DISCOVER CHEMISTRY AT PACIFIC

The Department of Chemistry offers classes in the core-curriculum of majors in chemistry, biochemistry, pre-pharmacy, pre-dentistry, pre-medicine, biology, physics, physical therapy and engineering.

We encourage students to discover the program that fits them best. The degree program is designed with sufficient flexibility to allow a change in focus should this become desirable during the course of study. In addition, we encourage our majors to take advantage of the chance to work one-on-one with our faculty on research projects.

Students earning chemistry or biochemistry degrees at Pacific can expect to receive training in all practical laboratory skills, analytical techniques, computational methods, and in most of the current instrumental methods such as magnetic resonance and mass spectrometry.

These skills give our students confidence and a competitive edge as they enter the workplace or pursue graduate degrees.

THE **MAJOR**

The department offers courses covering the areas of general, organic, analytical, physical, inorganic, instrumental, theoretical chemistry, and biochemistry.

Students can pursue a B.S. or B.A. in chemistry, a B.S. in biochemistry, and a chemistry minor.

The department also offers M.S. and Ph.D. degrees in conjunction with the School of Pharmacy and Health Sciences.

THE **EXPERIENCE**

The department offers a variety of exciting and future-oriented research topics for students, stretching from organic synthesis, biochemistry, theoretical chemistry, to physical chemistry and spectroscopy. Our students also have the opportunity to engage in paid summer research with faculty members.

The department is home to the Beta Pi chapter of the professional chemistry fraternity Alpha Chi Sigma as well as the student organization Tri-Benzene.

THE **OUTCOMES**

The Department of Chemistry has a long history of success in placing undergraduate students into excellent medical, dental, pharmacy and graduate school programs. Our graduates have gone on to careers in industry, academia, government service, the health sciences, and private business. A chemistry degree provides a solid background for careers that can grow and adapt as the marketplace changes.

STUDENT **VOICE**

"I hope to work in either government or private research on drug development for neurological diseases and disorders. At Pacific, the class sizes are small enough that my professors all know me, and I have had the opportunity to meet with them one-on-one whenever I needed any advice."

Marcos Beltran-Sanchez
B.S. Chemistry

UNIVERSITY OF THE PACIFIC
College of the Pacific

DEPARTMENT OF CHEMISTRY
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OVERVIEW

Degrees Offered
Bachelor of Arts
Bachelor of Science

Majors Offered
Chemistry (BA, BS)
Chemistry with Departmental Honors (BS)
Biochemistry (BS)
Biochemistry with Departmental Honors (BS)
Pharmaceutical/Chemical Science (MS, PhD)
see Graduate Catalog

Minors Offered
Chemistry

Objective
An understanding and appreciation of underlying chemistry is becoming increasingly important for our lives and the future of our small planet. The emphasis in all chemistry classes is to provide a thorough understanding of basic chemical concepts and to develop the competence in how to apply these concepts in a logical fashion to solve real world problems. Students can choose among a variety of degree programs designed to meet a range of career goals. The Chemistry Department has a long history of success in placing students into excellent medical, dental, pharmacy and graduate school programs. Students are also well prepared for rewarding careers in industry, government service and private business. The Bachelor of Science Degrees in Chemistry are certified by the American Chemical Society (ACS). The BS Biochemistry program follows national guidelines.

The more rigorous Bachelor of Science degree prepares students for a variety of options including advanced degree studies in chemistry and biochemistry, professional schools of medicine and dentistry, and careers in the chemical industry.

Virtually all Bachelor of Science and many Bachelor of Arts candidates choose undergraduate research as one of their chemistry electives. In this course the student has the opportunity to use the modern instrumentation available in the department and to work closely with faculty and graduate students on an original research project. The graduate students are typically conducting independent research projects as part of a masters or doctoral program.

FACULTY

Jianhua Ren, Professor and Co-Chair
Jerry Tsai, Professor and Co-Chair
Skylar Carlson, Assistant Professor
Anthony D. Dutoi, Associate Professor
Andreas H. Franz, Professor
Joseph Harrison, Assistant Professor
C. Michael McCallum, Professor
George Pantouris, Assistant Professor
Vyacheslav V. Samoshin, Professor
Bálint Sztáray, Professor
Liang Xue, Associate Professor
Qinliang Zhao, Associate Professor

CHEMISTRY COURSES

CHEM 023. Elements of Chemistry. 4 Units
CHEM 024. Fundamentals of Chem. 4 Units
CHEM 025. General Chemistry. 5 Units
CHEM 027. General Chemistry. 5 Units
CHEM 033. Elements of Organic Chemistry. 3 Units
CHEM 093. Special Topics. 3 or 4 Units
CHEM 121. Organic Chemistry. 5 Units
CHEM 123. Organic Chemistry. 5 Units
CHEM 132. Teaching/Learning Chemistry. 2 Units
CHEM 134. Teaching/Learning Organic Chemistry. 2 Units
CHEM 141. Analytical Chemistry. 4 Units
CHEM 143. Instrumental Analysis Lab. 4 Units
CHEM 151. Biochemistry I. 4 Units
CHEM 153. Biochemistry II. 3 Units
CHEM 157. Biochemistry Laboratory. 4 Units
CHEM 158. Nucleic Acid Chemistry. 4 Units
CHEM 159. Biophysical Chemistry. 4 Units
CHEM 161. Physical Chemistry I-Thermodynamics. 4 Units
CHEM 163. Physical Chemistry II-Quantum Mechanics. 4 Units
CHEM 167. Experimental Physical Chemistry. 4 Units
CHEM 171. Advanced Inorganic Chemistry. 4 Units
CHEM 181. Intro to Molecular Simulation. 4 Units
CHEM 191. Independent Study. 2-4 Units
CHEM 193. Special Topics. 4 Units
CHEM 195. Chemistry Department Seminars. 1 Unit
CHEM 197. Independent Research. 1-4 Units