Chemistry

Chemistry Program Outcomes

Student Learning Goals	Student Learning Outcomes
SLG1: Explain and use central concepts in the chemistry subdisciplines of Analytical Chemistry, Biochemistry, Inorganic Chemistry, Organic Chemistry, and Physical Chemistry.	SLO 1: Students will identify and articulate central concepts of the various chemistry subdisciplines: Analytical Chemistry, Biochemistry, Inorganic Chemistry, Organic Chemistry, and Physical Chemistry
	SLO 2: Students will apply their knowledge of the various subdisciplines of chemistry by answering questions concerning a variety of chemistry-related scenarios that integrate the different subdisciplines on a diagnostic exam of undergraduate chemical knowledge
SLG 2: Demonstrate competent laboratory skills in chemistry	SLO1: Students will demonstrate laboratory skills by analyzing samples for the amount of a component within acceptable levels of accuracy and precision
	SLO 2: Students will correctly perform organic synthesis experiments by obtaining the desired compound with an acceptable yield
SLG 3: Locate chemical literature relevant to solving chemical problems	SLO 1: Students will identify relevant scholarly research literature and correctly cite the references, presenting them in an acceptable format as part of a research proposal
SLG 4: Effectively communicate the results of chemical studies	SLO 1: Students will present on a capstone project in which they interpret the results of a chemical research project in an effective manner in both a written report and an oral presentation

Bachelor of Arts with a Major in Chemistry

Option I: General Chemistry

General Education		
Chemistry majors are required to take the following courses that may be used to help satisfy General Education requirements:		38-40
MATH 165	Calculus I	
or MATH 146	Applied Calculus	
PHYS 211	College Physics I	
PHYS 212	College Physics II	
Required Chemistry Courses		
CHEM 121	General Chemistry I	5
CHEM 122	General Chemistry II	5
CHEM 230	Quantitative Analysis	5
CHEM 341	Organic Chemistry I	5
CHEM 342	Organic Chemistry II	5
CHEM 360	Principles of Physical Chemistry	4
Select one of the following:		5
CHEM 430	Instrumental Analysis	
CHEM 481	Biochemistry I (and CHEM 480L)	
CHEM 480L	Biochemistry Laboratory	
Select one of the following:		3-5
CHEM 380	Environmental Chemistry	
CHEM 420	Inorganic Chemistry	
CHEM 430	Instrumental Analysis	
CHEM 440	Organic Spectroscopy	
CHEM 442	Medicinal Chemistry	
CHEM 481	Biochemistry I	
CHEM 482	Biochemistry II	
Required Support Courses		
MATH 210	Elementary Statistics	4
or DATA 211	Applied Statistics and Data Visualization	
SCI 240	Research Methods	2

SCI 480	Seminar	3
Minor/Concentration/Electives		
These should be chosen in consultation with your advisor to best prepare you for your career field.		34-36

Option II: Medicinal Plant Chemistry

General Education		
Chemistry majors are required to take the following courses which may be used to help satisfy General Education Requirements:		38-40
MATH 165	Calculus I	
or MATH 146	Applied Calculus	
PHYS 211	College Physics I	
or PHYS 251	University Physics I	
PHYS 212	College Physics II	
or PHYS 252	University Physics II	
Required Chemistry Courses		
CHEM 121	General Chemistry I	5
CHEM 122	General Chemistry II	5
CHEM 230	Quantitative Analysis	5
CHEM 341	Organic Chemistry I	5
CHEM 342	Organic Chemistry II	5
CHEM 430	Instrumental Analysis	5
CHEM 436	Methods of Analysis and QC of Medicinal Plant Products	5
CHEM 442	Medicinal Chemistry	3
CHEM 481	Biochemistry I	3
Required Support Courses		
BIOL 150	General Biology I	4
BIOL 154	Introduction to Botany	4
MATH 210	Elementary Statistics	4
or DATA 211	Applied Statistics and Data Visualization	
SCI 120	Plant Products Seminar 1	1
SCI 220	Plant Products Seminar 2	1
SCI 240	Research Methods	2
SCI 480	Seminar	3
19-21 minimum remaining to complete minors and concentration		

Bachelor of Science with a Major in Professional Chemistry

General Education		
Chemistry majors are required to take the following courses which may be used to help satisfy General Education requirements:		38-40
MATH 165	Calculus I	
PHYS 251	University Physics I	
PHYS 252	University Physics II	
Required Chemistry Courses		
CHEM 121	General Chemistry I	5
CHEM 122	General Chemistry II	5
CHEM 230	Quantitative Analysis	5
CHEM 341	Organic Chemistry I	5
CHEM 342	Organic Chemistry II	5
CHEM 420	Inorganic Chemistry	3
CHEM 430	Instrumental Analysis	5
CHEM 461	Physical Chemistry I	4
CHEM 462	Physical Chemistry II	4
CHEM 481	Biochemistry I	3
CHEM 480L	Biochemistry Laboratory	2

CHEM 494	Directed Research in Chemistry	1-6
Select one of the following:		**3**
CHEM 440	Organic Spectroscopy	
CHEM 442	Medicinal Chemistry	
CHEM 482	Biochemistry II	
Required Support Courses		
BIOL 150	General Biology I	4
MATH 166	Calculus II	4
MATH 265	Calculus III	4
MATH 305	Linear Algebra	4
SCI 240	Research Methods	2
SCI 480	Seminar	3
MATH 210	Elementary Statistics	4
or DATA 211	Applied Statistics and Data Visualization	
Electives		0-7
Total Hours		**113-127**

Chemistry Minor (Teaching or Non-Teaching)

Option I		
CHEM 121	General Chemistry I (& CHEM 121L)	5
CHEM 122	General Chemistry II (& CHEM 122L)	5
CHEM 230	Quantitative Analysis	5
CHEM 240	Fundamentals of Organic Chemistry	5
CHEM 381	Fundamentals of Biochemistry	
Select one of the following:		3-4
CHEM 360	Principles of Physical Chemistry	
CHEM 380	Environmental Chemistry	
CHEM 420	Inorganic Chemistry	
Total Hours		**23-24**

Option II		
CHEM 121	General Chemistry I (& CHEM 121L)	5
CHEM 122	General Chemistry II (& CHEM 122L)	5
CHEM 230	Quantitative Analysis	5
CHEM 341	Organic Chemistry I	5
CHEM 342	Organic Chemistry II	5
Select one of the following:		3-4
CHEM 360	Principles of Physical Chemistry	
CHEM 380	Environmental Chemistry	
CHEM 381	Fundamentals of Biochemistry	
CHEM 420	Inorganic Chemistry	
Total Hours		**28-29**

Chemistry Concentration

CHEM 121	General Chemistry I (& CHEM 121L)	5
CHEM 122	General Chemistry II (& CHEM 122L)	5
CHEM Electives at the 200 level or above		4
Total Hours		**14**