

## CHEM& 162L: General Chemistry with Lab II

Chemical periodicity, chemical bonding and structure, elementary organic chemistry, intermolecular forces, properties of mixtures, and kinetics. Three hours of lecture and four hours laboratory. (E)

### Course Student Learning Outcomes

1. Describe how a system and its surroundings exchange energy in the form of heat and/or work at both the molecular and macroscopic levels.
2. Predict whether chemical reactions and physical processes are either endothermic or exothermic based on calculations of the change in enthalpy.
3. Predict whether a solute and solvent will mix to form a solution based on enthalpy and entropy of solvation, and calculate the resulting changes in the colligative properties.
4. Discuss and quantify the effects of the thermodynamic properties of enthalpy, entropy, and free energy on chemical equilibria.
5. Combine valence bond theory and crystal field theory to examine magnetism, color, and biochemical and industrial applications in coordination compounds.
6. Develop laboratory practices for conducting experiments and reporting experimental results within the context of the scientific method including the proper application of significant figures, precision, and accuracy.

Credits: 5

Prerequisites: 2.0 or higher in CHEM& 161L or permission of instructor.

Program: **Chemistry**