Chemistry 4932/Chemistry 6263
Advanced Organic Chemistry: Physical Organic Chemistry

Instructor

Dr. Wenqi Liu (wenqi@usf.edu)

Course Prerequisites

Organic Chemistry I (CHM2210) and II (CHM2211) or equivalent courses. It will be assumed that students are familiar with fundamental aspects of organic chemistry, including nomenclature, structure and bonding, the arrow pushing formalism, NMR spectroscopy, and some stereochemistry.

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Textbook

Advanced Organic Chemistry; Part A: Structure and Bonding, Fifth Edition, by Francis Cary and Richard Sundberg. (ISBN: 978-0-387-68346-1)
Software and programs: ChemDraw/Chem 3D/Avogadro/Mercury/MOPAC

Supplementary material:
"Modern Physical Organic Chemistry" by E.V. Anslyn and D. A. Dougherty.

Course Objectives

By the end of the course, students will be able to:

- Present reasonable mechanisms for general organic reactions .
- Identify the general reactivity of compound classes.
- Design experiments to investigate modern physical organic questions.
- Identify and apply the specialized tools and techniques to investigate organic chemistry in their research.
- Perform modern molecular orbital calculations using MOPAC program.
- Evaluate the state-of-art literature in the field of physical organic chemistry.
- Visualize and evaluate the three-dimensional structures of organic molecules.