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: MATH:1460 Calculus for the Biological Sciences or MATH:1850 Calculus I, CHEM:1110 Principles of Chemistry I, CHEM:1120 Principles of Chemistry II, and BIOL:1411 Foundations of Biology.

Before the fifth semester begins: BIOL:1412 Diversity of Form and Function, CHEM:2210 Organic Chemistry I, STAT:2010 Statistical Methods and Computing or STAT:3510 Biostatistics, and two other courses in the major.

Before the seventh semester begins: BIOL:2512 Fundamental Genetics; PHYS:1511 College Physics I and PHYS:1512 College Physics II, or equivalents; six or seven more courses in the major; and at least 90 s.h. earned toward the degree.

Before the eighth semester begins: two or three more courses in the major.

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 Plans 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, visit MyUI.

Biology, BS

- Cell and Developmental Biology Track
- Genetics and Biotechnology Track
- Integrative Biology Track
- Neurobiology Track

Cell and Developmental Biology Track

Course	Title	Hours
Academic Career		
Any Semester		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
CHEM:1110	Principles of Chemistry I [b]	4
ENGL:1200 or RHET:1030	Interpreting Literature or Rhetoric: Writing and Communication	3 - 4
MATH:1460	Calculus for the Biological Sciences [c]	4
GE CLAS Core: Understanding Cultural Perspectives [d]		3
CSI:1600	Success at Iowa	1
	Hours	**15-16**
Spring		
BIOL:1411	Foundations of Biology	4
CHEM:1120	Principles of Chemistry II	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
GE CLAS Core: Social Sciences [d]		3
	Hours	**14-15**
Second Year		
Any Semester		
Research: students interested in research should begin the placement search process in the second year.		
	Hours	**0**
Fall		
BIOL:1412	Diversity of Form and Function	4
CHEM:2210	Organic Chemistry I	3
STAT:2010 or STAT:3510	Statistical Methods and Computing or Biostatistics	3
GE CLAS Core: World Languages First Level Proficiency or elective course [e]		4 - 5
	Hours	**14-15**
Spring		
BIOL:2723	Cell Biology	3
GE CLAS Core: Historical Perspectives [d]		3
Major Elective: foundation track course [f]		3 - 5
GE CLAS Core: World Languages Second Level Proficiency or elective course [e]		4 - 5
Elective course [g]		3
	Hours	**16-19**
Third Year		
Fall		
BIOL:2512	Fundamental Genetics	4
Major Elective: foundation track course - BMB:3110 Biochemistry or BMB:3120 Biochemistry and Molecular Biology I [h]		3
PHYS:1511	College Physics I	4
GE CLAS Core: World Languages Third Level Proficiency or elective course [e]		4 - 5
	Hours	**15-16**
Spring		
BIOL:3363 or BIOL:3172 or BIOL:3233	Plant Developmental Biology or Evolution or Introduction to Developmental Biology	3 - 4
PHYS:1512	College Physics II	4
Major Elective: cell and developmental biology elective I [i]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [e]		4 - 5
	Hours	**14-16**
Fourth Year		
Fall		
BIOL:3736 or BIOL:3626	Developmental Biology Lab or Cell Biology Laboratory	4

BIOL:3172 or BIOL:3363 or BIOL:3233	Evolution or Plant Developmental Biology or Introduction to Developmental Biology	3 - 4
GE CLAS Core: International and Global Issues [d]		3
Elective course [g]		3
Elective course [g]		3
	Hours	**16-17**
Spring		
Major Elective: cell and developmental biology elective II [i]		3
Major Elective: experiential requirement [j]		4
GE CLAS Core: Literary, Visual, and Performing Arts [d]		3
GE CLAS Core: Values and Society [d]		3
Elective course [g]		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [k]		
	Hours	**16**
	Total Hours	**120-130**

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 Enrollment in math courses requires completion of a placement exam.

d 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.

e 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.

f See General Catalog for list of approved courses. Students who took BMB:3120 must take BMB:3130.

g Students may use elective courses to earn credit toward the total s.h. required for graduation or to complete a double major, minors, or certificates.

h Students who take BMB:3120 also must take BMB:3130 as one of their track courses.

i At least one elective in the major must be numbered 3000 or above.

j See General Catalog for list of approved options; some may require more than one semester.

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.

Genetics and Biotechnology Track

Course	Title	Hours
Academic Career		
Any Semester		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
CHEM:1110	Principles of Chemistry I [b]	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
MATH:1460	Calculus for the Biological Sciences [c]	4
GE CLAS Core: Understanding Cultural Perspectives [d]		3
CSI:1600	Success at Iowa	1
	Hours	**15-16**
Spring		
BIOL:1411	Foundations of Biology	4
CHEM:1120	Principles of Chemistry II	4
ENGL:1200 or RHET:1030	Interpreting Literature or Rhetoric: Writing and Communication	3 - 4
GE CLAS Core: Values and Society [d]		3
	Hours	**14-15**
Second Year		
Any Semester		
Research: students interested in research should begin the placement search process in the second year.		
	Hours	**0**
Fall		
BIOL:1412	Diversity of Form and Function	4
CHEM:2210	Organic Chemistry I	3
STAT:2010 or STAT:3510	Statistical Methods and Computing or Biostatistics	3
GE CLAS Core: World Languages First Level Proficiency or elective course [e]		4 - 5
	Hours	**14-15**
Spring		
BIOL:2512	Fundamental Genetics	4
BIOL:2723	Cell Biology	3
GE CLAS Core: Social Sciences [d]		3
GE CLAS Core: World Languages Second Level Proficiency or elective course [e]		4 - 5
Elective course [f]		3
	Hours	**17-18**
Third Year		
Fall		
BIOL:3172 or BIOL:3713	Evolution [g] or Molecular Genetics	4
Major Elective: foundation track course - BMB:3110 Biochemistry or BMB:3120 Biochemistry and Molecular Biology I [h]		3 - 5

GE CLAS Core: Literary, Visual, and Performing Arts [d]		3
GE CLAS Core: World Languages Third Level Proficiency or elective course [e]		4 - 5
	Hours	**14-17**
Spring		
BIOL:3314 or BIOL:3172	Genomics [g] or Evolution	3 - 4
PHYS:1511	College Physics I	4
Major Elective: Foundation track course [i]		3 - 5
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [e]		4 - 5
	Hours	**14-18**
Fourth Year		
Fall		
PHYS:1512	College Physics II	4
Major Elective: genetics elective I [j]		3
Major Elective: experiential elective [k]		4
GE CLAS Core: International and Global Issues [d]		3
Elective course [f]		3
	Hours	**17**
Spring		
BIOL:3716	Genetics and Biotechnology Lab	4
Major Elective: genetics elective II [j]		3
GE CLAS Core: Historical Perspectives [d]		3
Elective course [f]		3
Elective course [f]		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [l]		
	Hours	**16**
	Total Hours	**121-132**

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 Enrollment in math courses requires completion of a placement exam.

d 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.

e 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.

f Students may use elective courses to earn credit toward the total s.h. required for graduation or to complete a double major, minors, or certificates.

g Two of the three courses need to be taken for this track: BIOL:3172, BIOL:3314, or BIOL:3713. BIOL:3314 is typically only offered during spring semesters.

h Students who take BMB:3120 also must take BMB:3130 as one of their track courses.

i See General Catalog for list of approved courses. Students who took BMB:3120 must take BMB:3130.

j At least one elective must be numbered 3000 or above.

k See General Catalog for list of approved options; some may require more than one semester.

l 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.

Integrative Biology Track

Course	Title	Hours
Academic Career		
Any Semester		
GE CLAS Core: Sustainability [a]		
Research: Iowa Lakeside Laboratory summer field courses [b]		
	Hours	**0**
First Year		
Fall		
CHEM:1110	Principles of Chemistry I [c]	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
MATH:1460	Calculus for the Biological Sciences [d]	4
GE CLAS Core: Social Sciences [e]		3
CSI:1600	Success at Iowa	1
	Hours	**15-16**
Spring		
BIOL:1411	Foundations of Biology	4
CHEM:1120	Principles of Chemistry II	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
GE CLAS Core: Understanding Cultural Perspectives [e]		3
	Hours	**14-15**
Second Year		
Any Semester		
Research: students interested in research should begin the placement search process in the second year.		
	Hours	**0**
Fall		
BIOL:1412	Diversity of Form and Function	4
CHEM:2210	Organic Chemistry I	3
STAT:3510 or STAT:2010	Biostatistics or Statistical Methods and Computing	3
GE CLAS Core: World Languages First Level Proficiency or elective course [f]		4 - 5
	Hours	**14-15**

Spring		
BIOL:2512	Fundamental Genetics	4
BIOL:2673	Ecology	3
PHYS:1511	College Physics I	4
GE CLAS Core: World Languages Second Level Proficiency or elective course [f]		4 - 5
	Hours	**15-16**
Third Year		
Fall		
BIOL:2723	Cell Biology	3
PHYS:1512	College Physics II	4
Major Elective: foundation track course - BMB:3110 Biochemistry or BMB:3120 Biochemistry and Molecular Biology I [g]		3
GE CLAS Core: World Languages Third Level Proficiency or elective course [f]		4 - 5
Elective course [h]		3
	Hours	**17-18**
Spring		
BIOL:3172	Evolution	4
Major Elective: foundation track course [i]		3 - 5
GE CLAS Core: Historical Perspectives [e]		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [f]		4 - 5
	Hours	**14-17**
Fourth Year		
Fall		
Major Elective: investigative lab		4
Major Elective: biological systems course		3
GE CLAS Core: International and Global Issues [e]		3
Elective course [h]		3
Elective course [h]		3
	Hours	**16**
Spring		
Major Elective: genes and genomes course		3
Major Elective: experiential elective [j]		4
GE CLAS Core: Literary, Visual, and Performing Arts [e]		3
GE CLAS Core: Values and Society [e]		3
Elective course		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [k]		
	Hours	**16**
	Total Hours	**121-129**

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 After completing BIOL:1412 Diversity of Form & Function, students are eligible to enroll in Lakeside Laboratory summer field courses. Registration for these courses is in winter of each year.

c Enrollment in chemistry courses requires completion of a placement exam.

d Enrollment in math courses requires completion of a placement exam.

e 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.

f 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.

g Students who take BMB:3120 also must take BMB:3130 as one of their track courses.

h Students may use elective courses to earn credit toward the total s.h. required for graduation or to complete a double major, minors, or certificates.

i See General Catalog for list of approved courses. Students who took BMB:3120 must take BMB:3130.

j See General Catalog for list of approved options; some may require more than one semester.

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Neurobiology Track

Course	Title	Hours
Academic Career		
Any Semester		
GE CLAS Core: Sustainability [a]		
	Hours	**0**
First Year		
Fall		
CHEM:1110	Principles of Chemistry I [b]	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
MATH:1460	Calculus for the Biological Sciences [c]	4
GE CLAS Core: Social Sciences [d]		3
CSI:1600	Success at Iowa	1
	Hours	**15-16**
Spring		
BIOL:1411	Foundations of Biology	4
CHEM:1120	Principles of Chemistry II	4
RHET:1030 or ENGL:1200	Rhetoric: Writing and Communication or Interpreting Literature	3 - 4
GE CLAS Core: Understanding Cultural Perspectives [d]		3
	Hours	**14-15**

Second Year

Any Semester

Research: Students interested in research should begin the placement search process in the second or third year.

	Hours	**0**

Fall

BIOL:1412	Diversity of Form and Function	4
CHEM:2210	Organic Chemistry I	3
STAT:2010 or STAT:3510	Statistical Methods and Computing or Biostatistics	3
GE CLAS Core: World Languages First Level Proficiency or elective course [e]		4 - 5
	Hours	**14-15**

Spring

BIOL:2512	Fundamental Genetics	4
BIOL:2753	Introduction to Neurobiology	3
GE CLAS Core: Historical Perspectives [d]		3
GE CLAS Core: World Languages Second Level Proficiency or elective course [e]		4 - 5
Elective course [f]		3
	Hours	**17-18**

Third Year

Fall

BIOL:2723	Cell Biology	3
BMB:3110 or BMB:3120	Biochemistry [g] or Biochemistry and Molecular Biology I	3
PHYS:1511	College Physics I	4
GE CLAS Core: World Languages Third Level Proficiency or elective course [e]		4 - 5
Elective course [f]		3
	Hours	**17-18**

Spring

BMB:3130	Biochemistry and Molecular Biology II [h]	3
PHYS:1512	College Physics II	4
Major Elective: neurobiology elective I [i]		3 - 4
GE CLAS Core: World Languages Fourth Level Proficiency or elective course [e]		4 - 5
	Hours	**14-16**

Fourth Year

Fall

BIOL:3253	Neurobiology I	4
BIOL:3656 or BIOL:3655 or BIOL:3245	Neurobiology Laboratory or Neurogenetics Laboratory or Animal Behavior Laboratory	4
GE CLAS Core: Values and Society [d]		3
GE CLAS Core: International and Global Issues [d]		3
Elective course [f]		3
	Hours	**17**

Spring

BIOL:3254	Neurobiology II	4
Major Elective: experiential elective [j]		4
GE CLAS Core: Literary, Visual, and Performing Arts [d]		3
Major Elective: Elective course [i]		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) [k]		
	Hours	**14**
	Total Hours	**122-129**

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b Enrollment in chemistry courses requires completion of a placement exam.

c Enrollment in math courses requires completion of a placement exam.

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f Students may use elective courses to earn credit toward the total s.h. required for graduation or to complete a double major, minors, or certificates.

g Students who take BMB:3120 also must take BMB:3130.

h See General Catalog for list of approved courses. Students who took BMB:3120 must take BMB:3130.

i 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.

j See General Catalog for list of approved options; some may require more than one semester.

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.