BA in Biochemistry

Biochemistry is the study of chemistry involving living organisms. Degrees in Biochemistry involve training in organic, inorganic, and physical chemistry as well as in biology, genetics, and biochemistry. Elective coursework is also available to pursue interests in a variety of advanced topics involving the chemistry of biological systems.

The Bachelor of Arts degree is designed for students whose career interests require a strong background in Chemistry or Biochemistry, but are also interested in acquiring expertise in other disciplines. The coursework for this degree provides a broad training, and does not include extensive advanced laboratory training. The degree is appropriate for students interested in applying to professional programs in medicine, dentistry, pharmacy and other health allied fields.

Admissions

See Admissions for information about entrance pathways and application instructions.

Degree Requirements

BA Biochemistry Checklist (PDF)

Mathematics (choose one sequence)
- Regular: MATH 124 (5), 125 (5), 126 (5)
- Honors: MATH 134 (5), 135 (5), 136 (5)

General Chemistry (choose one sequence)
- Regular: CHEM 142 (5), 152 (5), 162 (5)
- Honors: CHEM 145 (5), 155 (5), 165 (5)
- Accelerated: CHEM 143 (6), 153 (6)

Organic Chemistry (choose one sequence)
- Regular: CHEM 237 (4), 238 (4), 239 (4)
  - Laboratory: 241 (3), 242 (3)
- Honors: CHEM 335 (4), 336 (4), 337 (4)
  - Laboratory: 346 (3), 347 (3)

Biology
- BIOL 180 (5), 200 (5)

Physics (choose one sequence)
- Calculus-based: PHYS 121 (5), 122 (5), 123 (5)
- Algebra-based: PHYS 114 (4), 115 (4), 116 (4)
**The calculus based series is recommended. Students taking the calculus based course can apply one credit toward the science elective requirement. Students taking the algebra-based course may count one credit of physics lab (Phys 117, 118, 119) as a science elective.

Biochemistry

- BIOC 405 (3), 406 (3)

Physical Chemistry

- CHEM 452 (3), 453 (3)

Science Electives

Nine credits from the following list:

- AMATH 351 or 352, or MATH 307 or 308
- ATM S 358, 458
- B H 311
- BIOL 220, 300, 355, 401, 402, 411, 457
- BIOST 310
- BSE 406
- CSE 427
- ENV H 431
- ESS 312, 457
- GENOME 361, 371, 372, 373, 465
- IMMUN 441
- MICROM 402, 410, 411, 412, 431, 445
- MSE 471, 475
- NBIO 404
- OCEAN 400
- PHYS LAB** (one credit only)
- Q SCI 381
- STAT 311

**Advanced Research:** Up to 3 credits of advanced undergraduate research may count toward this requirement. Research conducted outside of Chemistry or Biochemistry must first be approved by one of the undergraduate advisers.

Additional 400 level science courses may be considered for science electives after consultation and a petition is submitted to the biochemistry advisers.

Sample Schedule

Research credits counted as electives, not major requirements in this example.

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<thead>
<tr>
<th>Year</th>
<th>Autumn Courses</th>
<th>Winter Courses</th>
<th>Spring Courses</th>
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</table>
| 1st Year | Math 124 (5)  
Chem 142 (5)  
Foreign Lang 101 (5) | Math 125 (5)  
Chem 152 (5)  
Foreign Language 102 (5) | Math 126 (5)  
Chem 162 (5)  
Foreign Language 103 (5) |
| 2nd Year | Biol 180 (5)  
Chem 237 (4)  
English Composition (5) | Biol 200 (5)  
Chem 238 (4)  
Chem 241 (3)  
Electives (3) | Chem 239 (3)  
Chem 242 (3)  
VLPA (5)  
Electives (5) |
| 3rd Year | Bioc 405 (3)  
Phys 121 (5)  
VLPA "W" (5)*  
Electives (3) | Bioc 406 (3)  
Phys 122 (5)  
VLPA (5)*  
Electives (3) | Phys 123 (5)  
I&S "W" (5)*  
VLPA (5)* |
| 4th Year | Chem 452 (3)  
Science Elective (3)  
I&S (5)  
Electives (5) | Chem 453 (3)  
I&S (5)*  
Electives (3)  
Science Elective (3) | I&S (5)*  
Electives (6)  
Science Elective (2) |

* VLPA =Visual, Literary and Performing Arts and I&S = Individuals and Societies. They are General Education Requirements.

Students are expected to understand and complete all general education requirements as detailed in the General Catalog.

Undergraduate advisers can help set up individual schedules according to students' needs and constraints.

**Grade Point Average Requirements**
- This degree requires 180 credits.
- Minimum grade of **1.7** for required chemistry, biology, and biochemistry courses.
- A minimum cumulative GPA of **2.0** for required chemistry, biology, and biochemistry courses.
- An overall cumulative grade point average of **2.0** is required.

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