



## Course Description, Prerequisites, Co-requisites, and Competencies

### **CHM 4406L**

*Intermediate Inorganic Chemistry for Secondary Science Teachers Laboratory*  
2 credits

**Course Description:** Experiments and exercises will be conducted to strengthen the student's understanding of general inorganic chemistry. This course addresses several specific Sunshine State Standards, subject matter competencies, and pedagogy pertinent to the discipline and required certification. (4 hr. lab)

**Prerequisites:** CHM 3200, 3200L, 3120 and 3120L with a grade of C or better.

**Co-requisites:** CHS 4450

**Competency 1: The student will perform experiments and exercises designed to reinforce general inorganic chemistry topics such as:**

- a. Coordination compound synthesis and characterization.
- b. Qualitative analysis.
- c. Determination of an electrochemical cell potential.
- d. Gibbs free energy determination.
- e. Equilibrium constant determination.
- f. Chromatographic separations.
- g. Chemical kinetics.

**Competency 2: The student will demonstrate knowledge of experimental design and development by:**

- a. Reviewing concepts such as observations, hypothesis, predictions, experimental design, and conclusions.
- b. Interpreting the results of an experiment in which independent and dependent variables can be used to make predictions.
- c. Using technological methods of data acquisition, manipulation, and analysis.
- d. Demonstrating an awareness that the validity of scientific knowledge and its freedom from bias is based upon obtaining repeatable and statistically significant data.

**Competency 3: The student will demonstrate knowledge of laboratory safety and good laboratory practices by:**

- a. Displaying an awareness of laboratory safety issues such as:
  - i. The relevance of working in a safe laboratory environment.
  - ii. Physical hazards and risk assessment in the chemistry laboratory.
  - iii. Florida statutes related to safety in the chemical laboratory.
  - iv. The use of full body showers, eye protection, eye wash fountains, fire extinguishers, chemical storage room, and flammable and corrosive chemical cabinets.
  - v. Proper chemical disposal.
- b. Maintaining proper scientific data in a laboratory notebook by implementing rules of recording technique protocols and laboratory data collection.
- c. Turning in required reports and successfully completing laboratory work in a timely fashion.