

# CHM 4130 Analytical Chemistry Instrumental Analysis

Fall, 2011

**Dr. Weihong Tan**  
114 Leigh Hall  
846-2410  
[tan@chem.ufl.edu](mailto:tan@chem.ufl.edu)

**Office hours:**  
M W 9:30 am to 10:30 am  
or by appointment

**Teaching Assistant:** Emir Yasun, CLB 116, emiryasun@ufl.edu

**Lectures:** M W F – 2nd Period (8:30 to 9:20 am), LEI 242

**Textbook:** **Principles of Instrumental Analysis**  
6th Ed., Douglas A. Skoog, F. James Holler and Stanley R. Crouch, Thomson/  
Brooks/Cole, 2007

**The Course:** The goals of this course are to teach about the most important instrumental methods for chemical analysis. The attached syllabus shows the topics that will be covered. There are many more instrumental techniques than those shown on the syllabus, but these techniques represent the most widely used ones. For each technique and method, we will cover the underlying chemical principles, the instrumentation, and applications. It is hoped that by the end of this course, you will be familiar with methods you may see in the future, understand how measurements are made, be able to evaluate new methods and data from existing methods, and be familiar with the trends in future analytical measurements and instrumentation.

**Problem Sets:** The lectures are designed to facilitate your learning, to explain important concepts and direct your study. These lectures should be attended as much as you can. Problem sets will be assigned periodically throughout the semester as an aid in comprehending the course material. They will not be collected or graded. Doing the homework will be very helpful in preparing for the exams. Substantial parts of the exam will be closely related to the homework problems.

**Exams:** Three exams will be given in class on the days indicated. Graded exams will be returned as soon as possible. All complaints about exam grading must be submitted in writing within three weekdays after the exams are returned. If you cannot attend a scheduled exam, notify the lecturer in advance, if possible. You will have to provide solid proof of reasons for the absence. There will be no make-up exams. All exams will be closed book.

Exam I: around September 28, Wednesday  
Exam II: around November 2, Wednesday  
Exam III: around December 5, Monday  
Final: Optional and details will be given later.

**Report:** This is designed for active learning. You will choose a specific research paper and learn all the basics and the details of the paper.

You will then be required to write a report on this research article or topic related to the course material. The report will cover the following points: 1) what is the significance, 2) what work was carried out, 3) what was novel about the research, 4) what advantages, if any, were found over previous methods used for this problem. Journals to be used include, but are not limited to: Analytical Chemistry, Science, Nature, Analyst, and Analytical Biochemistry. Due date for the report will be around the end of November and will be announced later in the semester.

**Lab report:** In the beginning of this course, all students will be required to go to visit a lab where analytical instruments are working. Each student will open the box of an instrument and gain an in-depth understanding and skills in operating the instrument. The student will then be required to design an analytical experiment and write a report.

**Grading:** Grade will be based on 3 exams plus one research report and one lab report.

Exam I	100 points
Exam II	100 points
Exam III	100 points
Research report	100 points
Lab report	30
<b>Total:</b>	430 points

**Proposed Grade levels:**

A:	88%
A-:	85%
B+:	80%
B:	75%
B-:	70%
C+:	67%
C:	63%
C-:	60%
D+:	57%
D:	55%
E:	54% and below