Teacher Education Program 33 credits

Admission to TEP is required for remaining courses.

These courses must be taken before student teaching.
EDUC-A 308 Legal & Ethical Issues in Education 3
EDUC-K 306 Teaching Students with Special Needs: Secondary Classrooms 3

Courses must be taken in prescribed blocks. Successful completion (C or higher) of all courses in each block is a prerequisite for the next block and student teaching.

Block I and Block II must be completed in sequence, without interruption, from one semester to the next. Students may add an additional semester(s) between the completion of Block II and Student Teaching (Block III).

BLOCK I 8 credits
EDUC-M 346 Exploring School Science Teaching 3
EDUC-M 303 Field Experience I 2
EDUC-M 469 Content Area Literacy 3

BLOCK II 6 credits
EDUC-M 446 Methods of Teaching Jr/Middle/Sr High School Science 3
EDUC-M 403 Field Experience II 2
EDUC-S 303 Classroom Management/Sec. 1

BLOCK III (Student Teaching) 13 credits
EDUC-M 420 Professional Development Seminar 1
EDUC-M 480 Student Teaching (EEE) 12

III. PHYSICS CONTENT
54 credits/2.5 GPA
(C or higher grade is required in each course listed below.)
(Check with the department regarding when courses will be offered.)

Required Science & Mathematics 26 credits

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOL-E/L 111</td>
<td>Intro to Biol: Evolution &amp; Diversity (N&amp;M) OR</td>
<td>3</td>
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<tr>
<td>BIOL-E/L 112</td>
<td>Intro to Biol: Biological Mechanisms (P: HS or college chemistry) (N&amp;M)</td>
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<tr>
<td>CHEM-C/S 117</td>
<td>Principles of Chemistry &amp; Biochemistry I</td>
<td>5</td>
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<tr>
<td>CHEM-C/S 118</td>
<td>Principles of Chemistry &amp; Biochemistry II</td>
<td></td>
</tr>
<tr>
<td>GEOL-G/S 103</td>
<td>Earth Sci: Materials &amp; Processes (N&amp;M) OR</td>
<td>3</td>
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<tr>
<td>GEOL-G 104</td>
<td>Evolution of the Earth (N&amp;M) OR</td>
<td></td>
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<tr>
<td>GEOL-G 105</td>
<td>Earth: Our Habitable Planet (N&amp;M)</td>
<td></td>
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<tr>
<td>HPSC-X 102</td>
<td>Revolutions in Science: Plato-NATO (S&amp;H) OR</td>
<td>3</td>
</tr>
<tr>
<td>MATH-M 211</td>
<td>Calculus I (N&amp;M) (MM)</td>
<td>4</td>
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<tr>
<td>MATH-M/S 212</td>
<td>Calculus II (P: M/S 211) (N&amp;M)</td>
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<tr>
<td>MATH-M/S 311</td>
<td>Calculus III (P: M/S 212)</td>
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<tr>
<td>MATH-M/S 343</td>
<td>Intro to Differential Equations I (P: M 212)</td>
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Physics Major 25 credits

<table>
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<tr>
<th>Course Code</th>
<th>Course Title</th>
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<tbody>
<tr>
<td>PHYS-P 201</td>
<td>General Physics I (P: MATH-M 26 or HS equiv.) (N&amp;M) AND</td>
<td>5</td>
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<tr>
<td>PHYS-P 202</td>
<td>General Physics II (P: P 201 or HS equiv.) (N&amp;M) OR</td>
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<tr>
<td>PHYS-P 221</td>
<td>Physics I (P: MATH-M 211) AND</td>
<td></td>
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<tr>
<td>PHYS-P 222</td>
<td>Physics II (P: MATH-M 212, P: P 221)</td>
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<tr>
<td>PHYS-P 301</td>
<td>Physics III (P: P 222 or P 201 with consent of instructor)</td>
<td>3</td>
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Complete 12 credits from the following:

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Notes</th>
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<tbody>
<tr>
<td>PHYS-P 309</td>
<td>Modern Physics Laboratory (P/C: P 301)</td>
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<tr>
<td>PHYS-P 310</td>
<td>Environmental Physics (P: P 201 or P 221 &amp; MATH-M 211)</td>
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<tr>
<td>PHYS-P 314</td>
<td>Intro to Medical Physics (P: P 202)</td>
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<tr>
<td>PHYS-P 317</td>
<td>Signals and Information Processing in Living Systems (P: P 201 &amp; P 222 &amp; P 221 &amp; MATH-M 211)</td>
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<tr>
<td>PHYS-P 321</td>
<td>Techniques in Theoretical Physics (P/C: P 301)</td>
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</tr>
<tr>
<td>PHYS-P 331</td>
<td>Theory of Electricity and Magnetism I (P: P 202 or P 222 &amp; MATH-M 312 or PHYS-P 321) (Fall)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS-P 332</td>
<td>Theory of Electricity &amp; Magnetism II (P: P 331) (Spring) OR</td>
<td></td>
</tr>
<tr>
<td>PHYS-P 460</td>
<td>Modern Optics (P: P 331)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS-P 340</td>
<td>Thermodynamics and Statistical Mechanics (P: P 222 &amp; MATH-M 311 concurrently)</td>
<td>3</td>
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<tr>
<td>PHYS-P 350</td>
<td>Applied Physics Instrumentation Lab (P: P 221 &amp; P 222 or P 201 &amp; P 202 with permission of the instructor)</td>
<td>3</td>
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<tr>
<td>PHYS-P 360</td>
<td>Physical Optics (P: P 331)</td>
<td>3</td>
</tr>
<tr>
<td>PHYS-P 400</td>
<td>Analog and Digital Electronics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS-P 401</td>
<td>Analog Electronics</td>
<td>3</td>
</tr>
<tr>
<td>PHYS-S 405</td>
<td>Readings in Physics (P: Consent of instructor)</td>
<td>1-3</td>
</tr>
<tr>
<td>PHYS-S 406</td>
<td>Research and Internship Projects (P: Consent of instructor or supervisor)</td>
<td>1-6</td>
</tr>
<tr>
<td>PHYS-S 407</td>
<td>Applied Physics Internship (P: Consent of instructor or supervisor)</td>
<td>1</td>
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<tr>
<td>PHYS-P 408</td>
<td>Current Research in Physics (For senior-level students) (Spring)</td>
<td>1</td>
</tr>
</tbody>
</table>

IV. ELECTIVES (To total 124 credits)