University of Arkansas - Fort Smith
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General Syllabus

CHEM 31663 Organic Chemistry I

Credit Hours: 3 Lecture Hours: 3 Laboratory or other types of Hours: 0

Prerequisite: CHEM 14203 College Chemistry II

Effective Catalog: 2026/27

I. Course Information

A. Catalog Description

Serves as an introduction to carbon-based chemistry. Covers the structural, stereochemical, physical, and chemical properties of hydrocarbons and alkyl halides. Substitution, elimination, and addition reaction mechanisms are covered with attention to electron motion and stereochemistry. Introduction to spectroscopy.

B. Additional Information - none

II. Student Learning Outcomes

A. Subject Matter

Upon successful completion of this course, the student will be able to:

1. Name hydrocarbons and alkyl halides
2. Analyze organic structures for stereochemistry
3. Predict the outcome of addition, substitution, and elimination reactions
4. Propose synthetic pathways to simple organic molecules
5. Analyze mass spectrometry, and infrared and nuclear magnetic resonance spectroscopy data.

B. University Learning Outcomes

Organic Chemistry I enhances student abilities in the following areas:

Analytical Skills
Critical Thinking Skills
Students will identify a problem or issue and will research, evaluate, and compare information from varying sources in order to evaluate authority, accuracy, recency,

and bias relevant to the problems/issues. Students will generate solutions/analysis of problems/issues evaluated and will assess and justify the solutions and/or analysis.

Communication Skills (written and oral)
Students will communicate proficiently. Students will compose coherent documents appropriate to the intended audience and effectively communicate orally in a public setting.

III. Major Course Topics

A. Alkane, alkene, and alkyne nomenclature
B. Physical properties of alkanes, alkenes, alkynes, and alkyl halides
C. Stereochemistry
D. Conformational analysis
E. Reaction mechanisms for addition, substitution, and elimination reactions
F. Introduction to spectroscopy