

UCI School of Physical Sciences

Teaching • Research • Service

DEPARTMENT OF CHEMISTRY



SCHOOL OF PHYSICAL SCIENCES

Established in 1965, the UCI School of Physical Sciences rose to the top echelon of academia in a remarkably short time, and in 1995 became the first public university with two faculty to be awarded the Nobel Prize in two different fields. We offer top-rated educational and research opportunities for tomorrow's scientists, teachers, and technical professionals in the departments of Chemistry, Earth System Science, Mathematics, and Physics & Astronomy. Our world-renowned faculty members and research scientists teach and perform research with undergraduate and graduate students and postdoctoral fellows to explore the ever-advancing frontiers of knowledge.

DEPARTMENT OF CHEMISTRY

Chemistry is the science of molecules and materials. Chemistry plays a role in virtually all facets of life: whether you are interested in solar cells, colorful coatings, sunscreen, toothpaste, food products, the atmosphere, minerals, your body, or even the origin of your own emotions, there is chemistry behind it.

This broad perspective is also reflected in the courses offered through the Department of Chemistry, which range from general chemistry, to organic chemistry, to advanced topics such as molecular spectroscopy, nuclear chemistry and chemical biology. The Department offers various concentrations and tracks to majors, including programs in theoretical and computational chemistry, chemical biology, medicinal chemistry, and chemistry education.

B.S. IN CHEMISTRY

The major in Chemistry is selected by students planning careers in the chemical sciences and frequently also by those whose interests lie in biology, medicine, earth sciences, secondary education, business, and law. The curriculum of the Department is designed to satisfy the diverse needs of students and others who may have a desire or interest to study chemistry.

The Department offers a B.S. degree in Chemistry. In addition to the standard degree requirements, seven optional concentrations and one optional certification is available for students.

CONCENTRATION IN CHEMICAL BIOLOGY

This concentration prepares students for a wide variety of career options, including entry into the fields of biotechnology, cell biology, and medical or other health professional programs.

SPECIALIZATION IN ENVIRONMENTAL CHEMISTRY

This concentration prepares students to work in companies relying on chemical analysis of environmental samples, regulatory agencies, or advance their knowledge in graduate or professional school.

SPECIALIZATION IN MEDICINAL CHEMISTRY

This specialization is ideal for students interested in a career in medical or pharmaceutical fields.

SPECIALIZATION IN NUCLEAR AND RADIOCHEMISTRY

This specialization prepares students for a career in the nuclear energy and regulatory sectors.

SPECIALIZATION IN SYNTHETIC CHEMISTRY

This specialization will help students prepare for a career in chemical industry, along with graduate and medical school.

CONCENTRATION IN THEORETICAL & COMPUTATIONAL CHEMISTRY

This concentration provides students with a rigorous education and includes courses in math, quantum mechanics, and engineering.

CONCENTRATION IN CHEMISTRY EDUCATION

Focuses on courses useful for prospective Chemistry teachers.

CONCENTRATION IN CHEMISTRY EDUCATION/ SECONDARY TEACHING CERTIFICATION

Allows for students in Chemistry to earn a bachelor's degree and complete the required coursework and field experience for the California Preliminary Single Subject Teaching Credential at the same time. This is a 4-year program also called the Cal Teach Science & Mathematics Program.

American Chemical Society Certification is also available.

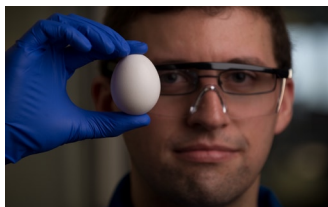
RESEARCH OPPORTUNITIES

The Department of Chemistry at UCI is home to world-class faculty who engage in cutting edge research in diverse areas of chemistry, from atmospheric chemistry, to the biochemistry of cancer, to the development of new solar cell materials. Undergraduate research opportunities are abundant, and many Chemistry majors are directly involved in the drama of scientific discovery working directly with the faculty.

UCI Chemist Greg Weiss and his team received the 2015 Ig Nobel Prize in Chemistry. Weiss' Ig Nobel is in recognition of his group's breakthrough technique of unboiling an egg with a high-speed machine that converts unfolded proteins into folded proteins. The published results show that the researchers were able to refold proteins thousands of times faster than with previous methods. This innovation could dramatically reduce costs for cancer treatments, food production and other segments of the \$160 billion global biotechnology industry.

Other major areas of research include:

- Analytical Chemistry
- Atmospheric Chemistry
- Chemical Biology
- Inorganic Chemistry
- Chemical Education
- Organic Chemistry
- Materials & Nanochemistry
- Physical Chemistry
- Theory and Computation



CENTER FOR SOLAR ENERGY

The UCI Center for Solar Energy was established in 2007 to pioneer research in solar energy conversion. Its mission is to study the fundamental scientific principles of solar energy and to educate scientists, students, and the general public about harnessing our most abundant energy resource. The center creates an environment for students to learn and discuss current scientific issues with leading faculty in the field of solar energy.

HONORS PROGRAM IN CHEMISTRY

The Honors Program in Chemistry is a research-based program offered to selected Chemistry majors during their final year. Applicants must have completed their junior year with a grade point average of at least 3.3 overall, and in their Chemistry courses. They must also have demonstrated the potential of carrying out research of honors quality, as judged by the Chemistry faculty member who will supervise their research. Students will complete a series of honors level courses and seminars, and submit a formal thesis late in the spring quarter. If all requirements are completed and the student's work and final GPA satisfies the program restrictions, the student will graduate with Honors in Chemistry, and this distinction is noted on their transcript.

PROGRAM OF STUDY

For all Chemistry majors, assistance in planning a program of study is available from the Chemistry Department Undergraduate Advisor, as well as from the Academic Counselors in the School of Physical Sciences. The following is a sample plan of courses for Chemistry majors.

1ST YEAR	General Chemistry, Analytical Chemistry, Mathematics, Writing, General Education
2ND YEAR	Organic Chemistry, Classical Physics, Computational Chemistry, Mathematics, General Education
3RD YEAR	Physical Chemistry, Adv. Analytical Chemistry, Chemistry Electives, General Education
4TH YEAR	Inorganic Chemistry, Chemistry Electives, General Education

More detailed plans can be found in the UCI Catalogue.

PHI LAMBDA UPSILON

Phi Lambda Upsilon is a national chemistry honorary society into which a few select graduating Chemistry students are invited. Phi Lambda Upsilon was founded in 1899 and was the first honor society dedicated to a single scientific discipline. It has grown into an organization comprising sixty-seven chapters and more than 55,000 members.

CHEMISTRY FIELD STUDIES PROGRAM

The Chemistry Field Studies Program is a summer industrial internship program for Chemistry majors who have completed their sophomore and junior years. The program's goals are to provide opportunities for students to experience research in a company and an area that interests them, open doors for long-term employment, and enable students to gain knowledge and experience with instrumental methods and chemical processes outside of UCI. Participating students will enroll in Chem 197 and receive academic units for their participation.

UNDERGRADUATE MENTORING PROGRAM

The Physical Sciences Undergraduate Mentoring Program (PSUM) is an initiative by the School of Physical Sciences to help undergraduate students succeed both professionally and academically. Students will have the opportunity to meet and converse with professionals from various career paths. The goal is to expose students to career and networking opportunities. Mentors coach students in career and academic decisions.



Photos Courtesy UCI Communications

ADDITIONAL INFORMATION

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