

CHEM 357 - PHYSICAL CHEMISTRY LABORATORY I

FALL TERM, 2006

Instructor: Ed Thorne
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Office Hours: One hour before class each week or by appointment

A. COURSE OBJECTIVES/DESCRIPTION

To perform, analyze, and describe in writing quantitative physical measurements on chemical systems which illustrate the principles of physical chemistry. In this course, emphasis is placed on experiments in chemical thermodynamics, chemical equilibrium, phase equilibrium, and polymers.

B. PREREQUISITES CHEM 251 and PHYS 211 (CHEC 352 Corequisite)

C. REQUIRED TEXTBOOK

Experimental Physical Chemistry: A Laboratory Textbook, Second Edition by Arthur M. Halpern, Prentice-Hall (1997)

D. CLASS MEETINGS

Thursday Evenings from 6:00 P.M. to 9:50 P.M. in Room 12-404

E. ATTENDANCE POLICY

Because this is a laboratory course and not solely a lecture course, attendance is required to receive a passing grade. Any student missing more than two classes will not receive a passing grade. You cannot write and submit a lab report for an experiment you did not actually conduct yourself.

F. LABORATORY REPORTS

A laboratory report is to be submitted for each experiment that is performed. The report is due at the beginning of the lab period one week after the experiment is completed and a ten point penalty will be assessed for each week (or fraction) the report is late. Each student must write their own report for each experiment performed and submit them separately from their lab partners. Identical reports will not be accepted; each student must demonstrate their own skill and experience.

NOTE: NO LAB REPORTS WILL BE GRADED OR RETURNED TO ANY STUDENT NOT OFFICIALLY ENROLLED IN THE CLASS. THE ATTACHED SCHEDULE IS TENTATIVE AND SUBJECT TO CHANGE AS THE TERM PROGRESSES. ANY CHANGES WILL BE ANNOUNCED IN CLASS.

G. GRADE BREAKDOWN

Your grade for the course will be determined from the following three factors:

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| Average of 7 lab reports | 70% of grade |
| Attendance, laboratory technique, preparation, etc. | 15% of grade |
| Exam | 15% of grade |

The exam will be based primarily on the lecture material that is presented at the beginning of each experiment. Skipping the lectures will have an adverse effect on your grade. More than 50% of the questions in the exam would be based on physical concepts and basic underlying principles. There will be an assignment based on the first weeks lecture that will be graded with the same weight as a lab report. This explains the average of seven lab reports, even though there will be six experiments done throughout the quarter.

H. ADDITIONAL COURSE NOTES

In order to be able to do the experiment within three hours and to understand both the procedure and the underlying theory, it is essential that you read over the experiment before coming to the lecture-discussion. Don't even think of coming to class unless you have prepared for the experiment. If it becomes evident that there is little or no preparation for the experiments, we may resort to giving a pre-laboratory quiz covering the highlights of the experiments, which would then be factored into your course grade as half of the preparation part of your grade.

I. ACADEMIC HONESTY POLICY

Drexel University is committed to a learning environment that embraces academic honesty. In order to protect members of our community from results of dishonest conduct, the University has adopted policies to deal with cases of academic dishonesty. Please read, understand, and follow the "Academic Honesty Policy" as written in the official student handbook. Instances of academic dishonesty, such as cheating and plagiarism will be dealt with appropriately.

LABORATORY EXPERIMENT SCHEDULE

| <u>WEEK</u> | <u>DATE</u> | <u>EXPERIMENT NAME</u> |
|--------------------|--------------------|--|
| 1 | September 28 | Course Requirements/Statistics & Data Treatment (HANDOUT) |
| 2 | October 5 | Experiment #17 - Viscosity of Liquids |
| 3 | October 12 | Discussion of First Experiment Report Submit a draft of your lab report 20 point penalty if no lab report draft is submitted |

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| 4 | October 19 | Experiment #32 - Molecular Weight and Monomer Linkage Properties of Polyvinyl Alcohol |
| 5 | October 26 | Experiment #10 - Mutual Solubilities In A Binary Two Phase System |
| 6 | November 2 | Experiment #13 - Solid-Liquid Equilibrium in a Binary System |
| 7 | November 9 | Homogeneous Equilibrium in The Liquid Phase - Part One (HANDOUT) |
| 8 | November 16 | Homogeneous Equilibrium in The Liquid Phase - Part Two (HANDOUT) |
| 9 | November 30 | TO BE DETERMINED |