

SYLLABUS – PHYSICAL CHEMISTRY LABORATORY I (CHEM 336) – Fall 2011
Department of Chemistry and Biochemistry - George Mason University

Laboratory Coordinator - Assistant Professor Paul Cooper
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TA – Nhut Do (Fri Lab)
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This course aims to teach you how to be an independent and capable researcher. Your role as a student will be to a) come to class prepared and ready to perform your experiment; b) perform the experiment with care and diligence; c) critically analyze your data; d) write a report about your experiment; and e) search the literature to compare your data to previously published data.

The duration of the lab each week is 3 hrs and 50 mins. On average you can expect most experiments will require a full lab session to complete with some requiring a little less and some requiring a little more time than this. A full semester's work is considered to be the completion of 8 laboratory experiments. This ensures that you have ample time to complete experiments. If time permits, you may also wish to extend an existing experiment for extra credit. Consult with Dr. Cooper for this.

Requirements:

Safety glasses must be worn at all times in the laboratory. No food, drink, or smoking is allowed in the laboratory. Please turn your cell phones off.

A bound laboratory notebook is required for recording all data and observations (spiral bound is not acceptable!). All data are to be recorded in ink. At the end of semester, your notebook will be collected and graded for clarity and completeness.

Laboratory reports are to be written up individually, regardless of whether the experiment was performed in a group and are to be submitted for grading within one week of completing an experiment. Penalties for late submission will accrue immediately. Lab reports more than 2 weeks late will not be graded and you will receive a score of zero for that report.

At the end of semester you and your lab partner will be required to give an oral presentation on one experiment of your choice. The presentation should last about 15 mins, with 5 mins of questions from your classmates and instructor.

Assessment:

Laboratory reports: 80

Notebook assessment: 10

Oral presentation: 10

TOTAL: 100

Extra Information:

You can expect to spend at least the same amount of time working outside of laboratory hours on your report as you did in the laboratory making the measurements. This should include time spent on data analysis, background reading about the theory of the experiment, searching for literature values, and the time spent writing the report.

Reports are to follow a structured and consistent method that is typical of modern chemistry journals e.g. Journal of Physical Chemistry. It is recommended that you become familiar with this style by taking the time to read a few journal articles. Pay particular attention to the grammatical tense and person that is used. A practice report will be written and submitted before any laboratory experiments are started.

You will also need to complete and submit an error analysis/linear regression worksheet prior to commencing any experiments. This will provide you with the tools necessary to analyze your laboratory data and critically comment on the reliability of your data.

This course fulfills the writing-intensive requirement for the chemistry major. It does so through 8 laboratory reports, each with an average of 4 standard double-spaced pages. With an average of 250 words per page, a total of 8000 words are written.

Week starting:

Aug 29 Verify enrollment/introductions

Sept 5 Error Analysis/Linear Regression Assignment/Practice Lab Report

Sept 12 Lab work

Sept 19 Lab work

Sept 26 Lab work

Oct 3 Lab work

Oct 10 Labs cancelled due to Columbus Day recess

Oct 17 Lab work

Oct 24 Lab work

Oct 31 Lab work

Nov 7 Lab work

Nov 14 Lab work

Nov 21 Thanksgiving Recess

Nov 28 Lab Clean-up/Check-out

Dec 5 ORAL PRESENTATIONS