

CHEM 443 Physical Chemistry II Lab
Spring 2010
FW 305

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Text: Experiments in Physical Chemistry, 8th edition (Garland, Nibler and Shoemaker). A lab notebook with consecutively numbered pages is also required. An optional book, Applied Mathematics for Physical Chemistry (3rd edition, J.R. Barrante), is also available in the bookstore.

General Information:

While the material covered in CHEM 443 draws on the same body of knowledge covered in CHEM 441, the experiments are not synchronized with the lecture course. It cannot be stressed enough that you **MUST** carefully study the theory and experimental procedures before carrying out the experiment in the lab. You should make an outline of the experiment in your notebook prior to coming to class.

1) The aims of this course are:

- To equip you with practical skills used in experimental physical chemistry
- To develop your scientific judgment and your ability to innovate and think critically
- To encourage you to assess methods and procedures in a constructive and critical manner
- To improve your skills of research and communication by teaching you how to fully document a scientific experiment and to present the information in a competent and professional laboratory report

2) A word about safety:

You have a legal obligation to work safely in the laboratory, to insure that you do not expose yourself or your co-workers to hazard. You will be instructed as to the safe handling of all chemicals used in the experiments and are encouraged to ask questions if you are unsure about procedures. Safety goggles are required at all times in the lab.

3) Grades:

The final grades will be calculated on a normal grade scale (90%=A, 80%=B, 70%=C, 60%=D). There are a total of eight lab reports that are worth 100 points each. The final grade will be the average grade of the reports. Chapter 1 of the textbook contains general information about maintaining a proper lab notebook and instructions on preparing a lab report, including a sample lab report. Points will be taken off for incorrect spelling and bad grammar. Lab reports are due one week after the experiment has been carried out. There will be a penalty of 5 points per day (excluding weekends and holidays) for reports turned in after the due date. **No lab reports will be accepted after April 12.** Lab notebooks will be checked at random throughout the semester.

4) Schedule:

The course consists of eight experiments. Each lab section will be divided into four groups (1-4). The experiments are divided into two sets of four experiments. Each group will rotate through the experiments as given in the table below:

SET 1	2/1	2/8	2/15	2/22	TA
Iodine Clock (Exp. 20)	1	2	3	4	LM
Viscosity of a polymer (Exp. 27)	2	3	4	1	LM
Computational chemistry (handouts)	3	4	1	2	CS
FTIR (Exp. 37)	4	1	2	3	CS
SET 2	3/1	3/15	3/22	3/29	TA
Charge transfer spectroscopy (handout)	1	2	3	4	LM
X-ray spectroscopy (handouts)	2	3	4	1	CS
CD spectroscopy (handout)	3	4	1	2	CS
Surfactants/fluorescence spectroscopy (handout)	4	1	2	3	LM

The numbers in parentheses after the title of the experiment refer to the experiment number in the text; handouts will be distributed for the other experiments.

Please refer to the CHEM 441 syllabus "Additional Information" section.