# BS in Chemistry

**Program Codes:**
20FT0335BS

## Degree Requirements

To earn a Bachelor of Science in Chemistry degree from UIC, students need to complete university, college, and department degree requirements. The Department of Chemistry degree requirements are outlined below. Students should consult the College of Liberal Arts and Sciences section for additional degree requirements and college academic policies.

### Summary of Requirements

<table>
<thead>
<tr>
<th>Requirements for the Curriculum</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Hours</strong></td>
<td>120</td>
</tr>
</tbody>
</table>

## Requirements for the Curriculum

The requirements for the curriculum include the courses necessary to complete the General Education and Writing-in-the-Discipline requirements described in the College of Liberal Arts and Sciences section.

### Code | Title | Hours
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#### Required Courses

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 160</td>
<td>Academic Writing I: Writing in Academic and Public Contexts</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 161</td>
<td>Academic Writing II: Writing for Inquiry and Research</td>
<td>3</td>
</tr>
</tbody>
</table>

Foreign language (the equivalent of two years of a single language at the college level) | 0-16 |
Exploring World Cultures course | 3     |
Understanding the Creative Arts course | 3     |
Understanding the Individual and Society course | 3     |
Understanding the Past course | 3     |
Understanding U.S. Society course | 3     |
**MATH 180** | Calculus I b,c | 4     |
**MATH 181** | Calculus II c | 4     |
**MATH 210** | Calculus III c | 3     |
**PHYS 141** | General Physics I (Mechanics) c | 4     |
**PHYS 142** | General Physics II (Electricity and Magnetism) c | 4     |

Select one of the following sequences in general and analytical chemistry: 10-14

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 116</td>
<td>Honors and Majors General and Analytical Chemistry I c,d</td>
<td></td>
</tr>
<tr>
<td>CHEM 118</td>
<td>Honors and Majors General and Analytical Chemistry II c,d</td>
<td></td>
</tr>
</tbody>
</table>

**OR**

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 122</td>
<td>Matter and Energy e</td>
<td></td>
</tr>
<tr>
<td>CHEM 123</td>
<td>Foundations of Chemical Inquiry I c,e</td>
<td></td>
</tr>
<tr>
<td>CHEM 124</td>
<td>Chemical Dynamics e</td>
<td></td>
</tr>
<tr>
<td>CHEM 125</td>
<td>Foundations of Chemical Inquiry II c,e</td>
<td></td>
</tr>
<tr>
<td>CHEM 222</td>
<td>Analytical Chemistry</td>
<td></td>
</tr>
</tbody>
</table>

Select one of the following advanced laboratory courses: 2

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 414</td>
<td>Advanced Inorganic Chemistry</td>
<td>2</td>
</tr>
<tr>
<td>CHEM 432</td>
<td>Advanced Organic Chemistry</td>
<td></td>
</tr>
<tr>
<td>CHEM 444</td>
<td>Spectroscopy in Chemistry and Biochemistry</td>
<td>3</td>
</tr>
</tbody>
</table>

Select one of the following advanced laboratory courses: 3

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHEM 415</td>
<td>Inorganic Chemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td>CHEM 455</td>
<td>Biochemistry Laboratory</td>
<td></td>
</tr>
<tr>
<td>CHEM 499</td>
<td>Supervised Research</td>
<td></td>
</tr>
</tbody>
</table>

Electives at the 300 level or above in the natural sciences or mathematics, as approved by the departmental advisor: 7-27

**Electives** | 7-27

**Total Hours** | 120

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a Students should consult the General Education section of the catalog for a list of approved courses in this category.
b MATH 180 fulfills the LAS Quantitative Reasoning requirement.
c This course is approved for the Analyzing the Natural World General Education category.
d CHEM 116 and CHEM 118 are recommended.
e Each of the following pairs will be considered one course in meeting the General Education requirements: CHEM 122/CHEM 123; CHEM 124/CHEM 125.
f CHEM 343 fulfills the LAS Writing-in-the-Discipline requirement.

## Recommended Plan of Study

Chemistry is a highly structured discipline. Because most advanced courses require physical chemistry as a prerequisite, which in turn requires prerequisites of general chemistry, physics, and mathematics, careful course planning is essential. It is best to start with mathematics and general chemistry in the first year, followed by organic chemistry and physics in the second year, and physical chemistry in the third year. Consult the Biochemistry section for more information on the BS in Biochemistry.

### Note:

Students who are not ready to start with MATH 180 and CHEM 122/123 should expect to take summer session courses and/or take longer than four years to graduate.

### Course | Title                                                   | Hours
---|---------------------------------------------------------|-------|
**First Year**
First Year
**Fall Semester**
ENGL 160 Academic Writing I: Writing in Academic and Public Contexts | 3     |
MATH 180 Calculus I | 4     |
Select one of the following: | 5     |

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BS in Chemistry

CHEM 116  
Honors and Majors General and Analytical Chemistry  
CHEM 122  
Matter and Energy  
& CHEM 123  
and Foundations of Chemical Inquiry I

General Education Requirement course  3

Spring Semester
ENGL 161  
Academic Writing II: Writing for Inquiry and Research  3
MATH 181  
Calculus II  4
Select one of the following:  
CHEM 118  Honors and Majors General and Analytical Chemistry  3
CHEM 124  Chemical Dynamics  
& CHEM 125  and Foundations of Chemical Inquiry II  
CHEM 232  Structure and Function

General Education Requirement course  3-5

Second Year
Fall Semester
Select one of the following:  
CHEM 124  Chemical Dynamics  
& CHEM 125  and Foundations of Chemical Inquiry II  
CHEM 232  Structure and Function  
CHEM 233  Synthesis Techniques Laboratory  2
PHYS 141  General Physics I (Mechanics)  4
General Education Requirement course  4-6

Hours  13-17

Spring Semester
CHEM 222  Analytical Chemistry c  4
CHEM 234  Chemical Synthesis  3
CHEM 235  Advanced Synthesis Techniques  2
PHYS 142  General Physics II (Electricity and Magnetism)  4
Foreign Language  4

Hours  17

Third Year
Fall Semester
CHEM 314  Inorganic Chemistry  4
MATH 210  Calculus III c  3
Foreign Language  4
General Education Requirement course  4

Hours  15

Spring Semester
CHEM 346  Physical Chemistry II b  3
CHEM 452  Biochemistry I  4
General Education Requirement course  3
Foreign Language  4
Electives  3

Hours  17

Fourth Year
Fall Semester
CHEM 343  Physical Chemistry Laboratory d  3
CHEM 402  Chemical Information Systems  2
CHEM 415  Inorganic Chemistry Laboratory  
or CHEM 455  or CHEM 499  or Biochemistry Laboratory  
or Supervised Research
Foreign Language  4

Hours  12

Spring Semester
CHEM 421  Instrumental Analysis  3
CHEM 414  Advanced Inorganic Chemistry  
or CHEM 432  or Advanced Organic Chemistry  
or CHEM 444  or Spectroscopy in Chemistry and Biochemistry

Electives at the 300 level in the natural sciences or mathematics, as approved by the departmental advisor  3
Electives  4
General Education Requirement course  3

Total Hours  120

a. CHEM 116 and CHEM 342 are offered fall semester only.
b. CHEM 118 and CHEM 346 are offered spring semester only.
c. Students who take CHEM 116 and CHEM 118 to fulfill the general chemistry requirement do not need to take CHEM 222.
d. CHEM 343 fulfills the LAS Writing-in-the-Discipline requirement.