# B.S. EDUCATION: SCIENCE (CHEMISTRY)

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 four-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 120 credits are required for graduation.

**PREREQUISITES FOR ADMISSION TO THE TEP**

Competitive enrollment. Meeting minimum requirements does not guarantee enrollment in authorized courses.

1. Complete at least 1 course for at least 3 credits.

   

<table>
<thead>
<tr>
<th>Course</th>
<th>Prerequisites</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>EDUC-G 203</td>
<td>Communication for Youth Serving Professionals (S&amp;H)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC-M 300</td>
<td>Teaching in a Pluralistic Society (P: English Comp.) (D)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC-P 312</td>
<td>Learning Theory into Practice (P: Soph. status)</td>
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<td>EDUC-P 313</td>
<td>Adolescents in a Learning Community (P: Soph. status)</td>
<td>3</td>
</tr>
<tr>
<td>EDUC-W 200</td>
<td>Using Computers in Education (IF)</td>
<td>3</td>
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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 minus (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.

   

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5. Apply to TEP by October 1 to enroll in Spring term Block I and EDUC-K 306.

6. Access TEP Application at: [https://education.indiana.edu/](https://education.indiana.edu/)

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## I. IUB & SCHOOL OF EDUCATION

### GENERAL EDUCATION REQUIREMENTS

[https://gened.indiana.edu/approved-courses/index.html](https://gened.indiana.edu/approved-courses/index.html)

Careful selection & completion of courses with a grade of "C" or higher may allow double counting within General Education, Professional Education &/or Content Field. If you earn a grade lower than a C, please consult with an academic advisor.

### English Composition (EC) (Select one) 0-3 credits

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<tr>
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<tbody>
<tr>
<td>CMLT-C 110</td>
<td>Writing the World</td>
</tr>
<tr>
<td>ENG-W 131</td>
<td>Reading, Writing &amp; Inquiry / OR</td>
</tr>
<tr>
<td>ENG-W 131EX</td>
<td>Elementary Composition-Exempt</td>
</tr>
<tr>
<td>ENG-W 170</td>
<td>Intro to Argumentative Writing-Projects in Reading &amp; Writing</td>
</tr>
</tbody>
</table>

### Intensive Writing Course (IW) (Select one) 3 credits

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<tr>
<td>EDUC-H 205</td>
<td>Intro to Educational Thought (P: English Comp.) (S&amp;H)</td>
</tr>
<tr>
<td>EDUC-H 340</td>
<td>Education &amp; American Culture (P: Soph. status)</td>
</tr>
</tbody>
</table>

### Mathematical Modeling (MM) 3-4 credits

Complete at least 1 course for at least 3 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) 5+ credits

Complete ONE of the following options.

- **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 (\(^\ast\) ) course.

  - ______________________

- **Option II:** Complete a 5 credit science course.

  - ______________________

(The class taken to fulfill the Mathematical Modeling requirement cannot be counted towards the 5+ credits needed to fulfill the N&M requirement.)

### World Languages (WL)/World Cultures (WC) 6 credits

Complete ONE of the following options.

- **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.

  - ______________________

- **Option II:** World Culture (WC): Complete at least 2 courses for a total of at least 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.

  - ______________________

### Information Fluency (IF) 3 credits

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### Diversity in the U. S. (D) 3 credits

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### Enriching Educational Experiences (EEE) 12 credits

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<tr>
<td>EDUC-M 480</td>
<td>Student Teaching: Secondary (12 weeks)</td>
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</table>
Content Part I: Science Overview

Educators

Students may not enroll in other classes while completing student teaching.

EDUC-G 203 Communication for Youth Serving 3
EDUC-M 300 Teaching in a Pluralistic Society 3
EDUC-P 312 Learning Theory into Practice (P: Soph. status) 3
EDUC-P 313 Adolescents in a Learning Community (P: Soph. status) 3
EDUC-W 200 Using Computers in Education (IF) 3
EDUC-A 308 Legal & Ethical Issues for Teachers (P: Soph. status) 3
EDUC-H 205 Intro to Educational Thought (P: English comp (S&H)) (IW) OR (S&H) (IW) 3
EDUC-H 340 Education & American Culture (P: Soph. status) (IW) 3

Admission to the Teacher Education Program (TEP) is required in order to enroll in the following courses:

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 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 (Spring only) 8 credits

EDUC-M 403 Field Experience I 2
EDUC-M 469 Content Area Literacy 3

Block II (Fall only) 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 1

Block III (Student Teaching) 13 credits

Students may not enroll in other classes while completing student teaching. Exception: EDUC-M 202 Job Search Strategies for Educators

EDUC-M 420 Student Teaching Seminar 1
EDUC-M 480 Student Teaching in the Secondary School (12 weeks) (EEE) 12

III. CHEMISTRY CONTENT

A grade of C minus (C-) or higher is required in each course. Check with the department regarding when courses will be offered.

Content Part I: Science Overview 20 credits

BIOL-L 111 Foundations of Biology: Diversity, Evolution & Ecology (N&M) OR 4
BIOL-L 112 Foundations of Biology: Biological Mechanisms (P: HS/College Chem) (N&M) 4
EAS-E 103 Earth Science: Mat. & Processes (N&M) OR 3
EAS-E 104 Evolution of the Earth (N&M) OR 3
EAS-E 105 Earth: Our Habitable Planet (N&M) 3
HPSC-X 102 Science Rev.: Plato to NATO (S&H) (WC) 3
PHYS-P 201 General Physics I (P: MATH-M 026 or HS equiv.) (N&M) AND (D) 5
PHYS-P 202 Gen. Phys. II (P: PHYS-P 201 or HS equiv.) (N&M) OR 5
PHYS-P 221 Physics I (C: MATH-M/211) AND 5
PHYS-P 222 Physics II (C: MATH-M/212, P: PHYS-P 221) 5

Content Part II: Chemistry Major 16 credits

CHEM-C 117 Principles of Chem & Biochem I (P: CHEM-C 101-C 121 or CHEM-C 103, or chemistry and math placement examinations and consent of department) (N&M) AND 3
CHEM-C 127 Principles of Chem & Biochem I Lab OR 2
CHEM-S 117 Principles of Chem & Biochem I-Honors 5
CHEM-C/S 341 Organic Chem I Lectures (P: CHEM-C 117 or CHEM-C 243) 3
CHEM-C/S 342 Organic Chem II Lectures (P: CHEM-C/S 341) 3
CHEM-C/S 343 Organic Chem I Lab (P: CHEM-C 127 and CHEM-C 341. R: CHEM-C42 or CHEM-S 342) 3
CHEM-C 360 Introductory Physical Chemistry (P: CHEM-C 117 or CHEM-S 117, and MATH-M 119 and PHYS-P 201 or equiv. R: CHEM-N 330) OR 3
CHEM-C 361 Physical Chemistry of Bulk Matter (P: CHEM-C 117 or CHEM-S 117, MATH-M 212, PHYS-P 202 or PHYS-P 222) OR 2
CHEM-C 362 Physical Chemistry of Molecules (P: CHEM-C 117 or CHEM-S 117, MATH-M 212, PHYS-P 202 or PHYS-P 222. R: CHEM-N 330.) 3

Content Part III: Chemistry Electives 14 credits

CHEM-N 330 Intermediate Inorganic Chem (P: CHEM-C/S 342 or CHEM-R 340; and CHEM-C/S 343) 5
CHEM-C 317 Equilibria and Electrochemistry (P/C: CHEM-C/S 341 & MATH-M 211) OR 2
CHEM-C 318 Spectrochemistry and Separations (P/C: CHEM-C/S 341 & MATH-M 211) 2
CHEM-A 315 Chemical Measurements Lab (P: CHEM-A 314 or CHEM-C 317-C 318) OR 2
CHEM-A 316 Bioanalytical Chem Lab (P: CHEM-A 318 or CHEM-C 317-C 318 or P/C: CHEM-A 314) 2
CHEM-C 321 Advanced and Nanoscale Materials (P or C: CHEM-C 360 or CHEM-C 361) 3
CHEM-C 344 Organic Chem II Lab (P CHEM-C/S 342 & CHEM-C/S 343) 2
CHEM-P 364 Basic Measurements in Physical Chemistry (P: CHEM-C 361) 2
CHEM-P 464 Advanced Measurements in Physical Chemistry (P: CHEM-P 364, P/C: CHEM-C 362) 2
CHEM-C 416 Surface Analysis and Surface Chemistry (P: CHEM-C 360 or CHEM-C 361 or perm.) 3
CHEM-C 430 Inorganic Chemistry (P: CHEM-C 106 or CHEM-N 330, R: CHEM-C 362) 3
CHEM-C 432 Spectroscopic Methods in Inorganic Chemistry (P: CHEM-C 360 or CHEM-C 361, and CHEM-C 430) 3
CHEM-C 437 Inorganic Chemistry Lab (P: CHEM-N 330) 2
CHEM-C 443 Organic Spectroscopy (P: CHEM-C/S 342 and CHEM-C/S 343) 5
CHEM-C 446 Organic Chemistry III (P: CHEM-C/S 342) 3
CHEM-C 460 Nuclear Chemistry (P: CHEM-C 360 or CHEM-C 361) 3
CHEM-C 481 Physical Biochemistry (P: CHEM-C 361 & CHEM-C 484) 3
CHEM-C 483 Biological Chem (P: CHEM-C/S 342 or R 340) OR 3
CHEM-C 484 Biomolecules & Catabolism (P: CHEM-C/S 342) 3
CHEM-C 485 Biosynthetic Pathways and Control of Metabolism (P: CHEM-C 484) 3
CHEM-C 486 Gene Expression and Physiology (P: CHEM-C 484 or permission of instructor) 3
CHEM-B 487 Biochemistry Laboratory (P: CHEM-C/S 343 and CHEM-C 484. P/C: CHEM-C 485) 2
CHEM-B 488 Advanced Biochemistry Laboratory (P: CHEM-B 487. P/C: CHEM-C 485) 2

IV. ELECTIVES (To total 120 credits)