

Chem 234: Organic Chemistry with Biological Applications

Course description: The continuation of Chemistry 231. Completion of the survey of functional groups with examples from aromatic and biological molecules, with emphasis on mechanisms and synthesis. In the tutorials examples will illustrate concepts and relevant spectroscopy.

Course Goals
Apply the systematic naming of chemical compounds
Develop an understanding of the representation of chemical structures
Develop the ability to draw molecules, including conventions and tools to represent their stereochemistry
Develop an understanding of the reductionist approach to complex molecules, and how atoms and small collections of atoms relate to chemical properties.
Develop the ability to draw reaction mechanisms
Develop the ability to apply the concepts of nucleophilicity and electrophilicity to chemical reactions
Develop an understanding of the concept of pKa in relation to organic functional groups and carbon acids.
Develop an understanding of the conceptual differences between a wide variety of reaction types
Acquire knowledge of organic chemical reactions
Develop an understanding of functional group reactivity in the design of multistep syntheses.
Develop the ability to apply the concept of energy barriers to chemical reactions
Develop the ability to draw conclusions about relationships between structure and reactivity
Develop an understanding of the basic theory and application of spectroscopy
Program Goals
Develop competence in problem solving.
Develop the ability to represent chemical information.
Develop an understanding of the use of models, their premises, advantages and limitations.
Develop an understanding of the impact and relevance of chemistry in society.