

Chemical Physics

Chemical Physics is an interdisciplinary field at the crossroads of chemistry and physics and is administered jointly by the two departments. The concentration provides students with a broad-based understanding in fundamental molecular sciences, as well as a background for graduate studies in physical chemistry, chemical physics, or molecular engineering. Concentrators are required to take twenty courses in chemistry, physics, and mathematics, although approved courses in applied mathematics, biology, computer science, geological sciences, or engineering may be substitutes. Chemical Physics concentrators are also advised to take at least six courses in the humanities and social sciences. Chemical Physics concentrators at all levels (first-year through seniors) are actively involved in research with faculty members in both departments.

Standard program for the Sc.B. degree

Twenty-one semester courses¹ in chemistry, physics, and mathematics, with a minimum of four semester courses in mathematics. The expectation is that courses required for a concentration in Chemical Physics will be taken for a letter grade. Core courses are:

CHEM 0330	Equilibrium, Rate, and Structure	1
CHEM 0350	Organic Chemistry I	1
CHEM 0500	Inorganic Chemistry	1
CHEM 1140	Physical Chemistry: Quantum Chemistry	1
PHYS 0070	Analytical Mechanics	1
PHYS 0160	Introduction to Relativity, Waves and Quantum Physics	1
PHYS 0470	Electricity and Magnetism	1
Select one of the following laboratory courses:		1
CHEM 1160	Physical Chemistry Laboratory	
PHYS 0560	Experiments in Modern Physics	
PHYS 1560	Modern Physics Laboratory	
Select one course in statistical mechanics:		1
CHEM 1150	Physical Chemistry: Thermodynamics and Statistical Mechanics	
PHYS 1530	Thermodynamics and Statistical Mechanics	
MATH 0190	Single Variable Calculus, Part II (Physics/Engineering)	1
MATH 0200	Multivariable Calculus (Physics/Engineering)	1
MATH 0520	Linear Algebra	1
Seven courses, primarily at the 1000 or 2000 level, in chemistry or physics.		7
Select two semesters of independent study:		2
PHYS 1990	Senior Conference Course	
CHEM 0980	Undergraduate Research	

Total Credits **21**

¹ Other approved courses in applied mathematics, biology, computer science, geological sciences, or engineering may be substituted for some of the twenty-one. Students are advised to take at least six courses in the humanities and social sciences.

Requirements for Honors

All Chemical Physics concentrators who have grades of A or S with distinction in a majority of their concentration courses will be considered for Honors; no separate application is necessary.

The requirements for Honors in Chemical Physics are:

* Grades of A or S with distinction in a majority of courses taken for the concentration.

* Two semesters of Independent Study (CHEM 0980 or equivalent). Guidelines and requirements associated with Independent Study are in the Undergraduate Concentration Handbook which can be found at the department website (<http://www.brown.edu/academics/chemistry/undergraduate/>).

* A Thesis in a form approved and recommended by the research advisor. Additional information about thesis guidelines will be provided to seniors by the Concentration Advisor.

* A Poster presentation at the chemistry department's spring undergraduate poster session.