

# 4:143 Analytical Measurements

## Spring 2007

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- Instructor:** Professor M. Lei Geng  
Office: 330 IATL Phone: 335-3167 E-mail: [Lei-Geng@uiowa.edu](mailto:Lei-Geng@uiowa.edu)
- Office Hours:** 11:00 am-12:00 pm, Tuesdays and Thursdays  
or by appointment.
- Teaching Assistants:** Claudiu Brumaru, Tyson Friday and Perry Motsegood (Lab TAs); Rui Zhang (Grader)
- Text:** *Analytical Measurements* course pack, University of Iowa, Spring 2007.  
Reference: Daniel C. Harris, *Quantitative Chemical Analysis*, 7<sup>th</sup> edition.
- Lecture:** Tues. & Thurs. 1:30-2:20 pm C139 PC
- Laboratory:** Tues. & Thurs. 2:30-5:20 pm 211A CB  
All laboratory work is to be performed during your assigned period.
- Course Web Site:** All course materials are available on the 004:143 Icon site. Syllabus, schedule, lab manual, lecture notes, announcements, answer keys to exams, and grades are posted in this site.
- Chemistry Department Office:** Professor David Wiemer  
Chair, Department of Chemistry  
Office: 305 CB Phone: 335-1350
- Course Objective:** The objective of this course is to teach the student the basic theory and practice of modern analytical chemistry. Experiments will cover quantitative chemical analysis and instrumental methods. Emphasis will be placed on analytical procedures and data analysis.
- Basic Schedule:** The schedule will be divided into lecture and laboratory sections. The basic principles of the experiments and the associated data analysis will be presented in the lecture section. Initial lab periods will be dedicated to analytical laboratory techniques and quantitative skills. Eight weeks of rotation experiments will follow focusing on advanced instrumental analysis.
- Grading:** The final grade will be based on the following point scale.
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|--|-------------------|
| Lab Reports  | 1050 points       |
| (Buret calibration: 50 points; All other experiments: 100 points each x 3) |                   |
| Exams (100 points each x 2)  | 200 points        |
| <u>Problem sets (50 points each x 3)</u>                                   | <u>150 points</u> |
| Total  | 1400 points       |
- Plus and minus grades will be given.
- Laboratory Notebook:** Experimental observations are to be recorded in your laboratory notebook in ink. *A carbon copy of the results must be turned in to your TA at the end of the lab period.* If the results are recorded in a worksheet on a computer, turn in a printed copy.
- Examinations:** The exams will focus on materials presented in both the lecture and laboratory portions of

the course. Multiple choices, calculations and discussion type questions will be included.

**Lab Reports:** A laboratory report will be required for each experiment. Items to include in the report are detailed at the end of each experiment instruction. Reports must be well organized and easy to read and follow. Please type or print your reports in blue or black ink. Headings for text sections are strongly encouraged. Axis labels and titles are required for plots.

The laboratory report is due by 5:20 pm on the date indicated in the course schedule. Late reports will be downgraded by **10 points per calendar day**.

**Regrades:** Reports and exams to be regraded need be turned in to Prof. Geng within a week after the initial date of return, with a short note indicating the part(s) to be regraded.

**Make-up Labs:** If a student misses a lab period because of illness or some other emergency, the student may make up the lab during the scheduled make-up laboratory period. The student must submit an approved excuse to the Chemistry Center and obtain permission from the instructor in order to make-up a lab. Only one lab may be made up during the course. The make-up labs will be held the week of May 1.

**Safety:**

- (1) Students are required to score 100% on a safety quiz before beginning the first experiment, to ensure proper preparation for chemistry laboratories.
- (2) It is crucial to wear safety goggles **at all times** in chemistry laboratories to protect your eyes. Safety glasses with side-shields do not provide complete protection.
- (3) You may not wear open-toed shoes. This includes sandals, thongs, and any shoe with perforations.
- (4) For protection in case of chemical spills, legs must be covered. If shorts, short dresses and skirts are worn, lab coats are needed for protection.
- (5) Report any injury to your TA **immediately**.
- (6) Eating and drinking are not allowed in the laboratory.
- (7) All chemicals and sharps must be disposed of as directed. If you are not sure how to dispose of something, ask your TA.

**Availability of Modifications for Students with Disabilities** I would like to hear from anyone who has a disability which may require seating modifications or testing accommodations or accommodations of other class requirements, so that appropriate arrangements may be made. Please contact me during my office hours.

**Student Rights and Responsibilities** All students in the College have specific rights and responsibilities. You have the right to adjudication of any complaints you have about classroom activities or instructor actions. Information is available in the College's Student Academic Handbook ([http://www.clas.uiowa.edu/students/academic\\_handbook/](http://www.clas.uiowa.edu/students/academic_handbook/)). You also have the right to expect a classroom environment that enables you to learn, including modifications if you have a disability.

Your responsibilities to this class-and to your education as a whole-include attendance and participation. ***Any student who does not turn in nine or more lab reports will automatically fail the course.*** You are also expected to be honest and honorable in your fulfillment of assignments and in test-taking situations (the College's policy on plagiarism and cheating is on-line in the College's Student Academic Handbook, at [http://www.clas.uiowa.edu/students/academic\\_handbook/](http://www.clas.uiowa.edu/students/academic_handbook/)). You have a responsibility to the rest of the class-and to the instructor-to help create a classroom environment where all may learn. At the most basic level, this means that you will respect the other members of the class and the instructor, and treat them with the courtesy you hope to receive in turn.

**Computer  
Facilities:**

The Chemistry Department computer facilities in 235 CB will be available for your use in the duration of the course. This room is accessible with your university ID cards.

**Policy on  
Plagiarism:**

All work performed in this course is expected to be your own. In some experiments you will work in groups with one or more partners, but your report must be prepared individually. **Once you leave the laboratory, no collaborative work is permitted.** If you have questions regarding an experiment, see the instructors. In grading the assignments and lab reports, the instructors will be looking for evidence of collusion. If such evidence is found, all parties involved will receive no credit for the assignment. These principles also apply to the use of graded lab reports from current or previous years.

You will receive no credit if it is determined that the work you turn in is not your own.

**Equipment  
Policy:**

All glassware and other equipment received at the beginning of the semester by a student registered for a given course and assigned a drawer/locker is the responsibility of that student. On the day of check-in, the student must insure that all the equipment required for the course is in the drawer, the glassware has no chips or cracks and that the equipment is in good working order. The Chemistry Department will replace any glassware or equipment that is defective at the time of check-in. At the end of the semester or at the time the student leaves the course, every piece of glassware and equipment must be returned to the Department without chips or cracks and in good working order. All pieces of glassware or equipment missing, broken, or not in good working order placed during the semester will be charged to the student through the University billing system after the close of the semester.