

CHEMISTRY 105 – INSTRUMENTAL ANALYSIS LAB (4 UNITS)

COURSE OVERVIEW

Summary

Chem 105 provides a platform for students to learn about many useful lab analysis techniques. The lectures focus on the theory part behind the instruments/lab technique used, while the lab sections give students a chance to learn and operate the machines themselves. Examples of topics taught include atomic absorption and emission spectroscopy, mass spectrometry, gas chromatography, liquid chromatography, graphite furnace, voltammetry and capillary electrophoresis.

Prerequisites: Chem 4B; or 1B and 15; or 1B and a UC GPA of 3.3 or higher

Topics Covered

- Data & Error Analysis
- Atomic Spectroscopy
- Mass Spectrometry
- Separations (GC, LC, electrophoresis)
- Electrochemical Methods
- Surface and Microscopy Techniques

WORKLOAD

Course Work

- ~5 problem sets
- 5 lab reports (with one free late assignment)
- 1 midterm
- 1 final

Time Commitment

2 hours of lecture per week and roughly 4 hours of lab every other week.

CHOOSING THE COURSE

The class is only offered in the spring semester for upperclassmen. Seniors have priority to take the class.

ADDITIONAL COMMENTS

This class satisfies the lab elective requirement for chemical biology majors, and can satisfy one of the lab requirements for the chem major. The class is enjoyable as it offers

opportunities to learn a variety lab/instrumental techniques. The lab sessions are usually short although the data analysis can be tedious. The first few lab reports can be difficult because the grading rubric is vague. But going to GSIs' office hours definitely help. By the end of the class you will be very efficient at writing lab reports. Good luck!

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Last Edited: Spring 2018