



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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