

Alexandria Technical and Community College

CHEM 1505: General Chemistry II

A. COURSE DESCRIPTION

Credits: 4

Lecture Hours/Week: 3

Lab Hours/Week: 1

OJT Hours/Week: *.*

Prerequisites:

This course requires both of these prerequisite categories

1. MATH 1420 - College Algebra

And

2. CHEM 1500 - General Chemistry I

Corequisites: None

MnTC Goals: Goal 02 - Critical Thinking, Goal 03 - Natural Science

This course meets Minnesota Transfer Curriculum (MnTC) goal areas 2 & 3. This course provides the learner with a continued development of the principles and theories of inorganic, physical, solution, and gas phase chemistry begun in CHEM 1500. It includes general chemistry principles of intermolecular forces; solutions; solids; kinetics; chemical, acid-base, and solubility equilibria; thermodynamics; electrochemistry; and nuclear chemistry. The laboratory component introduces techniques, methods, and instrumentation to further the content taught in lecture. Intended for chemistry majors and minors, biology majors, and pre-professional students.

B. COURSE EFFECTIVE DATES: 01/08/2018 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Intermolecular forces
10. Nuclear Chemistry
11. Collection, interpretation, and proper reporting of data
12. Proper use of computers for laboratory data storage
2. Solution properties
3. Solid structures
4. Chemical kinetics
5. Chemical equilibrium
6. Acid-Base equilibrium
7. Solubility equilibrium
8. Thermodynamics
9. Electrochemistry

D. LEARNING OUTCOMES (General)

1. The learner will demonstrate knowledge of kinetics, equilibria, thermodynamics, electrochemistry, nuclear reactions, nomenclature of organic compounds, and fundamental biochemistry concepts. Therefore, the learner be provided with a background for advanced courses in inorganic, organic, physical, and biochemistry.
2. The learner will demonstrate knowledge of higher level thinking skills through solving problems related to kinetics, equilibria, thermodynamics, electrochemistry, nuclear reactions, nomenclature of organic compounds, and fundamental biochemistry concepts.
3. The learner will demonstrate knowledge of ethical questions which arise in the chemical sciences.
4. The learner will demonstrate knowledge of communicating knowledge and ideas relating to chemistry in a clear and concise manner. This includes written communication through lab reports and oral communication through class discussion and presentation.

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

Goal 02 - Critical Thinking

1. Gather factual information and apply it to a given problem in a manner that is relevant, clear, comprehensive, and conscious of possible bias in the information selected.
2. Imagine and seek out a variety of possible goals, assumptions, interpretations, or perspectives which can give alternative meanings or solutions to given situations or problems.

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.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted