

Chemistry Faculty and Their Research

The Clemson Department of Chemistry currently includes 25 permanent faculty with research interests that span the full range of modern chemical science. The following list presents a brief synopsis of the research interests of the faculty.

- J. Anker.** Analytical chemistry, Bioanalytical chemistry, Nanomaterials, Spectroscopy and Microscopy, Cellular biophysics.
- J. R. Appling.** Chemical education. Development of interactive instructional software and new instructional methods in general chemistry.
- D. P. Arya.** Organic and medicinal chemistry. Nucleic acid therapeutics, combinatorial synthesis, drug-DNA interactions, molecular recognition, antimicrobial drugs.
- G. Bhattacharyya.** Chemical Education. Philosophy of science, Practitioner development.
- J. Brumaghim.** Bioinorganic chemistry. Antioxidants, Coordination chemistry, Nucleic acid chemistry/ biochemistry.
- K. Christensen.** Bioanalytical chemistry. Spectroscopy and microscopy, Biophysical chemistry, Cell and microbiology, Intracellular probe design.
- G. Chumanov.** Analytical chemistry. Raman spectroscopy of biomolecules, properties and analytical applications of nanosize metal and metal composite structures.
- M. M. Cooper.** Chemical education. Technology based assessment methods, development and assessment of undergraduate laboratory curricula, cooperative learning.
- S. E. Creager.** Analytical chemistry, materials science. Electrochemistry, electron-transfer reactions, electrochemical sensors and detectors, electrochemical power sources.
- D. D. DesMarteau.** Inorganic chemistry, fluorine chemistry. Synthesis and properties of highly fluorinated compounds, selective fluorinations, fluorinated polymers.
- R. K. Dieter.** Organic chemistry. Asymmetric synthesis, synthetic methodology and reaction mechanisms, organocopper and organosulfur chemistry.
- B. N. Dominy.** Biophysical chemistry. Bioinformatics, computational chemistry, continuum electrostatics, protein evolution, drug resistance, drug design.

- L. Echegoyen.** Physical chemistry, materials science. Fullerenes, supramolecular chemistry and systems. Electrochemistry, magnetic resonance, electroorganic synthesis. Monolayer chemistry, chemical sensors.
- J. W. Huffman.** Organic and medicinal chemistry. Structure and synthesis of natural products and related compounds, pharmaceutical chemistry, cannabinoid chemistry.
- S-J. Hwu.** Inorganic, solid-state chemistry. Electrochemistry, nanostructured composite solids, electronic and magnetic materials, superconductivity.
- A. L. Kholodenko.** Chemical physics, materials science. Physics of electrolyte and polyelectrolyte solutions, disordered systems, semiflexible polymers, polymer physics.
- J. W. Kolis.** Inorganic chemistry, materials science. Synthesis and properties of unusual inorganic compounds, chemistry in supercritical fluids, main-group clusters.
- R. K. Marcus.** Analytical chemistry. Solids analysis by radio-frequency glow discharge atomic emission and mass spectrometries, novel stationary phases for liquid chromatography.
- J. D. McNeill.** Physical chemistry. Near-field microscopy, single molecule spectroscopy, organic semiconductors, molecular electronics.
- W. T. Pennington.** Materials chemistry, crystal engineering, halogen bonding, polymorphism, X-ray diffraction analysis.
- D. Perahia.** Physical chemistry, polymer science. Polymers at interfaces, X-ray and neutron scattering methods, probe microscopy.
- Dennis Smith.** Organic chemistry, polymer and materials chemistry. New polymer materials, liquid-crystalline thermosets, biodegradable polymers, fluoropolymers.
- Rhett Smith.** Organic, Polymer, and Materials Chemistry. Optoelectronic materials, hybrid organic/inorganic polymers, organophosphorus chemistry, and toxin sensor development.
- S. Stuart.** Physical chemistry. Computational chemistry, solvation at interfaces, nanotribology, carbon nanotubes, new computational methods and algorithms.
- Y. P. Sun.** Organic chemistry, polymer and materials chemistry. Organic photochemistry, fullerenes, nanomaterials.

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Graduate Studies in Chemistry

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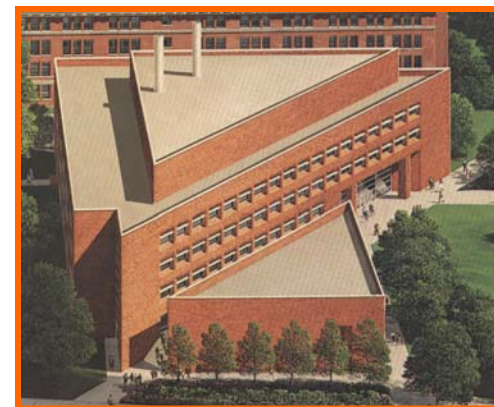
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<http://chemistry.clemson.edu>



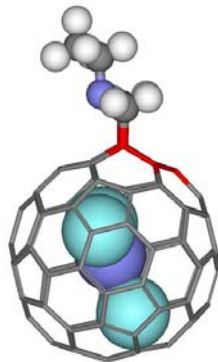
The Hunter Chemistry Lab at Clemson

A Word From Our Department Chair

Today more than ever, graduate education and research provide our society with the talent and expertise needed for rapid growth of our technology-based industries. Research in chemistry provides the driving force for advancements in traditional chemical industries, and also in diverse fields such as electronics, energy, communication, biotechnology, life and health sciences, and numerous others. Today's graduate degree in chemistry opens doors for a broader range of opportunities than ever before.

Choosing a graduate school is an important decision to which I am sure you will give much thought. One of the things that I believe makes the Clemson graduate chemistry program special is its unique combination of moderate size, vigorous research activity, and overall collegiality within the program. Students at Clemson can count on a lot of personal attention from faculty mentors as they pursue their research and develop as scientists. Do not let our modest size fool you, however; we are also a very active department, with a faculty size of 25 and over \$5.0 million in research expenditures and nearly 100 research publications from our faculty just last year. The collegial environment at Clemson is reflected in the close interactions between students and faculty, and also among graduate students within research groups and among different research groups.

If you wish to learn more about our program, I encourage you to call toll-free 888-539-8854, email us, or visit our website to request further information.



Dr. Stephen Creager
Department Chair

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Programs of Study

The Department of Chemistry at Clemson University is a mid-size graduate program, offering both MS and PhD degree programs, with 25 research faculty and approximately 100 graduate students. The department has faculty members with research efforts in all of the traditional areas of chemistry, with strengths in advanced materials, chemical biology, computational chemistry, nanoscale materials, and solid-state chemistry.

Candidates for an MS degree must complete at least 30 semester hours, 24 of which are graduate-level course work and 6 of which are research and thesis preparation. Students normally select a thesis advisor and committee during the first year of study, and the remaining course program is formulated after consultation with them. All degree candidates must present at least one research-based seminar to the department. The final stage of the program involves the writing and defense before the degree committee of a thesis describing the student's original research project.

Candidates for a PhD degree must complete graduate lecture coursework in the following areas: Broad Chemical Awareness, Focus Areas, and Distribution Requirements. Students must also demonstrate a comprehensive knowledge of their major area by satisfactory performance on a series of written cumulative examinations. All degree candidates are required to present at least three research-based seminars to the department as part of their degree-program. The final stage of the graduate degree program involves the writing and defense before the degree committee of a dissertation describing the student's original research project.

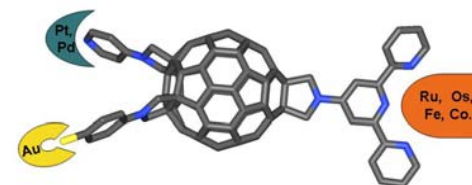
Research areas

Analytical • Physical • Organic • Inorganic
Materials • Fluoropolymers • Fuel Cells
Bioorganic • Medicinal • Supercritical Fluids
Synthetic Methodology • Polymers • Nanomaterials
Solid-State Chemistry • Surface Chemistry
Crystal Engineering Microwave Synthesis
Bioanalytical Computational Lasers

Applying to Clemson

An applicant must complete an application form and supply transcripts from the undergraduate program and any prior graduate program, test scores from the GRE general exam (verbal, quantitative, and analytical), at least two letters of recommendation, a personal statement, and a completed financial assistance form. International students must also submit a test score from either the TOEFL or IELTS exam.

The fee for making an official application through the Clemson Graduate School is normally \$55; however, fee waivers are available for a large number of applicants. All applicants are encouraged to contact the chemistry department directly to obtain a fee waiver before submitting a full application.



Graduate Assistantships

Almost all chemistry graduate students at Clemson are supported by either teaching or research assistantships during the full course of their studies. Students in the first year of study are normally supported as teaching assistants in undergraduate laboratory sections, for which the annual stipend will be \$21,000 in 2008-2009. Research assistantships are available to support students working on funded research projects. Department and University fellowships that can supplement the stipend for well-qualified applicants are also available.

