

General Education Course Objectives and Learning Outcomes

Course

Name: General Chemistry I

Course Number: CHEM 2124 with CHEM 2120

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Department: Physical Sciences

COMMON COURSE OBJECTIVES AND STUDENT LEARNING OUTCOMES THAT ARE OR WILL BE LISTED ON THE SYLLABUS OF EVERY SECTION OF THIS COURSE:

<i>Course objectives:</i>	<p>CHEM 2124 is designed as a broad, general overview of fundamental chemistry concepts that students will build upon in later courses.</p> <p>CHEM 2120 is a <u>co-requisite</u> for CHEM 2124, designed as an integral support for the course in a laboratory setting.</p>
<i>Student learning outcomes:</i>	<p>After successful completion of CHEM 2124, students will be able to:</p> <ol style="list-style-type: none"> 1. Describe the structure of an atom and explain periodic trends among the elements. 2. Apply the system of nomenclature to chemical compounds and describe their structures and physical properties. 3. Analyze stoichiometry and balance chemical reactions, including ionic, redox and nuclear. 4. Explain the properties of chemical systems based on fundamental laws of gases and thermochemistry. 5. Perform representative mole calculations in chemistry, including concentration calculations. <p>After successful completion of CHEM 2120, students will be able to:</p> <ol style="list-style-type: none"> 1. Observe the safety rules and regulations to promote a safe laboratory environment. 2. Perform and record measurements with appropriate equipment, correct precision and proper units. (supports CHEM 2124 Learning Outcomes 1-5) 3. Analyze data and draw conclusions, which are supported by the experimental data. (supports CHEM 2124 Learning Outcomes 1-5)
ADHE ACTS INFORMATION FOR THIS COURSE (IF APPROPRIATE)	
<i>ACTS Course number:</i>	CHEM 1414
<i>Copy the ACTS course objectives and learning outcomes:</i>	<p>The student will explain, describe, discuss, recognize, and apply knowledge of the following:</p> <ul style="list-style-type: none"> • Chemical reactions • Gases and the kinetic-molecular theory • Nuclear chemistry • Quantum theory and atomic structure • Electron configuration and chemical periodicity • Stoichiometry • Valence bond theory and molecular orbital theory • Inorganic Nomenclature • Thermochemistry
WHICH ATU GENERAL EDUCATION GOALS DOES THIS COURSE FULFILL? (NO MORE THAN TWO)	

Communicate effectively

Written communication

Oral communication

√ Think critically

Develop ethical perspectives

Diversity

Empathy

Leadership

√ Apply scientific and quantitative reasoning

Scientific reasoning

Quantitative reasoning

Apply the value of the arts and humanities

Practice civic engagement

**DESCRIPTION OF HOW THIS COURSE MEETS THE GENERAL EDUCATION GOALS CHOSEN ABOVE
(TO BE INCLUDED ON THE SYLLABUS OF EVERY SECTION OF THIS COURSE)**

CHEM 2124 supports two of Arkansas Tech University's general education goals:

1. Students will explain the properties of chemical systems and periodic trends among the elements, which requires **thinking critically**.
2. Students will perform representative mole calculations in chemistry, analyze stoichiometry and balance chemical reactions, explain the properties of chemical systems and periodic trends among the elements by **applying scientific and quantitative reasoning**.

CHEM 2120 supports two of Arkansas Tech University's general education goals:

1. Students will analyze data and draw conclusions, which are supported by the experimental data (supports CHEM 2124 Learning Outcomes 1-5), which requires **thinking critically**.
2. Students will perform and record measurements with appropriate equipment, correct precision and proper units (supports CHEM 2124 Learning Outcomes 1-5) by **applying scientific and quantitative reasoning**.