CHEMISTRY (BS)

Overview

This program provides students with a flexible, skill-focused education grounded in core principles of the chemical sciences. The program emphasizes the application of chemical knowledge, laboratory proficiency, critical thinking, and scientific communication to prepare students for diverse career pathways and further study. Students complete core chemistry coursework that integrates concepts across the chemical subdisciplines and includes hands-on laboratory experiences using modern techniques and instrumentation. In place of traditional concentration tracks, the program offers 18 credit hours of elective coursework, allowing students to individualize their degree through advanced chemistry courses, interdisciplinary electives, or coursework within established minors offered at Columbus State University. This structure supports students pursuing careers in chemistry, health and biomedical sciences, industry, education, business, or other fields where chemical literacy and problem-solving skills are essential. By emphasizing interdisciplinary connections, real-world applications, and adaptable skill development, the B.S. Chemistry program prepares graduates to succeed in a rapidly evolving scientific and professional landscape.

Program of Study

Major Requirements

Code	Title	Credit Hours
Core Requirements		
Complete the core requirements for this program		42
Field of Study Requirements		
Students must have a grade of C or better in the courses used to satisfy the major.		
MATH 1113	**Pre-Calculus (Apply 2 hours to Required for Major.)**	**2**
CHEM 1211K	Principles of Chemistry I and Lab	4
CHEM 1212K	Principles of Chemistry II and Lab	4
Complete a physics course sequence. [1]		8
Introductory Physics Sequence:		
PHYS 1111	Introductory Physics I	
PHYS 1311	Introductory Physics I Lab	
PHYS 1112	Introductory Physics II	
PHYS 1312	Introductory Physics II Lab	
Principles of Physics Sequence:		
PHYS 2211	Principles of Physics I	
PHYS 2311	Principles of Physics I Lab	
PHYS 2212	Principles of Physics II	
PHYS 2312	Principles of Physics II Lab	
Field of Study Requirements Total		18
Required for the Major		
Apply 2 hours of MATH 1113 to Required for Major		2
Students must have a grade of C or better in the courses used to satisfy the major.		
CHEM 1175	Problem-Solving in Chemistry	3
CHEM 2305	Chemical Safety and Handling Lab	1
CHEM 3105	Structure and Bonding	3
CHEM 3106	Chemical Measurements and Instrumentation	3
CHEM 3107	Thermodynamics, Kinetics, and Quantum Chemistry	3
CHEM 3108	Reactivity	3
CHEM 3109	Macromolecular Structure and Function	3
CHEM 3205	Synthetic Techniques Lab	2
CHEM 3206	Molecular Separation and Purification Lab	2
CHEM 3207	Biochemical Techniques Lab	2
CHEM 3208	Spectroscopic Analysis Lab	2
CHEM 4794	Capstone Seminar	1
Required for the Major Total		30
Major Electives		
Students must have a grade of C or better in the courses used to satisfy the major.		
Select 12 credits of chemistry electives or electives related to the major.		12
CHEM 3555	Chemical Frontiers	
CHEM 3698	Internship	
CHEM 4555	Advanced Chemical Concepts	
CHEM 4899		
Select from BIOL or ENVS or GEOL or MATH or PHYS courses at 3000 level or higher.		
Major Electives Total		12
General Electives		**18**
Select 18 credit hours of General Electives. [2]		
Total Credit Hours		**120**

1. Students interested in pursuing graduate degrees or rigorous STEM careers are encouraged to complete the Principles of Physics sequence for stronger preparation in advanced coursework and research.
2. Students will need a total of 3 credit hours of coursework at the 3000 level or above in General Electives to satisfy the major.

Admission Requirements