

CHEMISTRY 162U

Summer 2000

Lectures: M W Th F 8:30-9:30, Bagley 131

Lecturer: Dr. Gary Drobny
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Office hours: M, W 2:00-3:30
Most Afternoons 3-4
126 Bagley

Texts

Martin Silberberg, *Chemistry: The Molecular Nature of Matter and Change*. 2nd Ed.

Chapters covered in the following order: 16, 17, 18, 19, 20, 21.

Review chapters 4, 5 and 6.

Chemistry 162 Laboratory Manual, available at the Copy Center in Odegaard Library.

Prerequisites Completed Chem 142 and 152 with a grade of 1.7 or better.

Web address: <http://faculty.washington.edu/gdrobny/>

Click on Chemistry 162.

Course Objectives

Our goal in Chem 162 is to provide you with the opportunity to deepen your understanding of chemical reactions. You should more fully understand 1) reaction kinetics, 2) chemical equilibria, including buffer systems, 3) chemical thermodynamics, 4) electrochemical systems, and 5) transition metal coordination complexes. The Chem 162 laboratory is intended to provide laboratory experiences that emphasize and apply the concepts presented in lecture, to develop scientific writing skills, and to develop laboratory and data analysis skills. You will utilize your math and physics skills in this class, so that you can independently reason through many chemical phenomena.

Lectures: M, W, Th, F from 8:30 to 9:30 in BAGLEY 131. Lectures will not necessarily follow the text, but you are responsible for all material covered in the lecture including demonstrations, videos, and laboratory material. Lectures will follow the lecture outline available on line.

Quiz sections: Tuesdays, either at 8:30 (AA, AB, AD) or 9:40 (AC & AF); see class schedule. During quiz section, teaching assistants will supplement lecture material, assist with homework problems and laboratory work, and answer questions on the course material. Generally, a weekly set of homework problems, available on line, will be required. See your TA for time and place to turn in homework. For those weeks when a lab calculation is to be turned in, consult your TA for due dates. You will need the information from others in your section to compare your results with the average value and the use the results to compare errors. A short quiz will also be given. The quiz will normally consist of a problem similar to the homework problems. Each quiz is worth 5-10 points.

Laboratory sections: W, @12:00 or Th @ 12:00 in Bagley 290; see class schedule.

The laboratory experiments in Chem 162 are intended to reinforce the material covered in lecture. You must attend every laboratory session - no make-up lab is offered for Chem 162. All labs must be completed to receive a passing grade for the course. If you are absent for a medical reason, please see your TA for instructions.

Office hours TA office hour schedule available after first week of quarter.

Both instructors and TAs will hold regularly scheduled office hours. Office hours are times for you to receive individual assistance. Please take advantage of these opportunities. You do not need to come prepared with questions, but instead can use the time as a study session to work on problems, review

lecture and text material, or work on laboratory reports with a 162 instructor available to answer any questions. Please, feel free to contact me at the end of lecture or by phone or email for additional appointments.

The Chemistry Department also provides a Study Center in Bagley 330 where you can study and obtain assistance Monday through Friday. Refer to the hours posted for Spring quarter. (M-Th 9 to 6 PM; F 9-1 PM). Your TAs will have some hours in the Study Center and you can use that time to ask questions.

Safety

There is an element of hazard in any laboratory course. You are required to follow the safety rules as outlined in your laboratory manual. In particular you are required to wear **approved safety goggles** during all the experiments. If you do not wear your goggles while in the laboratory, you will not be allowed to perform the experiment and will receive a grade of 0 for that report.

Grading

Maximum points for the course are 600.

Homework/Quiz	100 points
Hour Examinations, 2 @ 100 points each	200 points
Cumulative Final Exam	100 points
Laboratory pre-labs and reports	200 points

I expect, but do not guarantee that earning 95% of the total 600 points will give a grade of 4.0 and that the mean grade for the course will be 2.9 equivalent to 65% of the total points. If you earn less than 40% of the course points you will earn a grade of 0.0. To pass the course with a grade of 0.7 you must complete **all** the laboratories and earn at least 50% of the laboratory points.

Homework Due on Tuesday, see your TA for time.

Problem sets will be assigned. *Working the problems is essential for learning introductory chemistry and students are encouraged to work extra problems.* Use proper format which is as follows:

(i) On the upper right hand corner of the top page please print on three lines:

your name student number
CHEM 162UX (substitute your section letter for X) TA name
Homework Set #Y Due Date

Please hold pages together with a staple in upper left corner.

You may write on both sides of the page. One problem, worth 5 points, will be thoroughly graded and 1 point will be awarded for each additional problem completed (these problems will not be thoroughly graded) up to a maximum of 5 points. Each homework set is worth 5-10 points total. Talk to your TA about late homework because, generally **late homework will not be accepted**, so hand in whatever you have completed on the date it is due. Homework will be returned during the following quiz section. Keep a copy of your homework to study when there is an exam scheduled before the homework is returned. Answers will be posted on the CHEM162 Web site. The homework is essential to doing well in the course. To reinforce the utility of homework, some of the homework questions will be on the Examinations, with only the numbers changed slightly. The rest of the Exams will consist of questions like those at the end of the chapters. Doing ALL of the problems in the back, and doing them efficiently and without referring to the textual material is THE BEST way to prepare for exams. You should be able to do a typical homework problem in 5 minutes.

The First Quiz Section The first week, plan to review your knowledge of the material in Chapters 4 and 5, which will also be reviewed in the first two lectures, including stoichiometry, acid-base reactions, strong acids and bases (Table 4.2) gas laws, and solution concentration calculations.

Examinations

Bring a number 2 pencil, a 8.5 x 11 inch page of notes (double-sided), a blue book, and your calculator to all exams

There will be a seating chart for all exams. You will be seated by TA section. You will receive your exam from your TA and you must return your exam to your TA for grading. Three exams are scheduled: see the schedule at the end of this document. Each will consist of 100 points and cover the chapters from the text and laboratory experiments as listed in the course schedule. Because knowledge of chemistry is cumulative, questions on exams will often depend on earlier chapters including those covered in Chem 142 and 152. Hour exams will be returned in the following quiz section. Keys to exams will be posted on the Chem 162 bulletin board in Bagley Hall. The final exam will cover the entire quarter and be worth 200 points. University regulations state that “an instructor shall not, except in very unusual circumstances, grant permission to individual students for an early examination.”

REGRADING OF EXAMS: Errors in recording or adding grade scores sometimes occur. Also there can be errors in grading or in partial scoring of a problem. To obtain an exam score corrections, you **must** staple a cover page to the exam, stating name, quiz section and student number. On this page, explain the error and turn the exam in to the lecturer. Grading errors must be greater than +2 points (our margin of error) for corrections to be made. The **entire** exam will be re-graded when a re-grade is requested...so it is possible that a re-grade request may actually result in an overall **loss** of points. **Never make extra marks on the exam if you want a regrade!** Exams for re-grade must be turned in to the lecturer within two days of their return to you and the posting of the key. Be sure to indicate on your cover page what you disagree with in the grading and how your answer is in agreement with the answer key.

Pre-lab Exercises: Due the day before your laboratory, see your TA for when and where to turn in. Before starting each laboratory experiment the pre-lab exercise must be completed. You can obtain copies of the prelabs at the Copy Center at Odegaard Library or you can download a copy from the Chem 162A web site (when you print a copy be sure to check symbols and format such as, Δ and $^{\circ}\text{C}$, against the original). If you have not done the prelab exercise you may not work in the laboratory.

Laboratory Notebook

Bound laboratory notebook with numbered pages (not loose leaf or spiral), are available at the bookstore. All recording and reporting must be in this notebook **IN INK**. Line through your errors neatly instead of erasing or whiting out. Writing data on anything other than your notebook is unacceptable.

On the first page of your notebook write (i) your name and student number, (ii) Summer Quarter 2000, (iii) the course number, Chem 162A, (iv) the name of your TA. Leave room for a table of contents to note the starting page number for each of the eight labs you will do during the quarter. Write only on the right-hand page of the notebook while in the laboratory and for the purpose and procedure sections (see below). Save the left hand pages of the notebook for calculations or comments added outside of laboratory. Put a page number on each page unless the bound notebook already has page numbers.

The Purpose and Procedure sections of your notebook must be completed before your laboratory period. Your TA will check your notebook before you start working in the lab. Any student who has not completed these sections will be asked to leave the laboratory to complete the assignment before beginning the experimental work.

Before leaving the laboratory, your notebook must be initialed by your TA for your laboratory work to count .

Laboratory Reports

Either a report form (for labs #1,2,4,6,7) or a formal report with Excel template (for labs #3, and 5) is due at the beginning of the next week's laboratory section. **Late reports will not be accepted.** During the quiz section or when you turn in your homework (at the TA's discretion) you must report your results from the week's experiment to your TA. The results will be pooled, and the mean and standard error will be reported to you by the TA. Consult with your TA about the method of receiving the information. You will need these results to complete your report.

Report forms and templates are available from the Odegaard Copy Center or from the Chem 162 web site (when you print a copy be sure to check symbols and format such as, Δ and $^{\circ}\text{C}$, against the original). For the formal reports, see page 4 of the 162 laboratory manual for a description of what to include in your reports. Every student is expected to type the laboratory reports and, for data and graphs, use the Excel templates provided on the web. You may either use the computer spreadsheet program to complete data tables, graphs, etc., or you may use a copy of the template and fill in your data and results by hand. During the first week of the quarter TAs will conduct training sessions on the use of Excel spreadsheets in the Study Center, please come by for a session or go over the tutorial provided on the web.

In addition to grading your laboratory report, TAs will award discretionary points for good laboratory practice (safe and proper handling of equipment and materials, cleanliness, proper data recording, legible reports, etc.).

Disabled Student Services- If you would like to request academic accommodations due to a disability, please contact Disabled Student Services (DSS), 448 Schmitz, 543-8924 . You must obtain a letter from Disabled Student Services indicating that you have a disability that requires academic accommodations. When you have obtained the appropriate paperwork from DSS and made it available to the Chemistry 162 Lecturer, the necessary arrangements will be made. Under no circumstances will academic accommodations be made without DSS input.