

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 fifth semester begins: BIOL:1411 Foundations of Biology, BIOL:1412 Diversity of Form and Function, CHEM:2210 Organic Chemistry I or CHEM:2230 Organic Chemistry I for Majors, CHEM:2220 Organic Chemistry II or CHEM:2240 Organic Chemistry II for Majors, and CHEM:2410 Organic Chemistry Laboratory or CHEM:2420 Organic Chemistry Laboratory for Majors.

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 or during the eighth semester: 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 2-3 s.h. (total of 6 s.h.) of BMB:4999 Advanced Undergraduate Biochemistry Research. Enrollment in all remaining coursework in the major, all remaining GE CLAS Core courses, and a minimum of 120 of s.h. 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 ^a		
Hours		0
First Year		
Fall		
CHEM:1110	Principles of Chemistry I ^{b, c}	4
MATH:1850 or MATH:1550 or MATH:1460	Calculus I ^{c, d} or Engineering Calculus I or Calculus for the Biological Sciences	4
ENGL:1200 or RHET:1030	The Interpretation of Literature or Rhetoric: Writing and Communication	3 - 4
CSI:1600	Success at Iowa	1
Elective course ^e		3
Hours		15-16
Spring		
CHEM:1120	Principles of Chemistry II ^c	4
Major: biostatistics/calculus course ^f		3 - 4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or The Interpretation of Literature	3 - 4
GE CLAS Core: Understanding Cultural Perspectives ^g		3
Elective course ^e		2
Hours		15-17
Second Year		
Fall		
BIOL:1411	Foundations of Biology ^c	4
CHEM:2230 or CHEM:2210	Organic Chemistry I for Majors or Organic Chemistry I	3
GE CLAS Core: Historical Perspectives ^g		3
GE CLAS Core: World Languages First Level Proficiency or elective course ^h		4 - 5
Elective course ^e		1
Hours		15-16
Spring		
BIOL:1412	Diversity of Form and Function ^c	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 ^h		4 - 5
Elective course ^e		1
Hours		15-16

Third Year**Fall**

BMB:3120	Biochemistry and Molecular Biology I	3
BMB:3993	Undergraduate Biochemistry Research	3
PHYS:1511	College Physics I ^c	4
or PHYS:1611	or Introductory Physics I	
GE CLAS Core: Values and Society ^g		3
GE CLAS Core: World Languages Third Level Proficiency or elective course ^h		4 - 5

Hours 17-18

Spring

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

Hours 16-17

Fourth Year**Fall**

BMB:4999	Advanced Undergraduate Biochemistry Research ⁱ	3
CHEM:4431	Chemical Thermodynamics	3
or CHEM:4432	or Quantum Mechanics and Chemical Kinetics	
or CHEM:4430	or Principles of Physical Chemistry	
Major: advanced science elective ^j		3
GE CLAS Core: International and Global Issues ^g		3
GE CLAS Core: Literary, Visual, and Performing Arts ^g		3

Hours 15

Spring

BMB:4240	Biophysics and Advanced Biochemistry	3
BMB:4999	Advanced Undergraduate Biochemistry Research ⁱ	3
Major: advanced science elective ^j		3
Major: advanced science elective ^j		3
GE CLAS Core: Social Sciences ^g		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall)		

Hours 15

Total Hours 123-130

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 or Formal Reasoning; Social Sciences; Historical Perspectives; International and Global Issues; Literary, Visual, and Performing Arts; or Values and Society.

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 Choose from BIOS:4120, MATH:1560, MATH:1860, STAT:3510.

g 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.

h Students who have completed four levels of a single language or two levels of two different languages in high school or college have satisfied the GE CLAS Core World Languages requirement. Students who have completed three levels of a single language may complete a fourth-level course in the same language or may choose an approved World Language and Cultural Exploration course. Enrollment in world languages courses requires a placement exam, unless enrolling in a first-semester-level course. Contact your academic advisor or CLAS Undergraduate Programs Office with questions concerning the World Languages requirement.

i Consult with BMB advisor regarding appropriate coursework and sequence.

j Students are required to complete 9 s.h. in advanced science electives approved by BMB advisor.

k Please see Academic Calendar, on 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 Degree Services.