

# Minnesota State University Moorhead

## CHEM 180: Introduction to Organic and Biochemistry

### A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 4

Lab Hours/Week: 0

OJT Hours/Week: \*.\*

Prerequisites:

CHEM 110 - Fundamentals of Chemistry

Corequisites: None

MnTC Goals: None

Introduction to organic chemistry and structure and metabolism of carbohydrates, lipids, proteins, and nucleic acids. Concurrent registration with CHEM 185. Credit not applicable to a chemistry major or minor.

**B. COURSE EFFECTIVE DATES:** 05/19/1999 - Present

### C. OUTLINE OF MAJOR CONTENT AREAS

1. What are alkanes, alkene, and alkynes?
2. What are the structures, names, and properties of alcohols?
3. What are ethers? What are thiols?
4. What are the structures, names, and properties of amines?
5. What are aldehydes and ketones?
6. What are carboxylic acids and how do we name them?
7. What are carbohydrates and how do we classify them?
8. What are lipids and what role do they play in the structure of membranes?
9. What are the structures and properties of triglycerides?
10. What are the structures of complex lipids?
11. What are steroids and the physiological roles of hormones?
12. What are amino acids and how do amino acids combine to form proteins?
13. What are the properties of proteins?
14. What are enzymes and how they are named and classified?
15. What are nucleic acids made of?
16. What is the structure of DNA? What is the RNA?

### D. LEARNING OUTCOMES (General)

1. Recognize the difference between an alkane, and alkene, or an alkyne.
2. Recognize the structure of ethers and their use in medicine.
3. Recognize amphetamines and different forms of alkaloids.
4. Recognize trans fatty acids and how to avoid them.
5. Recognize carbohydrates and the connection between carbohydrates and obesity.
6. Recognize the action of anti-inflammatory drugs.
7. Understand enzymes and the use of them in medicine.

**E. Minnesota Transfer Curriculum Goal Area(s) and Competencies**

None

**F. LEARNER OUTCOMES ASSESSMENT**

As noted on course syllabus

**G. SPECIAL INFORMATION**

None noted