NORTHERN ILLINOIS UNIVERSITY

Department of Chemistry and Biochemistry

College of Liberal Arts and Sciences

Research Experience for Undergraduates (REU)

10-Week Summer Internship Program June 2 - August 10, 2019

There are two types of applications:

- **Individual undergraduate students**
- **Faculty/undergraduate student pairs**

- Applications received by February 28, 2019 receive full consideration.
- Primary selection criteria include academic record, career objectives and letters of recommendation.
- All participants receive a stipend of $5,000 (plus free housing is provided for all students).
- Each individual student or faculty/student team is matched with an NIU faculty mentor.
- Research opportunities range across a broad variety of research areas, such as chemical synthesis, nanomaterials, drug discovery, protein engineering, and computer modeling.
- Activities include workshops on scientific communication, lab safety, responsible conduct in research, as well as student research seminars and an end of program student poster session.

Faculty Mentors/Research Areas

Yingwen Cheng (Materials Chemistry and Electrochemistry) Development of novel energy materials and electrolytes for more powerful beyond-lithium-ion batteries.

Elizabeth R. Gaillard (Biophysical Chemistry) Characterization of mechanisms of disease related damage in the human eye and other biological tissue.

Thomas M. Gilbert (Computational Chemistry) Computer modeling of (1) non-traditional pericyclic reactions and (2) relative energy of transition metal diastereomers.

Timothy J. Hagen (Organic Chemistry) Design and synthesis of small molecules that inhibit enzymes for treating malaria and infectious disease.

Oliver Hofstetter (Biochemistry) Development of new analytical techniques using antibodies as detection and separation agents.

James R. Horn (Biochemistry) Protein engineering and characterization of protein interactions relevant to protein biologics and drug design.

Douglas A. Klumpp (Organic Chemistry) Inventing new chemical reactions to make substances such as dyes/pigments, drugs, polymers and other targets.

Tao Li (Biomaterials and Nanotechnology) Design and synthesis of bio-inspired functional nanomaterials for medical and energy applications.

Evgueni E. Nesterov (Organic Materials and Polymers) Synthetic methods towards semiconducting polymers; fluorescent sensors and optoelectronic materials and devices; organic photochemistry.

Irina V. Nesterova (Analytical Chemistry) Design and development of new molecular sensing systems for analysis of biologically relevant targets

Victor Ryzhov (Bioanalytical Mass Spectrometry) Structure and reactivity of radical ions; gas-phase catalysis using metal ion complexes.

Lee S. Sunderlin (Mass Spectrometry) Thermochemistry and periodic trends in molecules that break the octet rule.

Ralph A. Wheeler (Computational Chemistry) Computer modeling to (1) optimize metalloenzyme reactions and (2) visualize motions correlated with ionic conductivity of electrolytes.

Tao Xu (Physical Chemistry and Nanoscience) Nanoscale materials for energy conversion, storage, utilization and safety monitoring.

Chong Zheng (Physical and Computational Chemistry) Metal organic frameworks as catalysts and energy storage materials.

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