

Technology & Society Laboratory (4:006)

Spring 2008

Location/Time: 340 Chemistry Building
Section :001-Wednesdays at 1:30pm-3:20pm
Section :002-Wednesdays at 4:30pm-6:20pm
Section :004-Thursdays at 3:30pm-5:20pm

Instructor: Dr. John S. Kirk
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Teaching Assistant: Ari Saha
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Office Hours: Tuesday 11:30am-12:30pm, Wednesday 11:30am-12:30pm

Director of Laboratories: Earlene Erbe
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Course Prerequisites: You must be CURRENTLY enrolled in 4:005 or have PREVIOUSLY COMPLETED that course. You will be dropped from the roll immediately if that is not the case.

Required Course Materials:

- *Chemistry in Context Laboratory Manual*, American Chemical Society, 5th Ed.

Recommended Course Materials

- *Chemistry in Context: Applying Chemistry to Society*, American Chemical Society, 5th Ed.
- Handheld calculator with exponents, logarithms, square roots, etc.

Course Description: This course provides demonstrations and student experiments to illustrate the principles presented in the 4:005 lecture. Quizzes and a brief weekly lab report may be required.

Course Administration: Go to the Chemistry Center, Room 231 CB, for add/drop signatures, make-up lab forms, course handouts, and alternate textbooks for loan, and other administrative matters. Complaint procedures and policies on cheating can also be obtained here. The Chemistry Center hours are 8am-12pm and 1pm-5pm on weekdays except Fridays when the hours are 8am-12pm and 12:30pm-4:30pm. The Chemistry Center Manager is Lin Pierce, 335-1341 or lin-pierce@uiowa.edu.

Special Needs: Students with special needs which require modifications in testing or seating arrangements or other types of assistance should first contact the Office of Student Disability Services, 3101 Burge Hall (335-1462) and then the Chemistry Center.

Laboratory Safety: At the first laboratory meeting, you will be given a laboratory safety handout and a laboratory safety quiz that you are required to pass. You will be given instruction on proper procedures to insure your safety while in the laboratory.

Quizzes: At the beginning of each laboratory period, there will be a short quiz to check your preparation for the current experiment. The quiz will cover the assigned reading for the experiment to be performed that day. **The quizzes start promptly at the beginning of the laboratory period.**

Laboratory Reports: For each of the labs, you must write a laboratory report that is handed in at the beginning of the next laboratory period. You are expected to write the report by YOURSELF even though you may have a partner and may combine data with other groups. The laboratory report will consist of several parts as outlined on p. 4 of the syllabus.

Late Laboratory Reports: Laboratory reports are due at the beginning of the next lab period. The specific dates are listed on page 3. Two points per day are deducted for late reports. Turn late reports in to the Chemistry Center as soon as they are completed.

Grading: There are a total of 330 points in the course:

Lab Reports:	11 best reports (out of 12) @ 25 points each	275 points
Quizzes:	11 best quizzes (out of 12) @ 5 points each	55 points

Grading will be done on a curve. Traditionally the Chemistry Department has given the following grade distribution in this course: 15-25% A, 40-50% B, 15-25% C, etc. (plus and minus grades will be assigned and are included in the distribution.) The scale is adjusted up or down depending on overall class performance. You may miss one experiment (and quiz) out of the 12 without any penalty. If you complete all 12 labs, your grade will be calculated using your 11 best laboratory report scores and 11 best quiz scores. You must complete at least 10 laboratory experiments to obtain a passing grade in this course.

Absences: If you miss more than one experiment and would like to schedule a make-up for the experiment, you must obtain suitable documentation for your absence (such as a doctor's excuse). This documentation must be submitted to the Chemistry Center within one week of the missed laboratory experiment in order to be eligible for a make-up. Students may take one make-up experiment per semester.

<i>Week of:</i>	<i>Experiment Number:</i>	<i>Experiment Name:</i>	<i>Reading:</i>	<i>Report due week of:</i>
Jan 21-25	–	Lab sign-in	–	–
Jan 28-Feb 1	–	Introduction and Safety Quiz	–	–
Feb 4-8	1	Gases in Breath	pp. 1-8	Feb 11-15
Feb 11-15	Handout	Visual Delight of Quantum Dots	Handout	Feb 18-22
Feb 18-22	9	Chemical Moles	pp. 59-63	Feb 25-29
Feb 25-29	11	Energy Content of Fuels	pp. 67-73	Mar 3-7
Mar 3-7	14	Water Hardness	pp. 91-98	Mar 10-14
Mar 10-14	17,18	Rxns of Acids; pH Measurements	pp. 115-129	Mar 24-28
Mar 17-21	–	Spring Break	–	–
Mar 24-28	29	Vitamin C in Fruit Juice	pp. 203-209	Mar 31-Apr 4
Mar 31-Apr 4	26	Synthesis of Aspirin	pp. 177-185	Apr 7-11
Apr 7-11	25	ID of Analgesic Drugs by TLC	pp. 169-175	Apr 14-18
Apr 14-18	22	Chemical Reactions and Electricity	pp. 147-153	Apr 21-25
Apr 21-25	23	Polymer Synthesis and Properties	pp. 155-162	Apr 28-May 2
Apr 28-May 2	27	Fats in Snack Food	pp. 187-193	May 5-9
May 5-9	Make-up (13)	Analysis of Vinegar (with permission)	pp. 83-89	May 9

Laboratory Report Guidelines

Each experiment will be worth 20 points. In general, **laboratory reports will be due at the end of the laboratory period during which the experiment was carried out.** Each of your laboratory reports should contain the following sections:

The top of your first page you should include: the title of the experiment, your name, your section number, and the date.

Introduction: A brief passage (~ 1-2 paragraphs) providing relevant background information and defining the objective of the laboratory experiment. This section answers the questions: *What are you trying to examine, and why is it interesting?*

Procedure: Usually, the procedure section will simply reference the lab manual. However, if you modified the original procedure during your experiment, the modifications should be described in this section.

Data Sheets: Fill in the data sheets (found in your laboratory manual) with your experimental results, observations and calculations. Be sure to show all of your work for the calculations. No partial credit will be given if you do not show all of your work.

Conclusions: Briefly describe the main conclusions of the experiment. This section should be approximately 1-2 paragraphs long and should provide an interpretation of the results of the experiment. For example, *did you meet the objective of the experiment? Are your results reasonable? How do your results fit in with what have learned so far in 4:5 and 4:6?*

Questions: Complete the assigned “*Questions to be Answered After Completing the Experiment*” found at the end of each experiment. The specific questions to be answered for each lab will be announced by the TA prior to each experiment.

The scoring of each lab will depend on the format of the laboratory investigation undertaken, but a representative breakdown for a “typical” 25-point lab is as follows:

Laboratory Report (25 points)

Introduction	3	points
Procedure	2	point
Data Sheets	5	points
Conclusions	3	points
Questions	10	points
Lab Performance (Cleanliness, Safety, etc.)	2	points
Total	25	points

College of Liberal Arts & Sciences Policies and Procedures

Administrative Home of the Course: The administrative home of this course is the College of Liberal Arts and Sciences, which governs academic matters relating to the course such as the add/drop deadlines, the second-grade-only option, issues concerning academic fraud or academic probation, and how credits are applied for various graduation requirements. Different colleges might have different policies. If you have questions about these or other CLAS policies, visit your academic advisor or 120 Schaeffer Hall and speak with the staff. The CLAS Academic Handbook also contains important CLAS academic policy:

www.clas.uiowa.edu/students/academic_handbook/index.shtml

Academic Fraud: The University expects the highest level of integrity from its students. Plagiarism and any other activities that result in a student presenting work that is not his or her own are academic fraud. Academic fraud is reported to the departmental DEO and then to the Associate Dean for Academic Programs and Services who deals with academic fraud according to these guidelines: www.clas.uiowa.edu/students/academic_handbook/ix.shtml

Making a Suggestion or a Complaint: Students have the right to make suggestions or complaints and should first visit with the instructor, then with the course supervisor if appropriate, and next with the departmental DEO. All complaints must be made as soon as possible and always within six months of the incident.

www.clas.uiowa.edu/students/academic_handbook/ix.shtml#5

Accommodations for Disabilities: The University upholds actions of diversity and inclusion. A student seeking academic accommodations first must register with Student Disability Services (3100 Burge Hall, 335-1462, www.uiowa.edu/~sds/) and then meet with a counselor in that office who reviews documentation and determines eligibility for services. A student approved for accommodations should then go to the Chemistry Center, Room 231 CB, to arrange particular accommodations.

Understanding Sexual Harassment: Sexual harassment is reprehensible and will not be tolerated by the University. It subverts the mission of the University and threatens the well-being of students, faculty, and staff. Visit www.sexualharassment.uiowa.edu/ for definitions, assistance, and the full University policy.

Reacting Safely to Severe Weather: The University of Iowa Operations Manual section 16.14 (www.uiowa.edu/%7Eour/opmanual/v/16.htm#1614) outlines appropriate responses to a tornado or to a similar crisis. If a tornado or other severe weather is indicated by the UI outdoor warning system, members of the class should seek shelter in rooms and corridors in the innermost part of a building at the lowest level, staying clear of windows, corridors with windows, or large free-standing expanses such as auditoriums and cafeterias. The class will resume, if possible, after the UI outdoor warning system announces that the severe weather threat has ended (www.uiowa.edu/~pubsfty/siren.htm).

Student Classroom Behavior: The ability to learn is lessened when students engage in inappropriate classroom behavior, distracting others; such behaviors are a violation of the Code of Student Life. When disruptive activity occurs, a University instructor has the authority to determine classroom seating patterns and to request that a student exit immediately for the remainder of the period. One-day suspensions are reported to appropriate departmental, collegiate, and Student Services personnel (Office of the Vice President for Student Services and Dean of Students). www.uiowa.edu/~vpss/policies/ii/a.shtml