

MINNESOTA WEST COMMUNITY & TECHNICAL COLLEGE

COURSE OUTLINE

DEPT. CHEM

COURSE NUMBER: 1150

NUMBER OF CREDITS: 4

Lecture: 3 Lab: 1 OJT 0

Course Title:
Survey of Chemistry

Catalog Description:
Survey of Chemistry introduces key concepts of general, organic, and biological chemistry including measurement, matter, nomenclature, chemical quantities, chemical reactions, solutions, acids and bases, organic compound families and reactions, and macromolecules of biological importance such as carbohydrates, lipids, proteins, and nucleic acids. This course is for pre-health, medical science, and liberal arts students, and no recent background in chemistry is required. This course includes a lab.

Prerequisites or Necessary Entry Skills/Knowledge:
High school algebra (or) MATH 1107 (or) placement by multiple measures.

FULFILLS MN TRANSFER CURRICULUM AREA(S) (*Leave blank if not applicable*)

Goal 3: Natural Sciences: By meeting the following competencies:

- Demonstrate understanding of scientific theories.
- 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.
- Communicate their experimental findings, analyses, and interpretations both orally and in writing.
- Evaluate societal issues from a natural science perspective, ask questions about the evidence presented, and make informed judgments about science-related topics and policies.

Topics to be Covered (General)
Matter and measurement
Atomic structure and radioactivity
Ionic and covalent compounds
Molar quantities
Organic compound structure, nomenclature, and isomerism
Chemical reactions

States of matter and intermolecular forces
Solutions
Acids, bases, and buffers
Carbohydrates
Proteins
Nucleic acids
Metabolism

Student Learning Outcomes

Demonstrate understanding of the composition of matter including atomic structure; bonding; ionic and molecular compounds; classes of organic compounds including carbohydrates, lipids, proteins, and nucleic acids; states of matter; solutions; and intermolecular forces.

Demonstrate understanding of physical and chemical changes including reaction types, chemical equations, reaction rates, equilibrium, and biochemical processes.

Report and interpret measurements including uncertainty and sources of error.

Formulate and test hypotheses by performing laboratory or simulation experiments.

Communicate experimental findings, analysis, and interpretations.

Identify and interrogate issues in medicine, society, and/or the environment from the perspective of a chemist.

Is this course part of a transfer pathway: Yes No

*If yes, please list the competencies below

Revised Date: 2/20/2024