



Course Number Course Name	CHEM 1215 General Chemistry I for STEM Majors
Credit Value (Breakdown of theory and lab credits)	3 Theory
Catalog Course Description	Chemical and physical behavior of matter. Prerequisite: MATH 130, high school chemistry, or an ACT score of 19 or higher in Natural Science, and ENG 111. Corequisite: CHEM 1215L. (3, 3T+0L) Meets New Mexico Lower Division General Education Core Curriculum Area III Laboratory Science (NMCCN CHEM 1214 with lab)
Course Student Learning Outcomes/Objectives /Competencies	<ol style="list-style-type: none"> 1. Use dimensional analysis, the SI system of units and appropriate significant figures to solve quantitative calculations in science. 2. Explain the structure of atoms, isotopes and ions in terms of subatomic particles. 3. Understand the differences between physical and chemical changes to matter, and utilize the IU PAC system of nomenclature and knowledge of reaction types to describe chemical changes, predict products and represent the process as a balanced equation. 4. Apply the mole concept to amounts on a macroscopic and a microscopic level and use this to perform stoichiometric calculations including for reactions in solution, gases and thermochemistry. 5. Apply the gas laws and kinetic molecular theory to relate atomic level behavior to macroscopic properties. 6. Describe the energy conversions that occur in chemical reactions and state changes, relating heat of reaction to thermodynamic properties such as enthalpy and internal energy, and apply these principles to measure and calculate energy changes in reaction. 7. Use different bonding models to describe formation of compounds (ionic and covalent), and apply knowledge of electronic structure to determine molecular spatial arrangement and polarity. 8. Analyze how periodic properties (e.g. electronegativity, atomic and ionic radii, ionization energy, electron affinity, metallic character) and reactivity of elements results from electron configurations of atoms.
College-Wide Student Learning Outcomes measured (General education courses only)	<ol style="list-style-type: none"> 1. Critical Thought
Program Student Learning Outcomes measured	<ol style="list-style-type: none"> 1. The student should be able to identify and relate chemical phenomenon in everyday activities, technology and society. The importance in their community and in the future.



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| | <p>2. The student should be able to work in a laboratory setting following safety and standard chemical lab protocols. Synthesizing and Characterizing organic and inorganic compounds, planning and executing experiments.</p> |
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