CHEMISTRY MAJOR

Department Advanced Placement Policy

Knowledge and experience gained in high school AP courses provide an excellent background for our introductory chemistry courses. Students who have received a score of 4 or 5 on the AP chemistry exam will earn credit for CHEM 181 and can begin with CHEM 221 or CHEM 231. Students will forfeit their AP credit if they opt to take CHEM 181. Medical and allied health programs generally do not accept AP credit for basic sciences and students pursuing these opportunities should consider taking CHEM 181. Students with AP credit who wish to major in chemistry earn advanced standing in the major yet are still required to complete 9 CHEM classes other than research to fulfill the requirements of the major. Students are invited to contact the department chair to discuss this option.

Requirements

Code	Title
Required courses:	
CHEM 181	Atoms & Molecules (with integrated lab)
CHEM 221	Organic Chemistry 1 (with integrated lab)
CHEM 222	Organic Chemistry 2 (with integrated lab)
CHEM 231	Equilibrium & Reactivity (with integrated lab)
CHEM 300	Instrumental Chemistry/Analytical Methods (with integrated lab)
CHEM 335	Quantum Mechanics & Spectroscopy (with integrated lab)
Select two of the following:	
CHEM/BIOL 301	Biochemistry
CHEM 336	Chemical Thermodynamics
CHEM 351	Inorganic Chemistry
One non-research 300 or above chemistry elective	
Required Physics course:	
PHYS 115	Introductory Physics 1: Mechanics, Fluids and Waves
Select one of the following Calculus options:	
MATH 133	Calculus 1 with Fundamentals
MATH 135 & MATH 136	Calculus 1 and Calculus 2
MATH 136	Calculus 2

Chemistry majors are required to successfully complete nine chemistry courses with six required labs as described below. Chemistry majors also must take the first semester of physics with lab (PHYS 115 Introductory Physics 1: Mechanics, Fluids and Waves) and Calculus through or MATH 136 Calculus 2, normally by the end of the second year.

All chemistry majors must begin with the Discovery Chemistry Core, which includes CHEM 181 Atoms & Molecules, CHEM 221 Organic Chemistry 1, CHEM 222 Organic Chemistry 2, and CHEM 231 Equilibrium & Reactivity. Each of these courses includes lab and they are typically taken in the order listed above during the first and second year. Students in the major normally continue with CHEM 300 Instrumental Chemistry/Analytical Methods followed by CHEM 335 Quantum Mechanics & Spectroscopy. CHEM 300 Instrumental Chemistry/Analytical Methods, which introduces experimental and instrumental methods essential to modern chemistry, is considered a gateway course to the upper level of the curriculum. Each course integrates lecture and lab. Majors complete their chemistry curriculum with two advanced courses, chosen from Biochemistry (CHEM 301 Biochemistry or BIOL 301 Biochemistry 1), CHEM 336 Chemical Thermodynamics, and CHEM 351 Inorganic Chemistry, and with one other non-research CHEM elective at the 300-level.

American Chemical Society (ACS) Certification

Students wishing to receive ACS certification for their degree must complete:

Code	Title
CHEM 181	Atoms & Molecules
CHEM 221	Organic Chemistry 1
CHEM 222	Organic Chemistry 2
CHEM 231	Equilibrium & Reactivity
CHEM 300	Instrumental Chemistry/Analytical Methods
CHEM/BIOL 301	Biochemistry
CHEM 335	Quantum Mechanics & Spectroscopy
CHEM 336	Chemical Thermodynamics
CHEM 351	Inorganic Chemistry
One non-research CHEM elective at the 300-level.	
Select one lab from the following:	
BIOL 303	Biochemistry 1 Lab
BIOL 304	Biochemistry 2 Lab
CHEM 352	Inorganic Chem Lab
Two semesters of credited research (CHEM 390, 405/406, 407/408, 410) along with a comprehensive research report.	
Two introductory Physics courses:	
PHYS 115 & PHYS 116	Introductory Physics 1: Mechanics, Fluids and Waves and Introductory Physics 2: Electromagnetism, Optics and Modern Physics