

Chemistry Major

Major Area of Emphasis

Students must complete requirements in one of the following areas of emphasis:

- ACS Certified Chemistry
- Biochemistry
- Environmental Chemistry
- Food Chemistry
- General Chemistry

American Chemical Society Certified Chemistry

Code	Title	Credits
Supporting Courses		37
CHEM 207	Laboratory Safety	
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 202	Calculus and Analytic Geometry I	
MATH 260 or MATH 203	Introductory Statistics Calculus and Analytic Geometry II	
PHYSICS 103 or PHYSICS 201	Fundamentals of Physics I Principles of Physics I	
PHYSICS 203	Introductory Physics Lab I	
PHYSICS 104 or PHYSICS 202	Fundamentals of Physics II Principles of Physics II	
PHYSICS 204	Introductory Physics Lab II	
Upper-Level Courses		35
Core Courses		
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 303 & CHEM 305	Organic Chemistry II and Organic Chemistry Laboratory II	
CHEM 311	Analytical Chemistry	
CHEM 320 & CHEM 322	Thermodynamics and Kinetics and Thermodynamics and Kinetics Laboratory	
CHEM 321 & CHEM 323	Structure of Matter and Structure of Matter Laboratory	
CHEM 330 & CHEM 331	Biochemistry and Biochemistry Laboratory	
CHEM 410 & CHEM 411	Inorganic Chemistry and Inorganic Chemistry Laboratory	
CHEM 413	Instrumental Analysis	
CHEM 496	Project/Research Assistantship (3 credits of Research is required)	
Total Credits		72

Biochemistry

Code	Title	Credits
Supporting Courses		33
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 207	Laboratory Safety	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 202	Calculus and Analytic Geometry I	
MATH 260	Introductory Statistics	
PHYSICS 103 or PHYSICS 201	Fundamentals of Physics I Principles of Physics I	
PHYSICS 104 or PHYSICS 202	Fundamentals of Physics II Principles of Physics II	
PHYSICS 203	Introductory Physics Lab I	
PHYSICS 204	Introductory Physics Lab II	
Upper-Level Courses		27
Core Courses		
BIOLOGY 303	Genetics	
BIOLOGY 407 & BIOLOGY 408	Molecular Biology and Molecular Biology Laboratory	
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 303 & CHEM 305	Organic Chemistry II and Organic Chemistry Laboratory II	
CHEM 311	Analytical Chemistry	
CHEM 324 & CHEM 325	Biophysical Chemistry and Biophysical Chemistry Laboratory	
CHEM 330 & CHEM 331	Biochemistry and Biochemistry Laboratory	
CHEM Electives: Choose any 4 credits ¹		4
CHEM 321 & CHEM 323	Structure of Matter and Structure of Matter Laboratory	
CHEM 402 & CHEM 403	Advanced Organic Chemistry and Advanced Organic Chemistry Laboratory	
CHEM 410 & CHEM 411	Inorganic Chemistry and Inorganic Chemistry Laboratory	
CHEM 413	Instrumental Analysis	
CHEM 420 & CHEM 423	Polymer Chemistry and Polymer Chemistry Laboratory	
BIOLOGY or HUMAN BIOLOGY Elective: Choose any 3 credits ²		3
BIOLOGY 307	Cell Biology	
BIOLOGY 323	Principles of Microbiology	
HUM BIOL 426	Cancer Biology	
HUM BIOL 444	Endocrinology	
Total Credits		67

¹ CHEM 495, 496, or 497 are encouraged but not counted toward the major requirements

² BIOLOGY 495, 496, or 497 are encouraged but not counted toward the major requirements

American Chemical Society Certified in Environmental Chemistry

Code	Title	Credits
Supporting Courses		48
BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes	
CHEM 207	Laboratory Safety	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
GEOSCI 202	Physical Geology	
MATH 202	Calculus and Analytic Geometry I	
MATH 260 or MATH 203	Introductory Statistics Calculus and Analytic Geometry II	
PHYSICS 103 or PHYSICS 201	Fundamentals of Physics I Principles of Physics I	
PHYSICS 104 or PHYSICS 202	Fundamentals of Physics II Principles of Physics II	
PHYSICS 203	Introductory Physics Lab I	
PHYSICS 204	Introductory Physics Lab II	
Upper-Level Courses		39
Core Courses		
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 303 & CHEM 305	Organic Chemistry II and Organic Chemistry Laboratory II	
CHEM 311	Analytical Chemistry	
CHEM 324 & CHEM 325	Biophysical Chemistry and Biophysical Chemistry Laboratory	
CHEM 413	Instrumental Analysis	
ENV SCI 305	Environmental Fate and Transport	
WATER 444	Aqueous Geochemistry	
Electives, Choose 4 credits		
BIOLOGY 322	Environmental Microbiology	
CHEM 321 & CHEM 323	Structure of Matter and Structure of Matter Laboratory	
CHEM 330 & CHEM 331	Biochemistry and Biochemistry Laboratory	
CHEM 402 & CHEM 403	Advanced Organic Chemistry and Advanced Organic Chemistry Laboratory	
CHEM 410 & CHEM 411	Inorganic Chemistry and Inorganic Chemistry Laboratory	
CHEM 420 & CHEM 423	Polymer Chemistry and Polymer Chemistry Laboratory	
ENV SCI 335	Water and Waste Water Treatment	
ENV SCI 424	Hazardous and Toxic Materials	
WATER 321	Stable Isotopes in the Environment	
Total Credits		87

Food Chemistry

Code	Title	Credits
Supporting Courses		37
CHEM 207	Laboratory Safety	

BIOLOGY 201 & BIOLOGY 202	Principles of Biology: Cellular and Molecular Processes and Principles of Biology Lab: Cellular and Molecular Processes
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory
MATH 202	Calculus and Analytic Geometry I
MATH 260 or MATH 203	Introductory Statistics Calculus and Analytic Geometry II
NUT SCI 212	Science of Food Preparation
PHYSICS 103 or PHYSICS 201	Fundamentals of Physics I Principles of Physics I
PHYSICS 104 or PHYSICS 202	Fundamentals of Physics II Principles of Physics II
PHYSICS 203	Introductory Physics Lab I
PHYSICS 204	Introductory Physics Lab II
Upper-Level Courses	
BIOLOGY 323 & BIOLOGY 324	Principles of Microbiology and Principles of Microbiology Laboratory
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I
CHEM 303 & CHEM 305	Organic Chemistry II and Organic Chemistry Laboratory II
CHEM 311	Analytical Chemistry
CHEM 324 & CHEM 325	Biophysical Chemistry and Biophysical Chemistry Laboratory
CHEM 330 & CHEM 331	Biochemistry and Biochemistry Laboratory
NUT SCI 300	Human Nutrition
NUT SCI 312	Quantity Food Production and Service
Electives (choose 4 credits):	
CHEM 321 & CHEM 323	Structure of Matter and Structure of Matter Laboratory
CHEM 402 & CHEM 403	Advanced Organic Chemistry and Advanced Organic Chemistry Laboratory
CHEM 410 & CHEM 411	Inorganic Chemistry and Inorganic Chemistry Laboratory
CHEM 413	Instrumental Analysis
CHEM 420 & CHEM 423	Polymer Chemistry and Polymer Chemistry Laboratory
Total Credits	

35

72

General Chemistry

Code	Title	Credits
Supporting Courses		29
CHEM 207	Laboratory Safety	
CHEM 211 & CHEM 213	Principles of Chemistry I and Principles of Chemistry I Laboratory	
CHEM 212 & CHEM 214	Principles of Chemistry II and Principles of Chemistry II Laboratory	
MATH 202	Calculus and Analytic Geometry I	
MATH 260 or MATH 203	Introductory Statistics Calculus and Analytic Geometry II	
PHYSICS 103	Fundamentals of Physics I	

or PHYSICS 201	Principles of Physics I	
PHYSICS 104	Fundamentals of Physics II	
or PHYSICS 202	Principles of Physics II	
PHYSICS 203	Introductory Physics Lab I	
PHYSICS 204	Introductory Physics Lab II	
Upper-Level Courses		28
Core Courses		
CHEM 302 & CHEM 304	Organic Chemistry I and Organic Chemistry Laboratory I	
CHEM 303 & CHEM 305	Organic Chemistry II and Organic Chemistry Laboratory II	
CHEM 311	Analytical Chemistry	
CHEM 320 & CHEM 322	Thermodynamics and Kinetics and Thermodynamics and Kinetics Laboratory	
CHEM 321 & CHEM 323	Structure of Matter and Structure of Matter Laboratory	
CHEM 413	Instrumental Analysis	
Electives (choose 4 credits):		
CHEM 330 & CHEM 331	Biochemistry and Biochemistry Laboratory	
CHEM 402 & CHEM 403	Advanced Organic Chemistry and Advanced Organic Chemistry Laboratory	
CHEM 410 & CHEM 411	Inorganic Chemistry and Inorganic Chemistry Laboratory	
CHEM 420 & CHEM 423	Polymer Chemistry and Polymer Chemistry Laboratory	
Total Credits		57