

# Chemistry, 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.

Courses in the chemistry major have prerequisites, so they must be taken in the correct order. Most advanced courses are taught only once a year. Students should consult their academic advisors and plan their course schedules carefully. They should take CHEM:2021 Fundamentals of Chemical Measurements during the first semester of the second year. Typical chemistry course schedules and a regression list are available at Undergraduate Program in Chemistry on the Department of Chemistry website.

**Before the third semester begins:** math through MATH:1550 Engineering Mathematics I: Single Variable Calculus or MATH:1850 Calculus I; CHEM:1110 Principles of Chemistry I and CHEM:1120 Principles of Chemistry II, or equivalent coursework.

**Before the fifth semester begins:** CHEM:2021 Fundamentals of Chemical Measurements; CHEM:3250 Inorganic Chemistry; CHEM:2210 Organic Chemistry I, CHEM:2220 Organic Chemistry II, and CHEM:2410 Organic Chemistry Laboratory, or CHEM:2230 Organic Chemistry I for Majors, CHEM:2240 Organic Chemistry II for Majors, and CHEM:2420 Organic Chemistry Laboratory for Majors; MATH:1560 Engineering Mathematics II: Multivariable Calculus or MATH:1860 Calculus II; and PHYS:1511-PHYS:1512 or PHYS:1611-PHYS:1612.

**Before the seventh semester begins:** six more courses in the major and at least 90 s.h. earned toward the degree.

**Before the eighth semester begins:** 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 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.

### Chemistry, BS

Course	Title	Hours
<b>Academic Career</b>		
<b>Any Semester</b>		
GE CLAS Core: Sustainability <sup>a</sup>		
<b>Hours</b>		<b>0</b>
<b>First Year</b>		
<b>Fall</b>		
CHEM:1110	Principles of Chemistry I <sup>b</sup>	4
MATH:1850	Calculus I <sup>c</sup>	4

ENGL:1200 or RHET:1030	The Interpretation of Literature or Rhetoric	3 - 4
GE CLAS Core: Understanding Cultural Perspectives		3
CSI:1600	Success at Iowa	2
<b>Hours</b>		<b>16-17</b>

#### Spring

CHEM:1120	Principles of Chemistry II	4
MATH:1860	Calculus II	4
ENGL:1200 or RHET:1030	The Interpretation of Literature or Rhetoric	3 - 4
GE CLAS Core: World Languages First Level Proficiency or elective course <sup>e</sup>		4 - 5
<b>Hours</b>		<b>15-17</b>

#### Second Year

##### Fall

CHEM:2021	Fundamentals of Chemical Measurements <sup>f</sup>	3
CHEM:2230	Organic Chemistry I for Majors <sup>g</sup>	3
PHYS:1611	Introductory Physics I	4
GE CLAS Core: World Languages Second Level Proficiency or elective course <sup>e</sup>		4 - 5
<b>Hours</b>		<b>14-15</b>

##### Spring

CHEM:2240	Organic Chemistry II for Majors <sup>h</sup>	3
CHEM:2420	Organic Chemistry Laboratory for Majors <sup>h</sup>	3
CHEM:3250	Inorganic Chemistry <sup>h</sup>	3
GE CLAS Core: Historical Perspectives <sup>d</sup>		3
GE CLAS Core: World Languages Third Level Proficiency or elective course <sup>e</sup>		4 - 5
<b>Hours</b>		<b>16-17</b>

#### Third Year

##### Any Semester

Students are strongly encouraged to be active participants in research within the Department of Chemistry. It is recommended that students begin research by their third year.

<b>Hours</b>		<b>0</b>
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##### Fall

CHEM:3530	Inorganic Chemistry Laboratory <sup>g</sup>	3
CHEM:4270	Advanced Inorganic Chemistry <sup>g</sup>	3
CHEM:4431	Chemical Thermodynamics	3
GE CLAS Core: International and Global Issues <sup>d</sup>		3
GE CLAS Core: World Languages Fourth Level Proficiency or elective course <sup>e</sup>		4 - 5
<b>Hours</b>		<b>16-17</b>

##### Spring

CHEM:4432	Quantum Mechanics and Chemical Kinetics	3
PHYS:1612	Introductory Physics II	4
Major: science elective or research <sup>i</sup>		3
GE CLAS Core: Literary, Visual, and Performing Arts <sup>d</sup>		3
Elective course <sup>j</sup>		3
<b>Hours</b>		<b>16</b>

#### Fourth Year

##### Fall

CHEM:3110	Equilibria and Electrochemistry <sup>g</sup>	3
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CHEM:3440	Physical Measurements <sup>g</sup>	3
BMB:3110	Biochemistry <sup>i, k</sup>	3
GE CLAS Core: Social Sciences <sup>d</sup>		3
Elective course <sup>j</sup>		2 - 3
<b>Hours</b>		<b>14-15</b>
<b>Spring</b>		
CHEM:3120	Spectroscopy and Separations	3
CHEM:3430	Analytical Measurements <sup>h</sup>	3
GE CLAS Core: Values and Society <sup>d</sup>		3
Elective course <sup>j</sup>		3
Elective course <sup>j</sup>		3
Degree Application: apply on MyUI before deadline (typically in February for spring, September for fall) <sup>l</sup>		
<b>Hours</b>		<b>15</b>
<b>Total Hours</b>		<b>122-129</b>

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 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 should take CHEM:2021 during the first semester of the second year.

g Typically this course is offered in fall semesters only. Check MyUI for course availability since offerings are subject to change.

h Typically this course is offered in spring semesters only. Check MyUI for course availability since offerings are subject to change.

i Students are required to complete 6 s.h. in science electives and research toward the major; refer to the General Catalog for list of approved courses.

j 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.

k Students who want an ACS certified degree must complete one of these optional courses: BMB:3110 or BMB:3120.

l 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 Degree Services.