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

First Year
Fall
CHEM:1110 Principles of Chemistry I b, c   4
MATH:1850 Calculus I b, d                  4
RHET:1030 Rhetoric or ENGL:1200 or The Interpretation of Literature   3 - 4
CSI:1600 Success at Iowa                   2
Elective course e                          1

Hours 14-15

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

Hours 14-16

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

Hours 16-17

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

Hours 17-18

Third Year
Fall
BMB:3120 Biochemistry and Molecular Biology I   3
BMB:3993 Undergraduate Biochemistry Research  3
PHYS:1611 Introductory Physics I b or PHYS:1511 or College Physics I   4
GE CLAS Core: Values and Culture f           3
GE CLAS Core: World Languages Third Level Proficiency or elective course g 4 - 5

Hours 17-18

Spring
BMB:3130 Biochemistry and Molecular Biology I   3
BMB:3140 Experimental Biochemistry            2
BMB:3150 Development of Senior Research Project   2
PHYS:1612 Introductory Physics I b or PHYS:1512 or College Physics II   4
GE CLAS Core: World Languages Fourth Level Proficiency or elective course g 4 - 5

Hours 17-18

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 a

Hours 0

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.
<table>
<thead>
<tr>
<th>Elective course</th>
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**Fourth Year**

**Fall**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BMB:4999</td>
<td>Advanced Undergraduate Biochemistry Research</td>
</tr>
<tr>
<td>BMB:4240 or CHEM:4430 or CHEM:4431</td>
<td>Biophysics and Advanced Biochemistry (^1) or Principles of Physical Chemistry or Chemical Thermodynamics</td>
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<tr>
<td>Major: science elective (consult with advisor)</td>
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</tr>
<tr>
<td>GE CLAS Core: International and Global Issues (^f)</td>
<td>3</td>
</tr>
<tr>
<td>GE CLAS Core: Literary, Visual, and Performing Arts (^f)</td>
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<tr>
<th>Hours</th>
<th>16-17</th>
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**Spring**

<table>
<thead>
<tr>
<th>Course</th>
<th>Title</th>
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<tbody>
<tr>
<td>BMB:4999</td>
<td>Advanced Undergraduate Biochemistry Research</td>
</tr>
<tr>
<td>BMB:4240 or CHEM:4432 or CHEM:4431</td>
<td>Biophysics and Advanced Biochemistry (^1) or Quantum Mechanics and Chemical Kinetics or Chemical Thermodynamics</td>
</tr>
<tr>
<td>Major: science elective (consult with advisor)</td>
<td>3</td>
</tr>
<tr>
<td>Major: science elective (consult with advisor)</td>
<td>3</td>
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<tr>
<td>GE CLAS Core: Social Sciences (^f)</td>
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<tr>
<td>Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall)</td>
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<tr>
<th>Hours</th>
<th>15</th>
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| Total Hours | 124-131 |

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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. Fulfills a major requirement and may fulfill a GE requirement.
c. Enrollment in chemistry courses requires completion of a placement exam.
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.