

**Northwest Arkansas Community College**  
(Science and Mathematics Division)

**Discipline Code**

CHEM

**Course Number**

2614

**Course Title**

Organic Physiological Chemistry

**Catalog Description**

Organic chemistry survey basic to the understanding of biological systems and related physiological chemistry. Special emphasis placed upon specific biohazardous materials. Three hours lecture and 3 hours laboratory weekly.

**Prerequisites**

CHEM 1024, CHEM 1074, or CHEM 1104, with a grade of C or better, or equivalent

**Credit Hours**

4 credit hours

**Contact hours**

45 lecture contact hours; 45 lab contact hours

**Load hours**

5 load hours

**Semesters Offered**

Fall and Spring

**ACTS Equivalent**

CHEM 1224 Chemistry II for Health Related Professions

**Grade Mode**

A-F

**Learning Outcomes**

Students completing this course will:

- Distinguish the general classes of organic compounds in terms of functional groups.
- Learn and identify nomenclature of compounds by interpreting molecular structures.
- Predict reaction products and balance reactions for each functional group of organic compounds.
- Differentiate the structure of biochemical molecules and describe their functions in biochemical systems.

## General Education Outcomes Supported

- Not applicable

## Standard Practices

### Topics list

- An Introduction to Organic Chemistry
- The Saturated Hydrocarbons: Nomenclature and reactions
- The Unsaturated Hydrocarbons: Nomenclature and reactions
- Alcohols, Phenols, Thiols, and Ethers [nomenclature and reactions]
- Aldehydes and Ketones [nomenclature and reactions]
- Carboxylic Acids and Derivatives [nomenclature and reactions]
- Amines and Amides [nomenclature and reactions]
- Carbohydrates
- Lipids and Their Functions in Biochemical Systems
- Protein Structure and Function
- Enzymes
- Nucleic Acids
- Metabolism

### Learning activities

- Lab safety orientation and enforcement of safety protocols is the responsibility of each faculty. A standard lab safety PowerPoint will be provided to students for training. Scoring 100% on a mandatory department-provided lab safety quiz is required before students may participate in lab.
- Laboratory exercises should average between 2-3 hours a week and include fractional distillation, organic synthesis, qualitative tests, and use of analytical instrumentation.
- Students should maintain a lab notebook that contains the following: experiment overview, goals of the experiment, chemical reactions and relevant physical/chemical properties of reagents, experimental procedure, data collected, calculations, and summary of the experiment.
- Students will learn to write reports and analyze data on their experimental work.

### Assessments

- Variable methods of assessment will be used which include, but are not limited to, exams and laboratory activities. Course-level assessment utilizes common questions on assessment at the end of the semester.

### Grading guidelines

- Lab activities/exams should comprise approximately 25% of the overall grade.

## Revision Date

April 19, 2022