

Abbreviated Syllabus for Chem 450 (Spring 2019)

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Class Meetings: F from 12:30 - 1:30

Lab Meetings: T from 12:40 - 3:30

Course Goals. Chem 450 provides an introduction to how analytical chemists design quantitative analytical methods. If you read almost any paper in the chemical or biochemical literature, you will find sections that rely on a careful, quantitative analysis. A paper in physical organic chemistry, for example, might include a detailed kinetic analysis using a technique called stopped-flow kinetics. Although the paper's methods section provides details on individual experiments, how do the authors know that their methods were capable of producing acceptable results? More important, why should you trust the results? If you trace back through the paper's references, eventually you will find a paper that describes a careful evaluation of stopped-flow kinetics and that characterizes its analytical utility. As with any area of chemistry, the possible topics are too broad to cover in a single semester; our content-specific goals, which necessarily are modest, are to understand:

- how to characterize an analytical method's performance capabilities
- the importance of sampling
- how to optimize and validate an experimental protocol

In addition to these content-specific goals, we have several broader goals; these are to:

- gain experience reading the chemical literature in analytical chemistry
- develop independence in the laboratory

Course Web-Site. Many useful materials, including a detailed schedule, copies of course materials, and answer keys to worksheets are available at the course's web site. The link to the site is:

<http://bit.ly/2kpnFsh>

Course Evaluation. Your evaluation in this course is based on an independent method development project and a variety of miscellaneous assignments.

Official Syllabus. A more detailed, official syllabus is available on the course's web site. You are responsible for reading and understanding the syllabus.