



## Department of Chemical and Biological Engineering

UNIVERSITY OF WISCONSIN-MADISON

## Learn about graduate school opportunities at UW-Madison



Opportunities for interdisciplinary research through several centers and training programs



Numerous resources for career development, DEI, entrepreneurship, outreach and education



Highly collaborative research to address challenges in advanced manufacturing, energy, environmental sustainability, and human health



Graduate life in an affordable city consistently ranked among the best places to live in the US



Collegial, supportive and inclusive department and campus culture

### Research Focus Areas



#### Bioengineering and Biotechnology

We are developing new technologies for disease prevention and treatment, producing materials and processes for tissue and organ regeneration, advancing understanding of living systems, and designing processes to produce fuels and materials from biological sources.

##### Representative Topics

Synthetic biology, protein and pathway engineering, drug design and delivery, controlled release, biointerfaces, anti-viral strategies, systems biology.



#### Materials, Polymers and Transport Processes

We are engineering new materials and performing fundamental studies to improve energy storage, detect environmental analytes, deliver therapeutic agents, produce sustainable polymers, and enable microfluidic technologies for human health, materials synthesis, and chemical synthesis.

##### Representative Topics

Soft materials, nanomaterials, fluid mechanics, colloid and interfacial engineering, self-assembly, synthesis, characterization.



#### Catalysis, Surface Science and Reaction Engineering

We are developing new processes, materials, and methods to sustainably produce fuels and chemicals, upcycle biomass, carbon dioxide, and plastic waste, advance understanding of electrochemical and thermochemical interfaces, and enable safe, sustainable energy storage technologies.

##### Representative Topics

Heterogeneous catalysis, electrochemistry and electrocatalysis, biocatalysis, kinetics and mechanisms, synthesis, characterization.



#### Theory, Data Science and Systems

We develop and apply theoretical, computational, and data-driven methods that span all length scales to predict reaction mechanisms, engineer material properties, model complex flows, understand self-organizing systems, and optimize processes and supply chains.

##### Representative Topics

Machine learning, computational chemistry, molecular simulations, process modeling and optimization, computational fluid dynamics.

#### Core Faculty

Styliana Avraamidou	Matthew Gebbie	Dan Klingenberg	David Lynn	Sean Palecek	Marcel Schreier	Reid Van Lehn
Rose Cersonsky	Michael Graham	Siddarth Krishna	Manos Mavrikakis	Brian Pfleger	Eric Shusta <i>department chair</i>	John Yin
Quentin Dudley <i>joining spring '24</i>	George Huber	Whitney Loo	Mai Ngo <i>joining fall '24</i>	Thatcher Root	Ross Swaney	Victor Zavala

#### Affiliate Faculty

AJ Boydston, Padma Gopalan, Ive Hermans, Vatsan Raman, Phil Romero, Jamie Schauer, Saverio Spagnolie, Ophelia Venturelli



**APPLY TODAY!**

Applications due  
**Dec. 1, 2023** for the  
fall 2024 PhD program.

#### Application fee waivers!

The department provides application fee waivers **upon request** to all domestic students, to international students who are currently enrolled in a US institution, and to all Fulbright Scholars.

#### For more information

**please contact:**  
[gradrecruit@che.wisc.edu](mailto:gradrecruit@che.wisc.edu)

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