## Requirements

### Chemistry Core Requirements

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 201</td>
<td>GENERAL CHEMISTRY I (3 credit hour lecture, 2 credit hour lab)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 202</td>
<td>GENERAL CHEMISTRY II (3 credit hour lecture, 2 credit hour lab)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>ORGANIC CHEMISTRY I (3 credit hour lecture, 2 credit hour lab)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 212</td>
<td>ORGANIC CHEMISTRY II (3 credit hour lecture, 2 credit hour lab)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 237</td>
<td>QUANTITATIVE ENVIRONMENTAL ANALYSIS (3 credit hour lecture, 2 credit hour lab)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Introductory Physical Chemistry Requirement. Select one of the following courses for 3 credit hours

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>BCHM 320</td>
<td>PHYSICAL CHEMISTRY FOR BIOSCIENCE (3 credit hour lecture)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Advanced Physical Chemistry Requirement. Select one of the following courses for 3 credit hours.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 321</td>
<td>PHYSICAL CHEMISTRY: THERMODYNAMICS (3 credit hour lecture. Optional 2 credit hour lab may also be taken in partial fulfillment of Advanced Lab Elective)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 322</td>
<td>PHYSICAL CHEMISTRY: QUANTUM MECHANICS (3 credit hour lecture. Optional 2 credit hour lab may also be taken in partial fulfillment of Advanced Lab Elective)</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 323</td>
<td>ATOMIC AND MOLECULAR SPECTROSCOPY (3 credit hour lecture. Optional 2 credit hour lab may be taken in partial fulfillment of Advanced Lab Elective)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Inorganic Chemistry Requirement. Select one of the following courses for 3 credit hours.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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</tr>
</thead>
<tbody>
<tr>
<td>CHEM 341</td>
<td>INORGANIC CHEMISTRY (3 credit hour lecture)</td>
<td>3</td>
</tr>
<tr>
<td>BCHM 344</td>
<td>BIOINORGANIC CHEMISTRY (3 credit hour lecture)</td>
<td>3</td>
</tr>
</tbody>
</table>

### Advanced Chemistry Laboratory Elective. Select one of the following options for 4-5 credit hours.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 313</td>
<td>ADVANCED ORGANIC CHEMISTRY LAB (3 credit hour lecture, 2 credit hour lab)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 337</td>
<td>INSTRUMENTAL ANALYSIS (3 credit hour lecture, 2 credit hour lab)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 347</td>
<td>ADVANCED INORGANIC CHEMISTRY LAB (3 credit hour lecture, 2 credit hour lab)</td>
<td>4</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Thermodynamics lab (2 credit hours) AND either CHEM 322 Quantum Mechanics lab (2 credit hours) or CHEM 323 Spectroscopy lab (2 credit hours)</td>
<td>5</td>
</tr>
<tr>
<td>CHEM 321</td>
<td>Thermodynamics Lab (2 credit hours) OR CHEM 322 Quantum Mechanics Lab (2 credit hours) OR CHEM 323 Spectroscopy lab (2 credit hours), AND one additional CHEM 3xx lecture elective (3 credit hours)</td>
<td>5</td>
</tr>
</tbody>
</table>

### Additional Chemistry Elective

Choose any 300-level CHEM or BCHM elective for at least 3 credit hours, which has not been used to satisfy other BA Chem requirements. \(^1\)

### Chemistry seminar and exit assessment

Select one of the following for 1 credit hour. Seminar includes a comprehensive exit assessment and should be taken in the last or second-to-last semester.

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 393</td>
<td>CHEMISTRY SEMINAR</td>
</tr>
<tr>
<td>BCHM 393</td>
<td>BIOCHEMISTRY SEMINAR</td>
</tr>
</tbody>
</table>

### Required Supporting Sequence

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 231</td>
<td>CALCULUS I (5 credit hours)</td>
</tr>
<tr>
<td>MATH 232</td>
<td>CALCULUS II (5 credit hours)</td>
</tr>
<tr>
<td>PHYS 201</td>
<td>INTRODUCTION TO NON-CALCULUS BASED PHYSICS I (4 credit hours)</td>
</tr>
<tr>
<td>PHYS 202</td>
<td>INTRO TO NON-CALCULUS PHYSICS II (4 credit hours)</td>
</tr>
</tbody>
</table>
PHYS 233  CALCULUS-BASED PHYSICS I DISCUSSION (1 credit hours)
PHYS 234  CALCULUS-BASED PHYSICS II DISCUSSION (1 credit hours)

General Education Requirements including University
Writing Requirement
See College of Arts & Sciences General Education requirements below, as well as B.A. Chemistry major footnotes 2-5

Minor or free elective courses to total 120

Total Credit Hours 120-129

1 May be lecture only or lecture plus laboratory. With permission of the chemistry program chair, the chemistry elective can be substituted for 3 credit hours of approved CHEM 392 Chemistry Research. To apply to the major, chemistry research should be a substantive laboratory or computational project, performed under the direction of a faculty sponsor, resulting in a report, paper, poster or presentation, and completed with a minimum acceptable grade of C. Each credit hour of CHEM 392 requires the equivalent of 3 hours of active research per week over a 15 week semester.

2 B.A. Chemistry majors satisfy the general education mathematics requirement through the major (Math 231)

3 B.A. Chemistry majors satisfy the general education physical science and laboratory requirements through the major, for example via CHEM 201 with laboratory, or any higher CHEM course with laboratory

4 B.A. Chemistry majors do not automatically satisfy the general education biological sciences requirement through the major. BA Chemistry majors should select 3 credits of biology at the 100 level or higher to fulfill this requirement. However, if BCHM 355 is selected to complete the additional chemistry elective, it also fulfills the biology general education requirement.

5 B.A. Chemistry majors are highly encouraged to fill one of their social science or humanities general education electives with a course that simultaneously satisfies the nonwestern attribute. Additionally, B.A. Chemistry majors intending to pursue graduate programs in pharmacy should fulfill one social science requirement with ECON 101 or ECON 102, and should fulfill one humanities requirement with SPCH 101.

General Education Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP 101</td>
<td>FIRST YEAR SEMINAR 1</td>
<td>3</td>
</tr>
<tr>
<td>ACP 110</td>
<td>PRIMARY TEXTS</td>
<td>3</td>
</tr>
<tr>
<td>ACP 250</td>
<td>GROUNDS FOR CHANGE</td>
<td>3</td>
</tr>
<tr>
<td>ENG 101</td>
<td>COMPOSITION I: CRITICAL READING &amp; WRITING</td>
<td>3</td>
</tr>
<tr>
<td>ENG 102</td>
<td>COMPOSITION II: INTRODUCTION TO ACADEMIC RESEARCH</td>
<td>3</td>
</tr>
</tbody>
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<tr>
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<th>Credit Hours</th>
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<tr>
<td>ACP 101</td>
<td>FIRST YEAR SEMINAR 1</td>
<td>3</td>
</tr>
<tr>
<td>ACP 110</td>
<td>PRIMARY TEXTS</td>
<td>3</td>
</tr>
<tr>
<td>ACP 250</td>
<td>GROUNDS FOR CHANGE</td>
<td>3</td>
</tr>
</tbody>
</table>

Mathematics

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>MATH 110</td>
<td>QUANTITATIVE LITERACY (or above) 3</td>
<td>3</td>
</tr>
</tbody>
</table>

Non-Western requirement

Non-Western course (can be used for Humanities or Social Sciences general education requirements)

RU mission-related course

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>LIBS 201</td>
<td>WRITING SOCIAL JUSTICE</td>
<td>3</td>
</tr>
</tbody>
</table>

Science

One biological science and one physical science required (at least one must be a four-hour lab (not applicable for science majors)

Social Sciences

Select 9 credits from the following subject areas: African-American Studies, Anthropology, Economics, History, Journalism, Philosophy, Political Science, Psychology, Sociology and Women’s and Gender Studies

<table>
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<tr>
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</thead>
</table>

Your degree map is a general guide suggesting courses to complete each term on the academic pathway to your degree. It is based on the most current scheduling information from your academic program. Your program’s degree map is reviewed annually and updated as schedules change (although you retain the same course requirements as long as you are continuously enrolled in your degree program).

Always work closely with your academic advisor to understand curriculum requirements and scheduling, as each student’s academic plan can look slightly different.

Year 1

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ACP 101</td>
<td>3 ACP 110</td>
<td>3</td>
</tr>
<tr>
<td>ENG 101</td>
<td>3 ENG 102</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 201</td>
<td>5 CHEM 202</td>
<td>5</td>
</tr>
<tr>
<td>Year 2</td>
<td>Fall Credit Hours</td>
<td>Spring Credit Hours</td>
</tr>
<tr>
<td>--------</td>
<td>------------------</td>
<td>---------------------</td>
</tr>
<tr>
<td>MATH 121</td>
<td>3</td>
<td>MATH 122</td>
</tr>
<tr>
<td>CHEM 211</td>
<td>5</td>
<td>CHEM 212</td>
</tr>
<tr>
<td>MATH 231</td>
<td>5</td>
<td>MATH 232</td>
</tr>
<tr>
<td>Humanities #1</td>
<td>3</td>
<td>ACP 250 or LIBS 201</td>
</tr>
<tr>
<td>Social Science #1</td>
<td>3</td>
<td>Humanities #2</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>14</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 3</th>
<th>Fall Credit Hours</th>
<th>Spring Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 237 or 341</td>
<td>3</td>
<td>CHEM 3XX</td>
</tr>
<tr>
<td>PHYS 201</td>
<td>4</td>
<td>PHYS 202</td>
</tr>
<tr>
<td>PHYS 233</td>
<td>1</td>
<td>PHYS 234</td>
</tr>
<tr>
<td>Social Science #2</td>
<td>3</td>
<td>Social Science #3</td>
</tr>
<tr>
<td>Non-Western Studies Course</td>
<td>3</td>
<td>Humanities #3</td>
</tr>
<tr>
<td>Total</td>
<td>14</td>
<td>16</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Year 4</th>
<th>Fall Credit Hours</th>
<th>Spring Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 321</td>
<td>5</td>
<td>CHEM 3XX</td>
</tr>
<tr>
<td>CHEM 341 or 237</td>
<td>5</td>
<td>CHEM 322</td>
</tr>
<tr>
<td>LIBS 201 or ACP 250</td>
<td>3</td>
<td>CHEM 393</td>
</tr>
<tr>
<td>General Elective</td>
<td>3</td>
<td>General Elective</td>
</tr>
<tr>
<td>Total</td>
<td>16</td>
<td>14</td>
</tr>
</tbody>
</table>

Total Credit Hours 120

1. Or course towards an optional Minor.
2. Any course at the 200 Level within the discipline
3. Any course at the 300 Level within the discipline.
4. This requirement can be fulfilled by other requirements.
5. One Natural Science course must have a lab.