



Course Outline
CHM 1025C
Introduction To General Chemistry

General Course Information

Common Course Number: CHM1025C

Course Title: Introduction To General Chemistry

Prerequisite(s): One year of high school algebra or MAT0024

Co-requisite(s): None

Contact Hour Breakdown: CR CLASS 45hr LAB 45hr

Discipline: Chemistry

Catalog Description: Prerequisite: One year of high school algebra or minimum grade of C in MAT 0020C or MAT 0024C or appropriate score on an approved assessment. Prepares students without high school chemistry or with inadequate background for CHM 1045C. Modern chemical theories used to develop understanding of fundamentals of inorganic chemistry and its applications. Emphasis on quantitative relationships, using dimensional analysis to solve problems. Laboratory experiences are integral part of course. May not be taken for credit subsequent to earning C or better in CHM 1045C.

Major Topics/ Concepts/ Skills/ Issues

- Measurement and calculations
- Scientific Method
- Matter and energy
- Nomenclature
- Chemical reactions
- Atomic theory, structure, and bonding

Major Learning Outcomes with Evidence, Core Competencies and Indicators

Manipulate materials and make measurements in lab.	
Corresponding Evidence of Learning	
● Student will be able to In the lab portion of the class, each student will make mass, volume, and temperature measurements that can be checked for accuracy and precision.	
Core Competency: Think	
Indicators	Assessments
● analyze data, ideas, patterns, principles, perspectives	● Performance or Demonstration
Core Competency: Value	
Indicators	Assessments
● articulate a considered and self-determined set of values	● Performance or Demonstration
Core Competency: Communicate	
Indicators	Assessments
● employ methods of communication appropriate to your audience and purpose	● Performance or Demonstration
Core Competency: Act	
Indicators	Assessments
● implement effective problem-solving, decision-making, and goal-setting strategies	● Performance or Demonstration
Practice the scientific method.	
Corresponding Evidence of Learning	

<ul style="list-style-type: none"> • Student will be able to Students will explain how the scientific method is employed to improve knowledge, such as in the evolution of atomic theory. • Student will be able to Students will provide the definitions for theory, law, and hypothesis and identify examples of each. 	
Core Competency: Think	
Indicators	Assessments
<ul style="list-style-type: none"> • employ the facts, formulas, procedures of the discipline 	<ul style="list-style-type: none"> • Classroom assessment technique
Core Competency: Value	
Indicators	Assessments
<ul style="list-style-type: none"> • distinguish among personal, ethical, aesthetic, cultural, and scientific values 	<ul style="list-style-type: none"> • Locally developed exam/objective
Identify matter by phase and composition.	
Corresponding Evidence of Learning	
<ul style="list-style-type: none"> • Student will be able to Students will explain the differences in physical properties between the various phases. • Student will be able to Students will identify cases of and give examples of chemical and physical changes and properties. • Student will be able to Interconvert names and formulas for compounds and polyatomic ions. • Student will be able to Students will classify types of solids and provide examples. • Student will be able to Students will attribute the various properties of gases to the appropriate tenets of the Kinetic Molecular Theory of Gases. • Student will be able to Students will derive the empirical gas laws from the Ideal Gas Law • Student will be able to Students will utilize the Ideal Gas Law to calculate the properties of gases. • Student will be able to Students will utilize molecular-level concepts such as bonding and intermolecular forces to explain the differences in the properties of various types of solids. 	
Core Competency: Act	
Indicators	Assessments
<ul style="list-style-type: none"> • apply disciplinary knowledge, skills, and values to educational and career goals 	<ul style="list-style-type: none"> • Locally developed exam/objective
Recognizing and predicting matter and energy transformations in chemical reactions.	
Corresponding Evidence of Learning	
<ul style="list-style-type: none"> • Student will be able to Interconvert moles and grams. • Student will be able to Balance chemical equations • Student will be able to Calculate the amount of products and reactants in chemical reactions. • Student will be able to Calculate the amount of energy given off by a reaction. • Student will be able to Calculate the amount of energy required to heat, melt, or vaporize a given quantity of matter. • Student will be able to Classify and predict the products of precipitation, acid-base, and oxidation-reduction reactions. 	
Core Competency: Think	
Indicators	Assessments
<ul style="list-style-type: none"> • employ the facts, formulas, procedures of the discipline 	<ul style="list-style-type: none"> • Locally developed exam/objective
Discuss the evolution of atomic theory. Summarize modern atomic theory.	
Corresponding Evidence of Learning	
<ul style="list-style-type: none"> • Student will be able to Explain the experiments and discoveries of JJ. Thompson and E. Rutherford. • Student will be able to Contrast the plum pudding, Bohr, and quantum models of the atom. • Student will be able to Indicate the numbers of neutrons, protons, and electrons in atoms, ions, and isotopes. 	
Core Competency: Value	
Indicators	Assessments
<ul style="list-style-type: none"> • recognize values as expressed in attitudes, choices, and commitments 	<ul style="list-style-type: none"> • Locally developed exam/objective
Core Competency: Communicate	
Indicators	Assessments
<ul style="list-style-type: none"> • employ methods of communication appropriate to your audience and purpose 	<ul style="list-style-type: none"> • Locally developed exam/objective
Predict molecular shapes.	
Corresponding Evidence of Learning	
<ul style="list-style-type: none"> • Student will be able to Students will create Lewis dot structures for molecular compounds and polyatomic ions. • Student will be able to Students will examine Lewis dot structures to elucidate the three-dimensional shape and polarity of molecules. 	
Core Competency: Think	
Indicators	Assessments

• employ the facts, formulas, procedures of the discipline	• Locally developed exam/objective
Core Competency: Act	
Indicators	Assessments
• implement effective problem-solving, decision-making, and goal-setting strategies	• Locally developed exam/objective
Utilize the periodic table and electron configuration to explain the existence and charges on ions. Use the periodic table to predict bond polarity.	
Corresponding Evidence of Learning	
• Student will be able to Students will use a periodic table, applying knowledge of trends of properties on the periodic table to predict electron configuration, the size of atoms and ions, and bond polarity.	
Core Competency: Value	
Indicators	Assessments
• recognize values as expressed in attitudes, choices, and commitments	• Locally developed exam/objective
Core Competency: Act	
Indicators	Assessments
• apply disciplinary knowledge, skills, and values to educational and career goals	• Locally developed exam/objective

Addenda

- [CHM1025C - B. Javed2](#)

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