

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. Prerequisite: High school algebra (or) MATH 1107 (or) placement by multiple measures

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: X 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
Chemistry basics: matter and measurement
Atoms and radioactivity
Compounds: how elements combine
Introduction to organic compounds
Chemical reactions
Carbohydrates: life's sweet molecules

States of matter and their attractive forces: gas laws, solubility, and applications to the cell membrane
Solution chemistry: sugar and water do mix
Acids, bases, and buffers in the body
Proteins: workers of the cell
Nucleic acids: big molecules with a big role
Food as fuel: an overview of metabolism

Student Learning Outcomes
Identify and convert between various units of measurement including metric and SI systems.
Classify and describe states of matter, mixtures, and chemical reactions.
Describe the structure of atoms.
Identify radiochemical processes and medical applications of radioactivity.
Write in the language of chemistry, including chemical formulas, names of elements and compounds, and chemical equations.
Demonstrate the relationship between moles, molar mass, and particles by using conversion factors to correctly solve chemistry problems associated with the above terms.
Describe the structure of compounds and intermolecular forces
Define and identify acids, bases, and buffers
Identify functional groups and various classes of organic compounds including hydrocarbons, carbohydrates, lipids, proteins, and nucleic acids.
Predict products of selected organic reactions and biochemical processes.

Is this course part of a transfer pathway: Yes <input type="checkbox"/> No <input checked="" type="checkbox"/>
<i>*If yes, please list the competencies below</i>

Revised Date: 1/2022