Minnesota State University Moorhead

CHEM 150: General Chemistry I

A. COURSE DESCRIPTION

Credits: 3

Lecture Hours/Week: 3

Lab Hours/Week: 0

OJT Hours/Week: *.*

Prerequisites:
This course requires any of these 22 prerequisites
- MATH 095 - Elementary/Intermediate Algebra
- MATH 099 - Intermediate Algebra
- MATH 127 - College Algebra
- MATH 127L - College Algebra with Lab
- MATH 142 - Pre-Calculus
- MATH 143 - Trigonometry
- MATH 210 - Concepts from Discrete Mathematics
- MATH 227 - Survey of Differential Calculus with Algebra
- MATH 229 - Topics in Calculus
- MATH 261 - Calculus I
- A score of 1 on test Transfer Equivalent to MATH 127
- A score of 1 on test Transfer Equivalent to MATH 095
- A score of 1 on test Transfer Equivalent to MATH 099
- A score of 22 on test ACT Math
- A score of 50 on test Accuplacer College Level Math
- A score of 520 on test OLD-SAT Math
- A score of 520 on test SAT Math Composite
- A score of 60 on test Accuplacer Intermediate Algebra
- A score of 540 on test SAT Math Composite
- A score of 250 on test Accuplacer NG Advanced Algebra Functions
- A score of 1158 on test MN Comprehensive Assessment Math
- A score of 60 on test Intermediate Alg Placement Test - CAT

Corequisites: None

MnTC Goals: Goal 03 - Natural Science

General chemistry principles: atomic structure, stoichiometry, solutions, bonding, periodic properties of the elements, thermochemistry, and properties of solids, liquids and gases. Should register for CHEM 150L (lab) to be taken concurrently. Must have completed an acceptable placement score, a minimum ACT mathematics score, or successful completion of Math 127. MnTC Goal 3.

B. COURSE EFFECTIVE DATES: 08/25/2008 - Present

C. OUTLINE OF MAJOR CONTENT AREAS

1. Nature of science and the scientific method.
2. Atomic and molecular structure.
3. Nature of light: interaction of photons and matter.
4. Chemical equations and the stoichiometric relation between reactants and products. Limiting reactants and percent yield.
5. The interaction of matter and energy: Phase changes, thermochemistry.
6. Basic mathematics of chemical systems: unit conversions, dimensional analysis, uncertainty and significant figures.

D. LEARNING OUTCOMES (General)

1. Understand and apply the following chemical principles: atomic structure, stoichiometry, solutions, several bonding models, periodic properties of the elements, thermochemistry, and properties of liquids, solids and gases.
2. Collect and graphically analyze experimental data and interpret the results in light of various hypotheses regarding the system or principle being studied.
3. Determine the relative error of experimental data and discuss the possible sources of this error.

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.

F. LEARNER OUTCOMES ASSESSMENT

As noted on course syllabus

G. SPECIAL INFORMATION

None noted