Biochemistry

An interdepartmental B.S. biochemistry major is offered in the College of Arts and Sciences. The B.S. in biochemistry degree is managed by an interdepartmental committee composed of biochemists, bioorganic chemists, and molecular/cellular biologists. The committee administers the degree, monitors the academic program, provides research possibilities, and advises student majors. The director of the program is currently Linda J. Lowe-Krentz. Faculty in both Biological Sciences and Chemistry serve as advisors.

**BACHELOR OF SCIENCE DEGREE IN BIOCHEMISTRY**

**College and University Requirements**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>ENGL 001</td>
<td>Critical Reading and Composition</td>
<td>3</td>
</tr>
<tr>
<td>ENGL 002</td>
<td>Research and Argument</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>First Year Seminar</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Non-science Electives</td>
<td>1-16</td>
</tr>
</tbody>
</table>

**Collateral Science Requirements**

Select one of the following options: 9-10

**Option A**

- PHY 010: General Physics I
- PHY 012: and Introductory Physics Laboratory I
- PHY 013: General Physics II
- PHY 022: and Introductory Physics Laboratory II

**Option B**

- PHY 011: Introductory Physics I
- PHY 012: and Introductory Physics Laboratory I
- PHY 021: Introductory Physics II
- PHY 022: and Introductory Physics Laboratory II

Select one of the following options: 10-12

**Option A**

- MATH 051: Survey of Calculus I
- MATH 052: Survey of Calculus II
- MATH 043: Survey of Linear Algebra

**Option B**

- MATH 021: Calculus I
- MATH 022: Calculus II
- MATH 023: Calculus III

One statistics course 2

- CSE 012: Survey of Computer Science 3
- ENGR 010: Applied Engineering Computer Methods

**Required Chemistry Courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHM 040</td>
<td>Honors General Chemistry I</td>
<td>3</td>
</tr>
<tr>
<td>CHM 041</td>
<td>Honors General Chemistry II</td>
<td>3</td>
</tr>
<tr>
<td>CHM 042</td>
<td>Honors General Chemistry III</td>
<td>3</td>
</tr>
<tr>
<td>CHM 110</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHM 111</td>
<td>Organic Chemistry Laboratory I</td>
<td>4</td>
</tr>
<tr>
<td>CHM 112</td>
<td>Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHM 113</td>
<td>Organic Chemistry Laboratory II</td>
<td>4</td>
</tr>
<tr>
<td>CHM 194</td>
<td>Physical Chemistry for Biological Sciences</td>
<td>3</td>
</tr>
<tr>
<td>CHM 307</td>
<td>Advanced Inorganic Chemistry</td>
<td>3</td>
</tr>
<tr>
<td>CHM 332</td>
<td>Analytical Chemistry</td>
<td>3</td>
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</table>

**Required Biological Science courses**

<table>
<thead>
<tr>
<th>Course Code</th>
<th>Course Title</th>
<th>Credits</th>
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</thead>
<tbody>
<tr>
<td>BIOS 041</td>
<td>Biology Core I: Cellular and Molecular and Biology Core I: Cellular and Molecular Lab</td>
<td>4</td>
</tr>
<tr>
<td>or BIOS 043</td>
<td>Phage Hunting Laboratory</td>
<td></td>
</tr>
<tr>
<td>BIOS 115</td>
<td>Biology Core II: Genetics</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 371</td>
<td>Elements of Biochemistry I</td>
<td>3</td>
</tr>
<tr>
<td>BIOS 372</td>
<td>Elements of Biochemistry II</td>
<td>3</td>
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<tr>
<td>BIOS 377</td>
<td>Biochemistry Laboratory</td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Advanced Laboratory</td>
<td>4</td>
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</tbody>
</table>

Electives in Biological Sciences (3 hours minimum) 4

Technical Writing (2 hours minimum) 2

**Total Credits** 100-103

1. 16 hours to be broadly distributed in fields of thought other than natural science and mathematics, including at least 8 hours each in humanities and social sciences.
2. Mathematics option and statistics course must be at least 12 hours combined.
3. The CHM 030 / CHM 031 sequence may be substituted.
4. The three credit hours of biological sciences electives are chosen with the approval of the adviser.

**MODEL PATTERN ROSTER**

<table>
<thead>
<tr>
<th>Year</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>First Year</td>
<td>21</td>
</tr>
<tr>
<td>Second Year</td>
<td>18</td>
</tr>
<tr>
<td>Third Year</td>
<td>20</td>
</tr>
<tr>
<td>Fourth Year</td>
<td>20</td>
</tr>
</tbody>
</table>

Technical Writing

**Credits**

1. CHM 040
2. CHM 041
3. BIOS 041 & BIOS 042
4. Dept 90 College Seminar
5. ENGL 001
6. ENGL 002
7. Select one of the following:
   - MATH 051 & MATH 052
   - MATH 021 & MATH 022
8. Select one of the following:
   - PHY 010 & PHY 012
   - PHY 011 & PHY 012

**Credits**

1. CHM 100 & CHM 111
2. CHM 112 & CHM 113
3. MATH 043 or 023
4. BIOS 115
5. BIOS 130
6. Select one of the following:
   - PHY 013 & PHY 022
   - PHY 021 & PHY 022

**Credits**

1. CHM 194
2. CHM 332
3. BIOS 371
4. BIOS 372
5. BIOS 377
6. CSE 012
7. Technical Writing

**Credits**

1. CHM 100 & CHM 111
2. CHM 112 & CHM 113
3. MATH 043 or 023
4. BIOS 115
5. BIOS 130
6. Select one of the following:
   - PHY 013 & PHY 022
   - PHY 021 & PHY 022

**Credits**

1. CHM 194
2. CHM 332
3. BIOS 371
4. BIOS 372
5. BIOS 377
6. CSE 012
7. Technical Writing

**Credits**

1. CHM 194
2. CHM 332
3. BIOS 371
4. BIOS 372
5. BIOS 377
6. CSE 012
7. Technical Writing

**Credits**
<table>
<thead>
<tr>
<th>Course</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>BIOS elective</td>
<td></td>
</tr>
<tr>
<td>CHM 307</td>
<td>3</td>
</tr>
</tbody>
</table>

**Total Credits: 62**

1 A statistics course from the MATH department could also fulfill the statistics requirement