

CEM 185H Honors Chemistry Laboratory I

Description: Spectroscopy methods for the study of electronic structure; synthesis and separation methods for the preparation and characterization of molecules; application to inorganic, organic, and biochemical molecules and materials.

Credit: 2 hours (1 hour lecture and 3 hours laboratory per week)

Prerequisite: (CEM 181H or concurrently) and departmental approval

Development of reasoning and written communication skills is an important aspect of this course. Students write a formal laboratory report for each of the 9 experiments.

Laboratories:

1. Complexometric Titration of Metal Ions in Water: Determination of Water Hardness
2. Atomic Emission Spectroscopy
3. X-Ray Fluorescence Spectroscopy of Artists' Pigments
4. Quantitation of Metals in Water using ICP-OES
5. Synthesis and Characterization of High Temperature Superconductors
6. Absorption of Light by a Solution
7. Synthesis and FTIR Characterization of Aspirin; Computational Chemistry
8. Synthesis and Characterization of Cobalt Complexes (Spectrochemical Series and Magnetic Susceptibility)
9. GC/MS Analysis of Flavor Compounds in Jelly Bellies