

Alexandria Technical and Community College

CHEM 1410: Introduction to Organic and Biochemistry

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 1

OJT Hours/Week: *.*

Prerequisites:

This course requires any of these seven prerequisites

READ 0900 - College Prep Reading (Minimum grade: 2.0 GPA Equivalent and Number of Years Valid: 5)

A score of 1047 on test MN Comprehensive Assessment Reading

A score of 2 on test Reading

A score of 21 on test ACT Reading

A score of 480 on test SAT Evidence-Based Read/Write Composite

A score of 70 on test Accuplacer Reading Comprehension

A score of 250 on test Accuplacer NG Reading

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

This course meets Minnesota Transfer Curriculum (MnTC) goal area 3. This course provides the learner with an understanding of the principles and theories of organic and biochemistry. It includes concepts of organic chemistry and biochemistry including properties of organic compounds, nomenclature, functional groups, basic organic reactions, an exploration of biochemicals, and metabolic pathways. Lab experience is included. Prerequisite: College level reading score on a placement test or a minimum grade of "C" in College Prep Reading (READ0900).

B. COURSE EFFECTIVE DATES: 01/06/2004 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Amino Acid and Protein Chemistry and Metabolism
2. Carbohydrate Chemistry and Metabolism
3. Drawing Expanded, Condensed and Line Bond Formulas for Various Classes of Organic Compounds
4. Enzymes and Vitamins
5. IUPAC Nomenclature of Functional Groups
6. Lipid Chemistry and Metabolism
7. Most above content has accompanying Lab Component
8. Nucleic Acids and Biotechnology
9. Organic versus Inorganic
10. Reactions and Physical Properties of Various Organic Compounds

D. LEARNING OUTCOMES (General)

1. The learner will understand metabolic processes by exploring concepts concerned with the metabolism of carbohydrates, lipids, and proteins.
2. The learner will understand basic genetic processes involved with biochemistry by engaging concepts concerned with DNA replication, transcription, and translation, and by practicing recombinant DNA technology.
3. The learner will apply their knowledge of organic chemistry to biological chemistry by exploring the chemical and physical properties of carbohydrates, lipids, proteins, and nucleic acids in both the classroom and in lab.
4. The learner will gain a basic understanding of organic chemistry through nomenclature, drawing Lewis structures, and by learning the physical and chemical properties of organic compounds by laboratory experimentation.

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

Goal 03 - Natural Science

1. Demonstrate understanding of scientific theories.
2. Formulate and test hypotheses by performing laboratory, simulation, or field experiments in at least two of the natural science disciplines. One of these experimental components should develop, in greater depth, students' laboratory experience in the collection of data, its statistical and graphical analysis, and an appreciation of its sources of error and uncertainty.
3. Communicate their experimental findings, analyses, and interpretations both orally and in writing.
4. Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted