Freshman Year – Fall Semester

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)

Development of reasoning and written communication skills is an important aspect of this course. Students write a formal laboratory report for each of the 10 experiments.

**Laboratories:**

1. Complexometric Titration of Metal Ions in Water: Determination of Water Hardness
2. Synthesis and Characterization of High Temperature Superconductors
3. Absorption of Light by a Solution
4. Synthesis and Characterization of Transition Metal Complexes
5. Atomic Emission Spectroscopy
6. X-Ray Fluorescence Spectroscopy of Artists’ Pigments
7. Light Emitting Diodes
8. Synthesis and FTIR Characterization of Aspirin; Computational Chemistry
9. Separation of Plant Pigments Using Thin Layer Chromatography
10. GC/MS Analysis of Flavor Compounds in Jelly Bellys