

**CHEM 5700**

**Advanced Analytical Lab**

**Spring 2013**

## **INSTRUCTOR**

Dr. Shelley Minter  
1304b HEB  
587-8325  
minter@chem.utah.edu

## **OFFICE HOURS**

Dr. Minter after class or by appointment

Note: I read and respond to email on evenings and weekends, so feel free to send questions about lab or lecture anytime.

## **REQUIRED TEXT**

Principles of Instrumental Analysis 6<sup>th</sup> edition by Skoog, Holler, and Crouch

## **COURSE DESCRIPTION**

The goal of this course is to introduce advanced laboratory techniques in quantitative instrumental analysis. Principles of instrumentation, techniques and sources of uncertainty and error will be addressed. Students should have successfully completed CHEM 3000 before taking this class.

## **HOMEWORK**

Suggested problems will be given throughout the lecture material. They will not be collected and graded, but they are critically important to successful quiz and exam grades.

## **ATTENDANCE**

Attendance at all lectures is expected.

## **COURSE COMPLETION REQUIREMENTS**

All projects must be completed before credit will be given for the course.

**GRADING**

Midterm Exam	20%
Final Exam	25%
Homework	5%
Journal article analysis	5%
Short reports	20%
Formal reports	25%

**ABSENCES FROM EXAMS**

If an exam is missed due to a **legitimate** reason, the exam may be made up during a specified period to be decided by the student and the professor. **All make-up exams will be oral exams.** All excuses must be brought to the attention of the professor as soon as possible. Delays may result in no make-up opportunity.

**TEACHING ASSISTANTS**

Section 2	M,W	12:55PM	Currier, Kristin	<a href="mailto:k.currier@chem.utah.edu">k.currier@chem.utah.edu</a>
Section 3	T,H	2:00PM	Rangel, Alexandra	<a href="mailto:arangel@chem.utah.edu">arangel@chem.utah.edu</a>
Section 4	M,W	6:00PM	Knowlton, Natascha	<a href="mailto:Natascha.knowlton@utah.edu">Natascha.knowlton@utah.edu</a>

**Tentative Lecture Schedule**

All lectures will be in JFB, TTh 12:45pm-1:35pm

Lecture	Date	Topic
1	Jan. 8	Syllabus, Intro to the course, and Review
2	Jan. 10	
3	Jan. 15	
4	Jan. 17	
5	Jan. 22	
6	Jan. 24	
7	Jan. 29	Mass Spectrometry Applications and Analysis
8	Jan. 31	
9	Feb.	
10	Feb.	
11	Feb.	
12	Feb.	
13	Feb.	
14	Feb.	
15	Feb.	

**Tentative Laboratory Schedule**

All labs will be in 4215 HEB. Section 2 M,W 12:55PM. Section 3 T,Th 2pm. Section 4 M,W 6PM.

1. Journal article critique and analysis. Due in Lab on Thursday, 1/17 or Friday 1/18
2. January 15-18: Check-in; pair up, clean glassware and complete Experiment One: Quantitative Absorption Spectroscopy. Prepare a prelab. Bring lab notebook, goggles, and a lock for your locker. Formal report due 1/24 or 1/25.
3. January 22-25: Experiment 2: Synthesis of Biodiesel and the Analysis by GC/MS (informal report)
4. January 28 through February 22  
Rotating labs:  
Experiment 3: Enzyme Reaction Kinetic Methods (formal report)  
Experiment 4: Gas Chromatography and Computer Interfacing (informal report)  
Experiment 5: Fluorescence Determination of Quinine (informal report)  
Experiment 6: Fourier Transform Infrared Spectroscopy (formal report)

Last lab reports are due Monday March 11<sup>th</sup> in 1304B HEB (my office)