Biochemistry and Molecular Biology, BS

Academic Plans

Four-Year Graduation Plan

The following checkpoints list the minimum requirements students must complete by certain semesters in order to stay on the university's Four-Year Graduation Plan. Courses in the major are those required to complete the major; they may be offered by departments other than the major department.

Before the third semester begins: CHEM:1110 Principles of Chemistry I, CHEM:1120 Principles of Chemistry II, and two semesters of advanced math (e.g., Calculus I, Calculus II, or Biostatistics).


Before the seventh semester begins: PHYS:1611 Introductory Physics I or PHYS:1511 College Physics I, PHYS:1612 Introductory Physics II or PHYS:1512 College Physics II, BMB:3150 Development of Senior Research Project, one semester of BMB:3993 Undergraduate Biochemistry Research for students planning to take BMB:4999 Advanced Undergraduate Biochemistry Research, BMB:3120 Biochemistry and Molecular Biology I, BMB:3130 Biochemistry and Molecular Biology II, BMB:3140 Experimental Biochemistry, two science electives, and at least 90 s.h. earned toward the degree.

Before the eighth semester begins: BMB:4240 Biophysics and Advanced Biochemistry or CHEM:4430 Principles of Physical Chemistry or CHEM:4431 Chemical Thermodynamics or CHEM:4432 Quantum Mechanics and Chemical Kinetics, a science elective, and at least 3 s.h. of BMB:4999 Advanced Undergraduate Biochemistry Research.

During the eighth semester: enrollment in all remaining coursework in the major, all remaining GE CLAS Core courses, and a sufficient number of semester hours to graduate.

Sample Plan of Study

Sample plans represent one way to complete a program of study. Actual course selection and sequence will vary and should be discussed with an academic advisor. For additional sample plans, see MyUI.

Biochemistry and Molecular Biology, BS

Course | Title | Hours
Academic Career
Any Semester
Students in good academic standing can switch from the BA to the BS degree program after completing one semester of organic chemistry (CHEM:2210 Organic Chemistry I or CHEM:2230 Organic Chemistry I for Majors).

GE CLAS Core: Sustainability

Hours: 0

First Year

Fall

Course | Title | Hours
CHEM:1110 | Principles of Chemistry I | 4
MATH:1850 | Calculus I | 4
ENGL:1200 or RHET:1030 | The Interpretation of Literature or Rhetoric | 3 - 4
CSI:1600 | Success at Iowa | 2
Elective course | 1

Hours: 14-15

Spring

CHEM:1120 | Principles of Chemistry II | 4
RHET:1030 or ENGL:1200 | Rhetoric or The Interpretation of Literature | 3 - 4
MATH:1860 or STAT:3510 | Calculus II or Biostatistics | 3 - 4
GE CLAS Core: Diversity and Inclusion | 3
Elective course | 1

Hours: 14-16

Second Year

Fall

BIOL:1411 | Foundations of Biology | 4
CHEM:2210 or CHEM:2230 | Organic Chemistry I or Organic Chemistry I for Majors | 3
GE CLAS Core: Historical Perspectives | 3
GE CLAS Core: World Languages First Level Proficiency or elective course | 4 - 5
Elective course | 2

Hours: 16-17

Spring

BIOL:1412 | Diversity of Form and Function | 4
CHEM:2220 or CHEM:2240 | Organic Chemistry II or Organic Chemistry II for Majors | 3
CHEM:2410 or CHEM:2420 | Organic Chemistry Laboratory or Organic Chemistry Laboratory for Majors | 3
GE CLAS Core: World Languages Second Level Proficiency or elective course | 4 - 5

Hours: 17-18

Third Year

Fall

BMB:3120 | Biochemistry and Molecular Biology I | 3
<table>
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<tr>
<th>Course/Code</th>
<th>Description</th>
<th>Hours</th>
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<tbody>
<tr>
<td>BMB:3993</td>
<td>Undergraduate Biochemistry Research</td>
<td>3</td>
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| PHYS:1511  | College Physics I  
or PHYS:1611 Introductory Physics I | 4     |
| GE CLAS Core: Values and Culture | 3     |
| GE CLAS Core: World Languages Third Level Proficiency or elective course | 4 - 5 |
| **Hours**  | **17-18**   |

**Spring**

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<tr>
<th>Course/Code</th>
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<tbody>
<tr>
<td>BMB:3130</td>
<td>Biochemistry and Molecular Biology II</td>
<td>3</td>
</tr>
<tr>
<td>BMB:3140</td>
<td>Experimental Biochemistry</td>
<td>2</td>
</tr>
<tr>
<td>BMB:3150</td>
<td>Development of Senior Research Project</td>
<td>2</td>
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</table>
| PHYS:1612  | Introductory Physics II  
or PHYS:1512 College Physics II | 4     |
| GE CLAS Core: World Languages Fourth Level Proficiency or elective course | 4 - 5 |
| Elective course | 1     |
| **Hours**  | **16-17**   |

**Fourth Year**

**Fall**

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<tbody>
<tr>
<td>BMB:4999</td>
<td>Advanced Undergraduate Biochemistry Research</td>
<td>3</td>
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</table>
| CHEM:4431  | Chemical Thermodynamics  
or BMB:4240 Biophysics and Advanced Biochemistry  
or CHEM:4430 or Principles of Physical Chemistry | 3     |
| Major: science elective (consult with advisor) | 3     |
| GE CLAS Core: International and Global Issues | 3     |
| GE CLAS Core: Literary, Visual, and Performing Arts | 3     |
| **Hours**  | **15**      |

**Spring**

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<td>BMB:4999</td>
<td>Advanced Undergraduate Biochemistry Research</td>
<td>3</td>
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</table>
| CHEM:4432  | Quantum Mechanics and Chemical Kinetics  
or BMB:4240 or CHEM:4431 Biophysics and Advanced Biochemistry  
or CHEM:4432 Chemical Thermodynamics | 3     |
| Major: science elective (consult with advisor) | 3     |
| Major: science elective (consult with advisor) | 3     |
| GE CLAS Core: Social Sciences | 3     |
| Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) | 3     |
| **Hours**  | **15**      |

| **Total Hours** | **124-131** |

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**Notes:**

- a Sustainability must be completed by choosing a course that has been approved for Sustainability AND for one of these General Education areas: Natural Sciences; Quantitative and Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Culture.
- b Enrollment in chemistry courses requires completion of a placement exam.
- c Fulfills a major requirement and may fulfill a GE requirement.
- d Enrollment in math courses requires completion of a placement exam.
- e Students may use elective courses to earn credit towards the total s.h. required for graduation or to complete a double major, minors, or certificates.
- f GE CLAS Core courses may be completed in any order unless used as a prerequisite for another course. Students should consult with an advisor about the best sequencing of courses.
- g Students who have completed four years of a single language in high school have satisfied the GE CLAS Core World Languages requirement. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course.
- h Students are required to complete 9 s.h. in advanced science electives approved by biochemistry advisor.
- i Students must complete BMB:4240 and one course from CHEM:4430, CHEM:4431, CHEM:4432.
- j Please see Academic Calendar, Office of the Registrar website for current degree application deadlines. Students should apply for a degree for the session in which all requirements will be met. For any questions on appropriate timing, contact your academic advisor or Graduation Services.