

Chem 661-Instrumental Analysis

The objective of this course is to provide an overview of instrumental techniques used in analysis of different analytes. Many physically/chemically different analytes are encountered in different sample matrices, such as, solids, liquids and gases. Different sample preparation techniques and analytical instrumentation are needed for analyzing these species. It will not be possible to cover the whole spectrum of analytical techniques. The focus of this class will be on instrumentation such as chromatography and different types of spectroscopy.

Text Book:

1. Instrumental Analysis by Skoog and Leary. Harcourt Publishers.

Topics to be Covered and Schedule

1. Introduction to analytical instrumentation.
2. Gas Chromatography
3. High performance liquid chromatography (HPLC).
4. Mass spectroscopy.
5. Fundamentals of spectroscopy.
6. UV-Vis Molecular absorption
7. Atomic spectroscopy for measurement of metals.

Schedule of Experiments: Follow the lab manual.

1. Weeks 8,9 - Laboratory experiments in UV-Vis
2. Weeks 10-14 - Laboratory experiments involving GC, HPLC, AA, FTIR.

Grading System: 50% exams, and 50% lab reports.