

Department at a Glance

- 34 faculty
- 160 graduate students
- 500 undergraduate majors

FSU's Chemistry & Biochemistry Department focuses on three major areas:

- Chemistry of Health—research in chemistry and biochemistry of health, drug discovery, and biology
- Chemistry of Energy and the Environment—new materials for energy conversion, rare-earth chemistry, green chemistry
- Advanced Measurements in Chemistry—new physical and analytical techniques for the study of chemical and biological processes

We prepare students for future jobs in chemical industries, national research labs, and academic institutions. Our recent graduates are employed not only in academic settings, but also at industries, such as Chemours, Toyota Vehicle Battery Division, Air Force Research Laboratory, Procter & Gamble, Merck, and in national labs, including Los Alamos, Oak Ridge, and NIST.

Chemistry & Biochemistry
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FLORIDA STATE
UNIVERSITY

Program Overview

Apply at www.chem.fsu.edu/reu

This REU Site aims to provide undergraduate students with cutting-edge research experiences in photochemistry and photophysics. Our program is devoted to advancing the state-of-the-art knowledge and technologies in solar-energy conversion, photochemical reactions, ultrafast photophysical events, and photomagnetic effects. The students will receive training in photochemistry and spectroscopy, including synthetic chemistry, various analytical techniques, and theoretical approaches. Our department hosts state-of-the-art research facilities open for use by students. Our faculty are actively involved in other interdisciplinary centers, such as the National High Magnetic Field Laboratory, High-Performance Computing Center, Institute for Molecular Biophysics, High-Performance Materials Institute, and Materials Science & Engineering Program.

Our REU Class of 2017



FSU CHEMISTRY & BIOCHEMISTRY

NSF-REU SITE
SUNSHINE INSTITUTE
FOR THE INTERACTION OF
LIGHT WITH MATTER

energy &
environment
health **cutting-edge**
research
measurements
highly motivated
people
state of the art
facilities



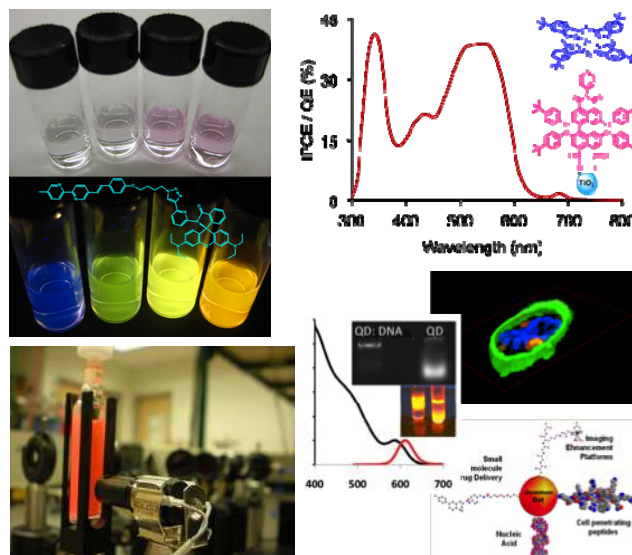
The Department of Chemistry & Biochemistry is a long-standing leader in the fields of spectroscopy and photochemistry. Our faculty and students carry out world-class research in an effort to address important societal challenges, such as renewable energy, sustainable chemistry, materials by design, and advanced technologies. Our students receive outstanding career-development training, which prepares them to solve important challenges of the 21st century.

REU research areas include: Photochemistry and photobiology, advanced spectroscopy and imaging techniques, photonics, solar-energy conversion, energy transfer, phototherapeutics, photomagnetism, sensor development, nonlinear dynamics and complex chemical kinetics.

Selected facilities and instrumentation:

- ◆ advanced laser spectroscopy facilities
- ◆ high-resolution optical imaging
- ◆ high-performance computational cluster

REU Site: Sunshine Institute for the Interaction of Light with Matter at FSU



Faculty Research Interests

Igor Alabugin, Professor

Light-activated cleavage of DNA in cancer cells; organic synthesis, physical organic chemistry and spectroscopy

Eugene DePrince, Associate Professor

Electronic structure theory; light-matter interactions via real-time time-dependent quantum mechanics

Bridget DePrince, Lecturer

Chemical education, development of effective educational models and assessment of their success

Ken Hanson, Assistant Professor

Investigation of photon upconversion and singlet fission by steady-state and time-resolved spectroscopy

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Edwin Hilinski, REU Site Director, Associate Professor

Study of ground- and excited-state properties of organic charge-transfer complexes with various combinations of covalently linked donor and acceptor moieties

Justin Kennemur, Assistant Professor

Polymer, monomer, and transition metal catalyst; functional molecules for environmental response and self-assembly; photostability of polymers

Susan Latturer, Professor

Flux synthesis of inorganic solids: magnetic alloys, photovoltaic compounds from molten sulfur

Jose Mendoza-Cortes, Assistant Professor

Theoretical investigation of artificial photosynthesis; multiscale theoretical modeling of biological processes

This NSF-REU Site features:

- ◆ Research projects designed specifically for undergraduate students in the program
- ◆ An individual faculty research advisor for each student involved in the REU program
- ◆ Direct lab mentorship by graduate students
- ◆ Weekly REU seminars for knowledge sharing
- ◆ Chemical and hazard safety training
- ◆ Professional development field trips to nearby industries and national research labs
- ◆ Seminar on graduate school applications
- ◆ Online video tutorials on fundamentals of photochemistry and spectroscopy
- ◆ Research presentations by REU faculty participants in the informal Photochemistry Café



Jack Saltiel, Professor

Investigation of photoreaction mechanisms with an emphasis on organic molecules of biological interest

Michael Shatruk, Professor

Photomagnetic phenomena; conversion of light to mechanical energy by molecular photo-actuation

Albert Stiegman, Professor

Investigations of the effects of microwave radiation on chemical reactions

Geoffrey Strouse, Professor

Intracellular and biomolecular events via nanometal surface energy transfer, time-resolved spectroscopy

Lei Zhu, Professor

Photophysical studies and fluorescence microscopic imaging applications of organic fluorophores