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/).

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<tr>
<th>Code</th>
<th>Title</th>
<th>Units</th>
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<tr>
<td>CHE 004A</td>
<td>General Chemistry for the Physical Sciences &amp; Engineering</td>
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<td>General Chemistry for the Physical Sciences &amp; Engineering</td>
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<td>CHE 004C</td>
<td>General Chemistry for the Physical Sciences &amp; Engineering</td>
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<td>PHY 009A</td>
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<td>Vector Analysis</td>
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<td>MAT 022A</td>
<td>Linear Algebra</td>
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<td>Differential Equations</td>
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<td>Linear Algebra with Applications to Biology</td>
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<tr>
<td>MAT/BIS 027B</td>
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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

Dependent Subject Matter Subtotal 53

Total Units 110-111

1 Except CHE 107A, CHE 107B.