CHEMICAL PHYSICS, BACHELOR OF SCIENCE

College of Letters & Science

The Major Programs

Chemistry studies the composition of matter, its structure, and the means by which it is converted from one form to another.

The Program

We offer several degree programs leading to the Bachelor of Arts (A.B.) and the Bachelor of Science (B.S.). To meet and discuss these programs with our staff advisors, see Academic Advising.

The B.S. degree in Chemical Physics provides students with an in-depth understanding of the fundamentals of chemistry, focusing on areas at the interface of chemistry and physics. These include, for example, the experimental measurement and theoretical calculation of the detailed properties and behavior of atoms and molecules. An important experimental tool in chemical physics is spectroscopy, which uses conventional or laser light to probe the atomic and molecular properties of matter.

Career Alternatives

Graduates in Chemical Physics will be prepared for employment in technology, energy, laser science, material science, solid-state chemistry and other fields requiring a strong background in both chemistry and physics. They will also be well-suited for graduate study in a range of areas including chemistry, chemical physics, computational chemistry, material science, nanomaterials and laser science.

Major Advisor

To contact a major advisor in the Department of Chemistry, see Academic Advising.

Honors & Honors Program

The student must take courses CHE 194HA, CHE 194HB, and CHE 194HC, and complete a capstone research project (typically a written honors thesis). For more information, see Undergraduate Research (https://chemistry.ucdavis.edu/undergraduate/undergraduate-research/).

Graduate Study

The Department of Chemistry offers programs of study and research leading to M.S. and Ph.D. degrees in Chemistry. Detailed information regarding graduate study may be obtained by contacting the Graduate Advisor, Department of Chemistry. See also Graduate Studies (http://gradstudies.ucdavis.edu/).

Code	Title	Units
Preparatory Subject Matter		
Chemistry		
CHE 004A	General Chemistry for the Physical Sciences & Engineering	5
CHE 004B	General Chemistry for the Physical Sciences & Engineering	5
CHE 004C	General Chemistry for the Physical Sciences & Engineering	5
Physics		
PHY 009A	Classical Physics	5
PHY 009B	Classical Physics	5
PHY 009C	Classical Physics	5
PHY 009D	Modern Physics	4
Mathematics		
MAT 021A	Calculus	4
MAT 021B	Calculus	4
MAT 021C	Calculus	4
MAT 021D	Vector Analysis	4
Choose One:		4
MAT 022A & 022AL	Linear Algebra and Linear Algebra Computer Laboratory	
MAT/BIS 027A	Linear Algebra with Applications to Biology	
Choose One:		3-4
MAT 022B	Differential Equations	
MAT/BIS 027B	Differential Equations with Applications to Biology	
Preparatory Subject Matter Subtotal		57-58
Depth Subject Matter		
Chemistry		
CHE 105	Analytical & Physical Chemical Methods	4
CHE 110A	Physical Chemistry: Introduction to Quantum Mechanics	4
CHE 110B	Physical Chemistry: Properties of Atoms & Molecules	4
CHE 110C	Physical Chemistry: Thermodynamics, Equilibria & Kinetics	4
CHE 115	Instrumental Analysis	4
CHE 124A	Inorganic Chemistry: Fundamentals	3
CHE 125	Advanced Methods in Physical Chemistry	4
CHE 128A	Organic Chemistry	3
CHE 128B	Organic Chemistry	3
CHE 129A	Organic Chemistry Laboratory	2
Physics		
PHY 104A	Introduction to Mathematical Methods in Physics	4
PHY 105A	Classical Mechanics	4
PHY 110A	Electricity & Magnetism	4
Choose at least one:		4
PHY 105B	Analytical Mechanics	
PHY 110B	Electricity & Magnetism	
PHY 112	Thermodynamics & Statistical Mechanics	
PHY 115A	Foundation of Quantum Mechanics	
PHY 140A	Introduction to Solid State Physics	
At least 2 additional upper division units in Chemistry (CHE) [1]		2
Depth Subject Matter Subtotal		53
Total Units		**110-111**

[1] Except CHE 107A, CHE 107B.