

# Organic Chemistry

Department of Chemistry  
University of Illinois at Urbana-Champaign

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## What is Organic Chemistry?

The chemistry of carbon compounds (organic chemistry) has a long and rich history and continues to be a vibrant and dynamic field of research. Organic chemistry has evolved both as a core discipline and as an integral component of modern biology, medicine, materials science, and a host of other fields. Despite the expanding definition and influence of the field, the central mission of organic chemistry remains unchanged. Thus, the efforts of students within the organic chemistry area are squarely focused on the synthesis, characterization, and study of organic compounds, the understanding of structure, function, and reactivity, and the invention of entirely new reactions, processes, and properties.



### Martin D. Burke

Synthesis and study of small molecules with protein-like functions; molecular prosthetics; synthesis of complex natural products; iterative cross-coupling; MIDA boronates

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### Jefferson Chan

Application of organic chemistry to develop point-of-care diagnostics and targeted therapeutics for infectious diseases; synthesis of new chemical tools for non-invasive molecular imaging

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### Scott E. Denmark

The invention, development, and application of catalytic asymmetric organic reactions; elucidation of structure-reactivity-selectivity relationships employing spectroscopic, crystallographic, and computational methods

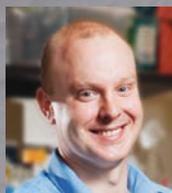
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### Paul J. Hergenrother

Using compounds derived from synthetic organic chemistry and natural products to explore biological systems; examples include the synthesis and evaluation of anticancer and antibacterial agents with novel modes of action

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### Douglas A. Mitchell

Reactivity-based natural product discovery; complex molecule structural elucidation and derivatization; structure-activity relationships and mode of action determination of biomedically important compounds

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### Jeffrey S. Moore

Organic materials including self-healing polymers; materials for energy storage; nanostructures; mechanochemistry

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# Organic Chemistry

## Other faculty with interests in Organic Chemistry

### Gregory S. Girolami

Organometallic chemistry; catalysis

### Mary L. Kraft (affiliate faculty)

Biomembrane surface science

### Yi Lu

Biocatalysis employing enzymes with unnatural amino acids or non-native cofactors

### Liviu Mirica

Transition metal-catalyzed oxidative organic transformations

### Ralph G. Nuzzo

Functional organic materials

### Eric Oldfield

Antibiotics; anti-cancer drugs

### Lisa Olshansky

Synthesis and application of switchable ligands to support dual metal ion coordination geometries

### Huimin Zhao (affiliate faculty)

Natural product biosynthesis; synthetic biology



### David Sarlah

Synthesis of complex natural products and the related chemical biology; methodology development; asymmetric catalysis

[chemistry.illinois.edu/sarlah](http://chemistry.illinois.edu/sarlah)



### Scott K. Silverman

DNA as a catalyst

[chemistry.illinois.edu/sks](http://chemistry.illinois.edu/sks)



### Wilfred A. van der Donk

Use of synthetic organic chemistry to address biological problems; antibiotic synthesis is of particular interest

[chemistry.illinois.edu/vddonk](http://chemistry.illinois.edu/vddonk)



### M. Christina White

Reaction and catalyst discovery; site-selective Fe, Mn, and Pd catalysts for introducing oxygen, nitrogen, and carbon into C-H bonds for streamlining synthesis and late-stage functionalization of complex natural products and pharmaceuticals

[chemistry.illinois.edu/mcwhite7](http://chemistry.illinois.edu/mcwhite7)



### Steven C. Zimmerman

Organic synthesis of "smart" molecules, catalysts, and polymers to solve problems at the interface of chemistry and biology or chemistry and materials

[chemistry.illinois.edu/sczimmer](http://chemistry.illinois.edu/sczimmer)

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