



Discover the possibilities...

Leading edge research with
an award-winning faculty

Master of Science in Chemistry

California State University, Los Angeles

MASTER OF SCIENCE IN CHEMISTRY

In Cal State L.A.'s research-based Master of Science in Chemistry program, students conduct leading-edge, hands-on research while working closely with award-winning, dedicated faculty. The program prepares students for supervisory and product development positions in industry, academic teaching positions, or more advanced study toward Ph.D. degrees in chemistry, biochemistry, or the molecular life sciences.

Providing students with a broad range of experiences in the chemical or biochemical sciences, the program develops skills in critical thinking, writing, oral presentations, and laboratory manipulative techniques.

A Comprehensive Examination Option is available for those who need to develop a more current understanding of chemistry and an expertise in specific areas of chemical application.

A Biochemistry Option offers a deeper understanding of the molecular life sciences. Students in this option may enroll in Chemistry and Biological Sciences course offerings.

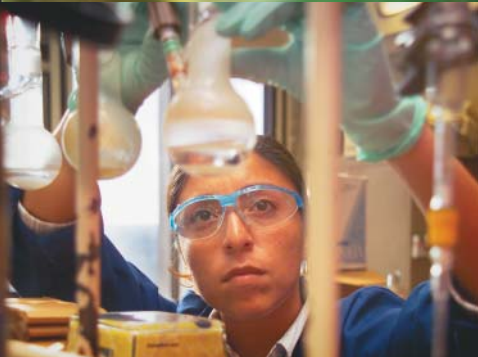
DEPARTMENT FACILITIES

The Department of Chemistry and Biochemistry will expand into a new, high-tech science building featuring state-of-the-art lecture halls, laboratories, and offices. Graduate students will have access to networked labs and several departmental computer rooms.

Currently, the major equipment includes FTIRs, computer workstations with molecular modeling software, bioinformatics workstations with macromolecular structure analysis programs, two atomic absorption spectrophotometers with graphite furnaces, capillary electrophoresis instruments, numerous HPLCs and GCs, a 600 MHz NMR, an atomic force microscope, an ellipsometer, a matrix-assisted laser desorption/ionization time-of-flight mass spectrometer (MALDI-TOF), a proteome analyzer station, cold rooms, a plant growth room, an electron spin resonance (ESR/EPR) machine, a circular dichroism spectrometer, an ICP mass spectrometer, lasers, glove boxes, ultracentrifuges, a peptide synthesizer, a fluorescence image detector, and a fluorescence microscope. Research specialists supervise training and assist in experimental design and results interpretation.



The Golden Eagle, opened in 2003, represents an evolving Cal State L.A. campus.



STUDENT TESTIMONIALS



The grad program here is excellent! Many wonderful opportunities in research are available with top-notch faculty and state-of-the-art equipment. Educational training here is unsurpassed, intellectually stimulating and enriching. — George Abuelkhair

The Master's program challenges students and helps them excel in preparation for Ph.D. programs in a variety of research areas. Professors are caring and understanding. — Steven Han



The program offers great opportunities to share and learn from top scientists. — Jake Leon

Professors remember students' names, even after the first class. They are always well prepared for lectures, and the laboratories are well equipped with modern instruments. — Lucy (Xiangli) Liu



I learned a great deal about the practice of chemistry and how a research lab runs, and I found some very good friends in my lab mates – the camaraderie and support has been wonderful. — Marisa Monreal

The graduate program is superb. Hands-on research allows us to acquire new skills. The combination of courses, workshops and seminars is excellent. — Lemar Smith



WHAT CAN I DO WITH AN ADVANCED DEGREE IN CHEMISTRY?

You might:

- Conduct research in a university laboratory
- Teach science at a college or university
- Prepare yourself for entrance into a Ph.D. program
- Perform research at federal, state and local government agencies, including the National Aeronautics and Space Administration (NASA), and the Center for Disease Control
- Work in forensic science laboratories
- Work for environmental protection organizations, biotechnology firms, pharmaceutical and medical research firms
- Join the sales and marketing force for manufacturing firms, environmental management organizations, and more!

A master's degree in chemistry will open countless doors of opportunity!



CHEMISTRY AND BIOCHEMISTRY FACULTY

Outstanding faculty guide the instructional and research programs. These top-notch researchers and educators are nationally and internationally renowned, and receive significant financial support from outside granting agencies, including the National Science Foundation (NSF) and National Institutes of Health (NIH). Cal State L.A. faculty have earned more Outstanding Professor Awards than any other campus in the 23-campus California State University (CSU) system.

FACULTY AND THEIR MAJOR RESEARCH INTERESTS

Yong Ba, Ph.D., 1995, Gerhard-Mercator University, Duisberg, Germany. Physical Chemistry —Development and application of magnetic resonance techniques for the study of short range ordered systems, including biomolecular recognition, porous materials and zeolitic-inclusive nano-clustered materials.

Krishna Foster, Ph.D., 1998, University of Colorado at Boulder, Physical Chemistry — Characterization of environmentally significant aqueous phase photochemical reactions using ion chromatography and mass spectrometry.

Raymond E. Garcia, Ph.D., 1976, University of California, Riverside, Biochemistry — Regulation of apolipoprotein and plasma lipoprotein metabolism by dietary cholesterol. Elucidation of the biochemical mechanisms involved in the development of atherosclerosis.

Harold Goldwhite, Ph.D., 1956, Cambridge University, England, Bioinorganic Chemistry — Inorganic and organo-phosphorus compounds with potential antitumor activities; intercalation in metal halides.


Frank A. Gomez, Ph.D., 1991, University of California, Los Angeles, Bioanalytical and Inorganic Chemistry – Development of fundamental and applied research in the areas of capillary electrophoresis (CE) and microfluidics. Specific areas of focus include the development of affinity CE (ACE), on-column synthetic derivatization, on-column enzyme assays, DNA separations, and novel microfluidic “lab-on-a-chip” devices for biological and chemical analyses. Development of novel synthetic procedures to carboranyl species based on ortho- and meta-carborane

Scott D. Grover, Ph. D., 1980, University of California, Los Angeles, Biochemistry — Enzymes as control elements in metabolic regulation. Molecular characterization of binding sites for enzyme activators and inhibitors.

Carlos G. Gutiérrez, Ph.D., 1975, University of California, Davis, Organic Chemistry — Synthetic methodology for the preparation of biologically active compounds, including: chelating agents for therapeutic and diagnostic applications; highly substituted crown ether compounds as selective ionophores and as enzyme models; siderophore compounds which selectively bind and transport ferric ion.

Grady Hanrahan, Ph.D., 2001, University of Plymouth, England, Environmental Analytical Chemistry — Design and development of analytical sensors for environmental monitoring. The use of chemometrics for experimental design and data analysis.

Alison McCurdy, Ph.D., 1995, California Institute of Technology. Organic Chemistry — Synthesis of organic molecules designed to mimic calcium signaling in cells by binding and releasing calcium ions in response to light. Investigation of the energetics of amino acid side-chain interactions in simple artificial proteins.



Jamil Momand, Ph.D., 1989, University of California, Los Angeles, Biochemistry — Redox regulation of transduction pathways with a particular emphasis on the p53 tumor suppressor protein. Effect of redox changes on DNA binding proteins. Development of new assays for quantitative analysis of oxidation reactions of protein amino acid residues.

Scott Nickolaisen, Ph.D., 1991, University of Southern California, Physical Chemistry — Use of flash photolysis/infrared technique to study the kinetics and mechanisms of the photochemical reactions of alkyl peroxy radicals.

Donald R. Paulson, Ph.D., 1968, Indiana University, Chemical Education - Research in pedagogical techniques that result in increased student learning and the development of critical thinking skills.

James A. Rudd, II, Ph.D., 2001, Iowa State University, Chemistry Education — Study and development of science instruction that promotes active learning through the use of writing tasks, guided-inquiry methods, collaborative learning environments, and computer based-animations.

Matthias Selke, Ph.D., 1999, University of California, Los Angeles, Organic Chemistry — Mechanistic Organic, bioorganic, and organometallic chemistry. Models for oxygen activation in enzymatic reactions. Organic and organometallic photochemistry. Chemistry of singlet oxygen.

Wayne Tikkanen, Ph.D., 1982, University of California, Santa Barbara, Organometallic Chemistry — Characterization and use of asymmetric homogeneous and heterogenized organo-zirconium and niobium complexes in organic synthesis.

Linda M. Tunstad, Ph.D., 1990, University of California, Los Angeles, Organic Chemistry — Supramolecular and host-guest complexation chemistry. Design synthesis and recognition studies of synthetic receptors, with size, shape and electronic complementarity to various guest molecules. Synthesis of molecules designed to self-assemble into supramolecular systems via noncovalent interaction.

Robert L. Vellanoweth, Ph.D., 1988, University of California, Berkeley, Biochemistry — Characterization of biochemical and molecular genetic events in the senescence of leaf tissue in *Arabidopsis thaliana*. Identification and cloning of senescence-specific genes and analysis of their regulation at the transcriptional level. Genetic dissection of leaf longevity using mutational approaches.

Feimeng Zhou, Ph.D., 1993, University of Texas at Austin, Analytical Chemistry-Trace metal analysis using ICP mass spectrometry and flow injection analysis. Characterization of chemically and biologically modified surfaces utilizing voltammetry, quartz crystal microbalance, surface plasmon resonance, and scanning probe microscopy (atomic force microscopy and scanning electrochemical microscopy); DNA sensor development and nanomaterial synthesis.



Slated for 2006: High-tech science facilities will feature state-of-the-art lecture halls, laboratories and office space to enhance the learning experience.

IT'S ALL ABOUT L.A.

Cal State L.A. is centrally located on a hilltop near downtown L.A., with easy access to Hollywood, Pasadena, and numerous Southern California attractions. The ocean, mountains and desert are just a short drive away. Recreational and cultural opportunities are abundant, including those at the on-campus Luckman Fine Arts Complex. The campus is easily accessible by car from two adjacent freeways, as well as by bus and Metrolink rail station. Housing is available on campus and in surrounding communities.



For applications and further information, contact:

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Apply online at www.csumentor.edu