# **Chemistry Curriculum Guides**

The following are curriculum guides for a four-year Chemistry degree program and is subject to change without notice. Students should consult a Chemistry program advisor to ensure that they have the most accurate and up-to-date information available about a particular four-year degree option.

- Chemistry
  - General Major
  - · ACS Certified Major
  - ACS Certified Major in Environmental Chemistry

### **General Major**

An example: Four year plan for Chemistry Major

120 credits necessary to graduate.

Plan is a representation and categories of classes can be switched. Check with your advisor.

Course	Title	Credits
Freshman		
Fall		
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	4
CHEM 213	Principles of Chemistry I Laboratory	1
MATH 202	Calculus and Analytic Geometry I	4
First Year Seminar	<b>,</b>	3
General Ed		3
	Credits	16
Spring		
CHEM 212	Principles of Chemistry II	4
CHEM 214	Principles of Chemistry II Laboratory	1
MATH 203	Calculus and Analytic Geometry II	4
General Ed	333a.y	3
General Ed		3
	Credits	15
Sophomore		
Fall		
CHEM 302	Organic Chemistry I	3
CHEM 304	Organic Chemistry	1
	Laboratory I	
PHYSICS 201	Principles of Physics I	4
General Ed		3
Elective		3
	Credits	14
Spring		
CHEM 303	Organic Chemistry II	3
CHEM 305	Organic Chemistry Laboratory II	1
CHEM 311	Analytical Chemistry	4
PHYSICS 202	Principles of Physics II	4
General Ed		3
	Credits	15
Junior		
Fall		
CHEM 320	Thermodynamics and Kinetics	3
CHEM 322	Thermodynamics and Kinetics Laboratory	1
General Ed		3
General Ed		3

Elective		3
Elective		3
	Credits	16
Spring		
CHEM 321	Structure of Matter	3
CHEM 323	Structure of Matter Laboratory	1
General Ed		3
General Ed		3
Elective		3
	Credits	13
Senior		
Fall		
CHEM 413	Instrumental Analysis	4
General Ed		3
Elective		3
Elective		3
Elective		3
	Credits	16
Spring		
Chemistry Upper Level Elective Lecture		3
Chemistry Upper Level Elective Lab		1
Elective		3
Elective		3
Elective		3
	Credits	13
	Total Credits	118

#### **ACS Certified Major**

An example: Four year plan for **Chemistry - ACS Certified Major - Professional Major** 120 credits necessary to graduate.

Plan is a representation and categories of classes can be switched. Some upper level courses are only taught once every other year. Check with your advisor for course periodicity.

Course	Title	Credits
Freshman		
Fall		
CHEM 207	Laboratory Safety	1
CHEM 211	Principles of Chemistry I	4
CHEM 213	Principles of Chemistry I Laboratory	1
MATH 202	Calculus and Analytic Geometry I	4
First Year Seminar		3
General Ed		3
	Credits	16
Spring		
CHEM 212	Principles of Chemistry II	4
CHEM 214	Principles of Chemistry II Laboratory	1
MATH 203	Calculus and Analytic Geometry II	4
General Ed		3
General Ed		3
	Credits	15
Sophomore		
Fall		
CHEM 302	Organic Chemistry I	3
CHEM 304	Organic Chemistry Laboratory I	1
MATH 209	Multivariate Calculus	4
PHYSICS 201	Principles of Physics I	4

General Ed		3
	Credits	15
Spring		
CHEM 303	Organic Chemistry II	3
CHEM 305	Organic Chemistry Laboratory II	1
CHEM 311	Analytical Chemistry	4
PHYSICS 202	Principles of Physics II	4
General Ed		3
	Credits	15
Junior		
Fall		
CHEM 320	Thermodynamics and Kinetics	3
CHEM 322	Thermodynamics and Kinetics Laboratory	1
BIOLOGY 201	Principles of Biology:	3
	Cellular and Molecular Processes	
BIOLOGY 202	Principles of Biology Lab:	1
	Cellular and Molecular Processes	
General Ed		3
General Ed		3
	Credits	14
Spring		
CHEM 321	Structure of Matter	3
CHEM 323	Structure of Matter Laboratory	1
CHEM 330	Biochemistry	3
CHEM 331	Biochemistry Laboratory	1
General Ed		3
General Ed		3
	Credits	14
Senior		
Fall		
CHEM 413	Instrumental Analysis	4
CHEM 496	Project/Research Assistantship	1-6
General Ed		3
General Ed		3
	Credits	11-16
Spring		
CHEM 410	Inorganic Chemistry	3
CHEM 411	Inorganic Chemistry Laboratory	1
Elective		3
Elective		3
Elective		3
	Credits	13
	Total Credits	113-118

## **ACS Certified Major in Environmental Chemistry**

An example: Four year plan for **Chemistry – ACS Certified Major in Environmental Chemistry - Professional Major** 120 credits necessary to graduate.

Plan is a representation and categories of classes can be switched. Some upper level courses are only taught every other year. Check with your advisor for course periodicity.

Course	Title	Credits
Freshman		
Fall		
CHEM 207	Laboratory Safety	1

#### 4 Chemistry Curriculum Guides

BIOLOGY 201		
BIOLOGI 201	Principles of Biology: Cellular and Molecular	3
BIOLOGY 202	Processes  Principles of Biology Lab: Cellular and Molecular	1
	Processes	
CHEM 211	Principles of Chemistry I	4
CHEM 213	Principles of Chemistry I Laboratory	1
MATH 202	Calculus and Analytic Geometry I	4
First Year Seminar		3
	Credits	17
Spring RIOLOGY 222	Dringinles of Missakieles	2
BIOLOGY 323 BIOLOGY 324	Principles of Microbiology Principles of Microbiology	3
5102001 324	Laboratory	·
CHEM 212	Principles of Chemistry II	4
CHEM 214	Principles of Chemistry II Laboratory	1
ENV SCI 102	Introduction to Environmental Sciences	3
MATH 203	Calculus and Analytic Geometry II	4
	Credits	16
Sophomore		
Fall		
CHEM 302	Organic Chemistry I	3
CHEM 304	Organic Chemistry	1
	Laboratory I	
MATH 260	Introductory Statistics	4
PHYSICS 201 General Ed	Principles of Physics I	4
Goriela Eu	Credits	15
Spring		
CHEM 303	Organic Chemistry II	3
	Organic Chemistry	
CHEM 305	Laboratory II	1
CHEM 305 CHEM 311		1
	Laboratory II	
CHEM 311	Laboratory II Analytical Chemistry	4
CHEM 311 PHYSICS 202 GEOSCI 202	Laboratory II  Analytical Chemistry  Principles of Physics II	4
CHEM 311 PHYSICS 202 GEOSCI 202  Junior	Laboratory II  Analytical Chemistry  Principles of Physics II  Physical Geology	4 4 4
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall	Laboratory II  Analytical Chemistry  Principles of Physics II  Physical Geology  Credits	4 4 4 16
CHEM 311 PHYSICS 202 GEOSCI 202  Junior	Laboratory II  Analytical Chemistry  Principles of Physics II  Physical Geology	4 4 4
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall	Laboratory II  Analytical Chemistry Principles of Physics II Physical Geology  Credits  Thermodynamics and Kinetics Thermodynamics and	4 4 4 16
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 322	Laboratory II  Analytical Chemistry Principles of Physics II Physical Geology  Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory	4 4 4 16
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 322  CHEM 330	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry	4 4 16 3 1
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 322  CHEM 330 CHEM 331	Laboratory II  Analytical Chemistry Principles of Physics II Physical Geology  Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory	4 4 16 3 1
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 330 CHEM 331 General Ed	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry	4 4 16 3 1
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 322  CHEM 330 CHEM 331	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory	4 4 16 3 1
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 330 CHEM 331 General Ed	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry	4 4 16 3 1
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 322  CHEM 331 General Ed Elective	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory	4 4 16 3 1
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 322  CHEM 331 General Ed Elective  Spring	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory  Credits	4 4 16 3 1 3 1 3 3 3
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 320  CHEM 331 General Ed Elective  Spring CHEM 321 CHEM 321 CHEM 321 CHEM 323	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory  Credits  Structure of Matter Laboratory	4 4 16 3 1 3 1 3 3 14 3 14
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320  CHEM 320  CHEM 331  General Ed Elective  Spring CHEM 321 CHEM 321 CHEM 323 ENV SCI 305	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory  Credits  Structure of Matter Structure of Matter	4 4 4 16 3 1 3 1 3 3 14 3 4
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320 CHEM 322  CHEM 331 General Ed Elective  Spring CHEM 321 CHEM 323 ENV SCI 305 General Ed	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory  Credits  Structure of Matter Laboratory	4 4 4 16 3 1 3 1 3 14 3 14 3 14
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320 CHEM 322  CHEM 331 General Ed Elective  Spring CHEM 321 CHEM 323  ENV SCI 305 General Ed General Ed General Ed General Ed	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory  Credits  Structure of Matter Laboratory	4 4 4 16 3 1 3 1 3 14 3 14 3 3 3
CHEM 311 PHYSICS 202 GEOSCI 202  Junior Fall CHEM 320 CHEM 322  CHEM 331 General Ed Elective  Spring CHEM 321 CHEM 323 ENV SCI 305 General Ed	Laboratory II Analytical Chemistry Principles of Physics II Physical Geology Credits  Thermodynamics and Kinetics Thermodynamics and Kinetics Laboratory Biochemistry Biochemistry Laboratory  Credits  Structure of Matter Laboratory	4 4 4 16 3 1 3 1 3 14 3 14 3 14

Senior		
Fall		
CHEM 413	Instrumental Analysis	4
CHEM 496	Project/Research Assistantship	1-6
General Ed		3
General Ed		3
General Ed		3
	Credits	14-19
Spring		
CHEM 410	Inorganic Chemistry	3
CHEM 411	Inorganic Chemistry Laboratory	1
General Ed		3
General Ed		3
Elective		3
	Credits	13
	Total Credits	122-127