

CHEM 025, Chemistry 25

6 credits, 6 hours lecture

Course Description

Chemistry 025 begins with an introduction to elements and the Periodic Table, followed by atomic theory and periodicity, chemical bonding and types of compounds, chemical nomenclature, and chemical reactions. The remainder of the course focuses on calculations involving measurements in chemistry, the metric systems (SI), and scientific notation as applied to gases, solutions (including acids and bases), and stoichiometry.

Alberta Education Course Equivalency: Science 10 (Chemistry unit) and Chemistry 20.

Pre and Co-requisites

Co requisite: MATH 010C

Course Learning Outcomes (CLOs)

Upon successful completion of the course, the student shall be able to:

- CLO 1 Recognize the main branches of Science and explain the scientific method
- CLO 2 List the five branches of Chemistry
- CLO 3 Describe the basic particles that make up the underlying structure of matter
- CLO 4 Explain the Atomic Theories leading to the modern structure of the atom (Dalton, Thomson, Rutherford and Bohr)
- CLO 5 Describe the three subatomic particles that make up the atom.
- CLO 6 Explain the division of elements in the periodic table
- CLO 7 Identify and characterize of elements in groups and periods
- CLO 8 Explain the chemical bonding and properties of compounds
- CLO 9 Classify and explain the structure of compounds.
- CLO 10 Write names and formulas for compounds
- CLO 11 Apply VSEPR theory to predict molecular shapes for molecules
- CLO 12 Explain the types of intermolecular forces
- CLO 13 Recognize the systematic chemical name of binary, ternary and higher compounds
- CLO 14 Recognize the difference between precision vs accuracy, types of errors and significant digits
- CLO 15 Employ the measurement system for unit conversion and density problems.
- CLO 16 Apply the mole concept for calculation of molar mass, moles of elementary units, and molar volume of gas
- CLO 17 Explain molecular behavior, using models of the gaseous state of matter.
- CLO 18 Investigate solutions, describing their physical and chemical properties
- CLO 19 Describe molar concentration, molar concentration of ions in solution, and dilutions
- CLO 20 Describe acidic and basic solutions qualitatively and quantitatively
- CLO 21 Explain how balanced chemical equations indicate the quantitative relationships between reactants and products involved in chemical changes.
- CLO 22 Use stoichiometry in quantitative analysis.

Evaluation

Assessment Type	Percentage
Assignments and quizzes	30%
Projects	20%
Midterm Exam (Units 1, 2, and 3)	25%
Final Exam (Units 4, 5 and 6)	25%

Course Completion Requirements

Minimum passing mark of 50% or D is required.

Grading Scale

4.0 Grade Scale	Alpha Grade	Percentage Grade
4.0	A+	93-100
4.0	A	85-92.9
3.7	A-	80-84.9
3.3	B+	77-79.9
3.0	B	74-76.9
2.7	B-	70-73.9
2.3	C+	67-69.9
2.0	C	64-66.9
1.7	C-	60-63.9
1.3	D+	55-59.9
1.0	D	50-54.9
0.0	F	0-49.9

Land Acknowledgement

We respectfully acknowledge that Keyano College is on Treaty No. 8 Territory, the ancestral and traditional territory of the Cree, Dene, and Métis people.

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