Engineering and Computing
UNIVERSITY OF SOUTH CAROLINA

Department of Chemical Engineering

Engineering Research Excellence

The Department of Chemical Engineering performs world class research to engineer the molecules, materials, and devices that lead to a more sustainable and healthier world. Areas of specialization include: **Electrochemical Energy Storage and Conversion; Experimental and Computational Catalysis; Machine Learning; Multi-scale Modeling; Energy-, Nano-, and Bio-materials; Separation Processes; Tissue Engineering and Regenerative Medicine.**

Competitive Stipend & Fellowships

- Ph.D. students receive a minimum of **$30,500** annual stipend plus tuition and insurance
- **SEC Engineering Dean's Graduate Fellow Program:** Awards supplemental stipend of $25,000 over five years
- **Presidential Fellowship:** Awards supplemental stipend of $40,000 over four years

Academic Rankings

The Department of Chemical Engineering at USC is booming! Research funding is at an all-time high, exceeding $6,000,000 per year. Recent National Research Council (NRC) combined rankings place our graduate program in the top 30, and US News & World Report places us in the top 60.

Location, Location, Location!!!

In the heart of South Carolina, tradition and tomorrow pair perfectly in Columbia. It's a modern city where stately buildings buzz with new businesses, and centuries-old sites give rise to fresh perspectives. It's a creative hub that's fed by university and capital city communities — all this in the midst of surrounding natural beauty near both to the Blue Ridge Mountains and the Atlantic Coast Beaches. With natural, cultural, and culinary attractions year-round, it's a southern hot spot that will leave you looking forward to what's next. What's going on in Columbia right now? Search #RealColumbiaSC on your favorite social network.

Our Faculty

Melissa Moss, Chair: Protein Self-Assembly; Alzheimer's Disease Mechanisms, Diagnostics, and Therapeutics
Edward Gatzke: Process Control; Diagnosis Modeling and Optimization
Michael Gower: Cell-Material Interactions; Inflammation; Tissue Engineering; Gene and Drug Delivery
Andreas Heyden: Computational Catalysis; Multiscale Modeling; Uncertainty Quantification; Machine Learning
Esmaiel Jabbari: Tissue Engineering; Bioimetic Materials; Bioinspired Nanocomposites; Peptide-Mediated Drug Delivery
Ehsan Jabbarzadeh: Cell and Tissue Engineering; Bio-MEMs and Microfluidics; Non-Viral Gene Delivery; Nano-Biotechnology
Golareh Jalilvand: Structural Materials; Batteries; Micro- and Nano-Fabrication; Flexible and Wearable Energy Storage Systems
Jochen Lauterbach: Environmental Catalysis; Nanomaterials for Energy Applications; Biofuels Production; CO2 Conversion
Chang Liu: Biosensors; Biomarkers; Clinical Diagnostics
Michael A. Matthews: Supercritical Fluids; Ionic Liquids; Green Chemical Engineering; Research-Based Learning
John R. Monnier (NAE): Heterogenous Catalysis; Bimetallic Catalyst Synthesis; Reaction Kinetics
William Mustain: Electrocatalysts; Electrochemical CO2 Utilization; Li Ion Batteries
Zhenmeng Peng: Catalyst Materials; Chemical and Electrochemical Reactions; Energy Storage; Electrochemical Engineering
Branko N. Popov: Electrochemical Power Sources; Corrosion
John R. "JR" Regalbuto: Catalyst Preparation and Characterization; Adsorption Theory; Reaction Kinetics; Computational Chemistry
James A. Ritter: Gas Separation and Purification
Sanaz (Monirosadat) Sadati: Soft Matter; Active Materials; Liquid Crystals; 3D Printing; Microfluidics; Rheology
Nader Taheri-Qazvini: Biohybrid Materials; Self-assembly; Polymer Physics; Bioprinting; Tissue Engineering
Mark J. Uline: Biological Interfaces; Statistical Mechanics and Thermodynamics of Simple and Complex Fluids
Tao Wei: Functional Materials; Bio-nano Interface; Biotechnology; Multiscale Simulations
Ralph E. White: Fuel Cells; Batteries: Electrodeposition; Corrosion; Numerical Methods
Christopher T. Williams: Heterogenous Catalysis; Surface Science; Catalyst Design; In-situ Vibrational Spectroscopy

Questions? Contact our Graduate Coordinator: Marcia Rowen // rowen@cec.sc.edu // 803-777-1261 // **www.che.sc.edu**