

CHEMISTRY 101 Laboratory/Recitation

Fall 2002

SECTIONS 527 - 538

NOTES and SCHEDULE

Required Materials:

- 1) "General Chemistry", Whitten, Davis and Peck, 6th Edition, 2000.
- 2) "Experiences in Chemistry - I", L. Peck and V. Williamson, 2003.
- 3) Lab notebook (8 1/2" x 11" duplicate "no carbon paper required", perforated pages).
- 4) Approved Eye Protection. University and Departmental Regulations require that splash-proof, chemical goggles be worn by everyone present any time any experimentation is being conducted or any time chemicals or equipment are being moved by anyone in the laboratory. [The Graduate Chemistry Fraternity will be at the labs the first week of lab to sell suitable goggles at \$5 (cash or checks)]. Failure to wear goggles will result in expulsion from the laboratory for the experiment involved. If you forget, you will be able to rent them at the Stockroom window for \$4 with AggieBucks or for \$10 through SIMS - so don't forget them! It would be a costly mistake!

Optional Materials:

- 1) Calculator suitable to use on lecture exams. May not have multi-line screen nor extensive memory.
- 2) Laboratory apron or a nonflammable lab coat. An apron or lab coat will be required in the laboratory if your shorts or skirt do not cover your knees.

Policy on Safety and Breakage

Before working in this laboratory/recitation portion of the course, every student must read the "Laboratory Safety" rules in the laboratory manual plus any Departmental Rules and agree in writing to abide by these rules. It is imperative for your safety that you and everyone around you strictly adhere to the Safety Rules. Failure to comply with the safety regulations (*e.g.*, by not wearing eye protection at all times; by wearing open-toed shoes; by wearing short skirts or shorts without also wearing a labcoat or apron; by running an unauthorized experiment; or by removing chemicals or equipment from the lab) may result in dismissal from this portion of the course or deduction of points on your reports. You will be utilizing equipment furnished by the Chemistry Department. It is your responsibility to properly maintain the equipment while it is in your care. If equipment that has been entrusted to you is not returned in satisfactory condition, you will be held responsible for it.

Lab/Recitation Grading and Absence Policy

Absences: The following schedule gives the date that each experiment, quiz, recitation activity, etc., is to be completed. Excused absences must be reported to your instructor in a timely manner. Only your lab instructor can arrange make-up sessions for students who missed due to a university approved reason.

Data Sheets: A data sheet must be submitted at the end of the lab period to receive a grade for that day's experiment. The data sheet may not be graded in some sections; however, the Report Form for the corresponding experiment will not be graded if the data sheet is not submitted the day the experiment is conducted.

PreLabs and Reports: For each experiment you will receive a total score between 20 and 0. The Report Form **must reflect information obtained by you** while in the laboratory and recorded on your data sheets. The Prelab Exercises associated with each experiment are due before you start the experiment. Report Forms are due the week after the experiment was run. Neatness and completeness of your data sheets, prelabs, and reports may be considered when points are assigned. Points will be deducted for materials not submitted on the date due. Materials more than two weeks late **will not be graded**.

Lab/Recitation Quizzes and Final Exams: Quizzes (15 points each, usually 3 or 4 points per question) are scheduled at various times during the semester. The quizzes will reflect what you should have gained from previous weeks' experiments, what you should master before beginning the current week's activities, your ability to utilize techniques and concepts, and your understanding of the recitation topics discussed in lab. The Written Final is 30 points and is comprehensive over all parts of the lab. The Practical Final is 10 points, covering safety and techniques.

Calibrated Peer Review (CPR[®]) is web-based software designed to increase the amount of writing done in our classroom on Chemistry topics. There will be 2 assignments. It is critical that they be done within the time frame allotted because due to the nature of the software there is no way to handle late work. See attached sheet for more information. Each assignment will be worth 20 points. All CPR times are Pacific Time.

Assignment 1:

Measurement and Significant Figures

Part 1 (Write): Mon. 9/9 8 a.m. – Mon. 9/23 8 a.m. (PDT)

Part 2 (Calibrate & Critique): Mon. 9/23 8a.m. - Mon. 10/7 8 a.m. (PDT)

Assignment 2:

Interpreting Single Substance Phase Diagrams

Part 1 (Write): Mon. 11/11 8 a.m. - Mon. 11/18 8 a.m. (PST)

Part 2 (Calibrate & Critique): Mon. 11/18 8 a.m. - Mon. 12/2 8 a.m. (PST)

Grades: At the end of the semester the scores on all quizzes, prelabs, reports, postlabs and written (30 points) and practical (10 points) finals will be totaled for each student and multiplied by a factor so that the class average will be between 80 and 86. Adjusted averages of greater than 100% will be treated as if they are exactly 100%.

SCHEDULE

Week of	Activity
9/2	No Lab Meeting this week. Double check your schedule. Conflicts need to be resolved.
9/9	Lab Check-in and Lab Lecture on Safety . (Everyone must read the safety rules and agree in writing to follow them before they can begin any experimentation.) Recitation Topic: “ Writing Chemical Formulas and Composition Stoichiometry ” (Chapter 2 of the lecture textbook). Between Mon. 9/9 and Mon. 9/23, write your first CPR assignment (Measurement and Significant Figures).
9/16	Experiment #2 – Cost of a Chemical Product (A Guided Exp.). Recitation Topic: “ Equations and Reaction Stoichiometry ” (Chapter 3 in the lecture textbook). Prelab Exercises for Exp. #2 due before you start the lab experiment. All chemicals will be furnished. Someone from the Graduate Chemistry Fraternity (PLU) will visit the labs this week to sell safety goggles. (Work on first CPR assignment.)
9/23	Experiment #3 – Are Labels Accurate or Precise? (An Open Inquiry Exp.). Report Form for Exp. #2 and Prelab for Exp. #3 are due at the beginning of the lab. Recitation Lecture: “ Review of Solution Preparation and Solution Stoichiometry Calculations ” (Chapter 3 in the lecture textbook). Lab/Recitation Quiz #1: (Chapter 2 & 3 of the lecture textbook). Between Mon. 9/23 and Mon. 10/7, calibrate and critique your first CPR assignment (Measurement and Significant Figures).
9/30	Experiment #5 – Reactions of Calcium (A Guided Exp.). Prelab Exercises for Exp. # 5 and the Report Form for Exp. #3 are due at the beginning of lab. Recitation Lecture: “ Reaction Stoichiometry and the Structure of Atoms ” (Chapters 4 & 5 of the lecture textbook). (Work on calibration and critique of first CPR assignment.)
10/7	Experiment #9 – Mass Relationships in Reactions (An Open Inquiry Exp.). Prelab Exercises for Exp. # 9 and the Report Form for Exp. #5 are due at the beginning of lab. Recitation Lecture: “ Molecular Structure and Dot Formulas ” (Chapter 7 of the lecture textbook).
10/14	MAKEUP LAB Report Form for Exp. #9 is due. Lab/Recitation Quiz #2
10/21	Experiment #10 – Shapes of Molecules and Ions (A Guided Exp.). Prelab Exercises for Exp. #10 is due at the beginning of lab. Recitation Lecture: “ VSEPR Theory: Practice and Application ” (Chapter 8 of the lecture textbook).
10/28	Experiment #8 – Analysis of a Carbonated Beverage (A Guided Exp.). Prelab Exercises for Exp. #8 and the Report Form for Exp. #10 are due at the beginning of lab. Recitation Lecture: “ Acids, Bases, and Salts ” (Chapter 10 of the lecture textbook) and “ Acids, Bases and Titration ” (Chapter 11 of the lecture textbook)
11/4	Experiment #14 – Spectrochemical Analysis (A Guided Exp.). Prelab Exercises for Exp. #14 and the Report Form for Exp. #8 are due at the beginning of lab. Recitation Lecture: “ Spectroscopy ”. Lab/Recitation Quiz #3
11/11	MAKEUP LAB Report Form for Exp. #14 is due. Between Mon. 11/11 and Mon. 11/18, write your second CPR assignment (Interpreting Single Substance Phase Diagrams).
11/18	Experiment #13 – Freezing Points of Solutions (A Guided Exp.). Prelab Exercises for Exp. #13 is due at the beginning of lab. Recitation Lecture: “ Colligative Properties ” (Chapter 14 of the lecture textbook). Lab/Recitation Quiz #4 Between Mon. 11/18 and Mon. 12/2, calibrate and critique your second CPR assignment (Interpreting Single Substance Phase Diagrams).
11/25	No Lab/Recitations this week. (Work on calibration and critique of second CPR assignment.)
12/2	Exp. #13 Report Form is due. Written (30 points) and Practical (10 points) Finals . Evaluations. All missing work, make-up finals, requests for the grade of ‘incomplete’, make-up of prior incomplete grades, etc., must be completed and all forms submitted before 5 PM Dec. 6.