BIOCHEMISTRY, B.S.

The Biochemistry Major (B.S.) is designed to prepare students for graduate education in the biochemical sciences, for medical, dental, or pharmaceutical professions, or for employment in biotechnology, pharmaceutical, and chemical industries. Students who complete the Bachelor of Science in Biochemistry will meet all or most of the academic requirements for admission to medical, dental, veterinary, or pharmacy schools.

The curriculum involves a solid foundation of chemistry and biology courses, along with core and advanced elective courses in biochemistry. Undergraduate research is encouraged, and students may collaborate with participating faculty from a variety of departments (Chemistry, Biology, Nutrition, Physics, and Kinesiology).

This program follows the biochemistry curriculum recommendations of the American Society of Biochemists and Molecular Biologists.

Overall Requirements

- 120 credit hours, to include at least 36 credits at or above the 300 course level.
- Only major requirements and related area requirement courses at or below the 300-level in which grades of C- or better are earned will be counted toward the major. Students must earn a C- or better in prerequisite major requirements and related area requirement courses before advancing to subsequent courses. Students must have an overall GPA of at least 2.0 in CHE courses at UNC Greensboro.

Degree Program Requirements

University Requirements (https://catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/undergraduate-degrees-and-degree-requirements/)

General Education Requirements (MAC) (https://catalog.uncg.edu/academic-regulations-policies/undergraduate-requirements/general-education-program/#generaleducationcorerequirementstext)

College of Arts and Sciences Additional Requirements (CIC) (https://catalog.uncg.edu/arts-sciences/#additionalundergraduaterequirementstext)

Major Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHE 111 &amp; CHE 112</td>
<td>General Chemistry I and General Chemistry I Laboratory</td>
<td>8</td>
</tr>
<tr>
<td>CHE 114 &amp; CHE 115</td>
<td>General Chemistry II and General Chemistry II Laboratory</td>
<td>8</td>
</tr>
<tr>
<td>CHE 331 &amp; CHE 333</td>
<td>Quantitative Analysis and Quantitative Analysis Laboratory</td>
<td>8</td>
</tr>
<tr>
<td>CHE 342</td>
<td>Inorganic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHE 351</td>
<td>Organic Chemistry I</td>
<td>4</td>
</tr>
<tr>
<td>CHE 352</td>
<td>Organic Chemistry II</td>
<td>4</td>
</tr>
<tr>
<td>CHE 353</td>
<td>Organic Laboratory Techniques</td>
<td>4</td>
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</tbody>
</table>

CHE 355 Intermediate Organic Chemistry Lab
CHE 402 Chemistry Seminar
CHE 406 Introductory Physical Chemistry & CHE 407 and Introductory Physical Chemistry Laboratory
CHE 456 Biochemistry I
CHE 457 Biochemistry II
CHE 458 Biochemistry Lab
CHE 401 Chemistry Seminar Introduction *

Related Area Requirements

<table>
<thead>
<tr>
<th>Code</th>
<th>Title</th>
<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIO 111 &amp; 111L</td>
<td>Principles of Biology I and Principles of Biology I Laboratory</td>
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<tr>
<td>BIO 112 &amp; 112L</td>
<td>Principles of Biology II and Principles of Biology II Laboratory</td>
<td>5</td>
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<tr>
<td>MAT 196</td>
<td>Calculus A</td>
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</tr>
<tr>
<td>MAT 296</td>
<td>Calculus B</td>
<td>4</td>
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Select one of the following:

- BIO 392 Genetics
- BIO 375 and Cell Biology and Genetics Laboratory
- BIO 355 Cell Biology
- BIO 375 and Cell Biology and Genetics Laboratory

Select one of the following:

- PHY 211 General Physics I
- PHY 212 and General Physics II

- PHY 291 General Physics I with Calculus
- PHY 292 and General Physics II with Calculus

Advanced Biochemistry, Advanced Biological Science, or Independent Study Electives

Select 5-7 credits of the following: **

At least 3 credits must be CHE. 1

- CHE 427 Introduction to Medicinal Chemistry
- CHE 431 Instrumental Analysis
- CHE 436 Computational Chemistry
- CHE 442 Inorganic Chemistry II
- CHE 453 Advanced Organic Chemistry I
- CHE 455 Organometallic Chemistry
- CHE 468 Introduction to Chemical Biology
- CHE 470B Special Topics in Chemistry: Biochemistry
- CHE 481 Synthetic Techniques **
- CHE 491 Senior Research
- CHE 492 Senior Research
- BIO 277 Human Physiology & 277L and Human Physiology Laboratory
- BIO 355 Cell Biology 2
- BIO 392 Genetics 2
- BIO 424 Plant Physiology and Biotechnology
- BIO 443 Biophysics
- BIO 464 Developmental Biology & 464L and Developmental Biology Laboratory
- BIO 478 Hormones in Action
- BIO 479 Neurobiology & 479L and Neurobiology Laboratory
- BIO 481 General Microbiology & 481L and General Microbiology Laboratory
- BIO 482 Molecular Biological Approaches in Research

1. CHE 491 Senior Research
2. CHE 492 Senior Research
3. BIO 355 Cell Biology
4. BIO 392 Genetics
5. BIO 424 Plant Physiology and Biotechnology
6. BIO 443 Biophysics
7. BIO 464 Developmental Biology
8. BIO 478 Hormones in Action
9. BIO 479 Neurobiology
10. BIO 481 General Microbiology
11. BIO 482 Molecular Biological Approaches in Research
Biochemistry, B.S.

<table>
<thead>
<tr>
<th>Code</th>
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<th>Credit Hours</th>
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<tbody>
<tr>
<td>BIO 485</td>
<td>Virology</td>
<td></td>
</tr>
<tr>
<td>BIO 494</td>
<td>Introduction to Biotechnology</td>
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<tr>
<td>BIO 495</td>
<td>Advanced Genetics</td>
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<tr>
<td>BIO 499</td>
<td>Undergraduate Research</td>
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</tr>
<tr>
<td>PHY 495</td>
<td>Research Experience in Physics</td>
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</table>

* The course is taken as an audit.

** Requirement is only 5 credits if CHE 481 is chosen.

1 Minimum of 2 credits in CHE is required only if CHE 481 is chosen.

2 If not used for a Related Area Requirement above.

**Electives**

Electives should be sufficient to complete the 120 credit hours required for the degree. Additional advanced courses in Chemistry and Biology are recommended.

**Disciplinary Honors in Chemistry and Biochemistry Requirements**

- A minimum of 12 credit hours as defined below.
- UNC Greensboro cumulative GPA of 3.30 or better or, for transfer students, cumulative GPA of 3.30 or better from all prior institutions.

<table>
<thead>
<tr>
<th>Code</th>
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<tbody>
<tr>
<td>HSS 490</td>
<td>Senior Honors Project</td>
<td>3</td>
</tr>
</tbody>
</table>

6 credits of Honors course work in the major 6

3 credits of Honors course work in the major or another area 3

**Recognition**

Receive a Certificate of Disciplinary Honors in Chemistry and Biochemistry; have that accomplishment, along with the title of the Senior Honors Project, noted on the official transcript; and be recognized at a banquet held at the end of the spring semester.

**Honors Advisor**

Contact Liam Duffy at liam_duffy@uncg.edu for further information and guidance about Honors in Chemistry and Biochemistry. To apply: http://honorscollege.uncg.edu/forms/disc-application.pdf