

CHEM 3080 -- 2009
Experimental Physical Chemistry

Instructor: Dr. William Moore (william.moore@usu.edu)

Section 1 meets on Tuesday 1:30 - 5:20 p.m.

Section 2 meets on Thursday 1:30 - 5:20 p.m.

Office hours: By appointment

Expt. 1	Gas Thermometry
Expt. 2	The Adiabatic Expansion of Gases
Expt. 3	The Heat of Combustion of a Liquid
Expt. 4	The Vapor Pressure of a Pure Liquid
Expt. 5	The Thermodynamics of a Rubber Band
Expt. 6	Binary solid-liquid phase diagram
Expt. 7	Homogeneous gas equilibrium
Expt. 8	Temperature dependence of EMF
Expt. 9	Library report on thermodynamics.

Date of Expt.	Group	A	B	C	D	E	F	Report due
Aug. 25 & 27	Meeting ML335 for discussion of the Lab experiments							
Sep. 1 & 3	Expt.	1	2	3	4	2	3	Sep. 15 & 17
Sep. 8 & 10	Meeting ML335 for discussion of the Lab experiments							
Sep. 15 & 17	Expt.	4	1	2	3	1	2	Sep 29&Oct 1
Sep. 22 & 24	Expt.	3	4	1	2	3	1	Oct. 6 & 8
Sep 29&Oct 1	Expt.	2	3	4	1	8	9	Oct. 13 & 15
Oct. 6 & 8	Expt.	8	5	6	7	7	8	Oct. 20 & 22
Oct. 13 & 15	Expt.	9	9	9	9	6	7	Oct. 27 & 29
Oct. 20 & 22	Expt.	7	8	5	6	5	6	Nov. 3 & 5
Oct. 27 & 29	Expt.	6	7	8	5	4	5	Nov. 10 & 12
Nov. 3 & 5	Expt.	5	6	7	8	9	4	Nov. 17 & 19

Nov. 10 & 12	Mandatory meeting for critique of the experiments 1 - 3
Nov. 17 & 19	Mandatory meeting for critique of the experiments 4 - 6
Nov. 26	Thanksgiving break
Dec. 1 & 3	Mandatory meeting for critique of the experiments 7 - 9

All experiments must be performed, and a report written to achieve a passing grade.

Before the first lab you are expected to read the description of your experiment. Come prepared to enter your raw data into EXCEL while the experiment is in progress. Process the data with suitable equations and make a graph if appropriate. Copy your spreadsheet onto one of your disks, or send it to your E-mail account. You should also keep your raw data on blank pages of the lab manual.

It is important that you be familiar with the written material and the equipment for each experiment before you come to class. You cannot work in the laboratory at times when there is no supervision. Make sure to come in and familiarize yourself with the equipment. This is an important practice in working efficiently in a lab. Also, read the handouts carefully before the lab period. If you don't do this, you may not have sufficient time to complete the lab. There are references listed at the end of the handouts that will be helpful to you in writing lab reports.

You are required to follow all safety rules--especially the wearing of **safety glasses**. The operation of cell phones and audio devices are **not** permitted in the lab. Dress appropriately, and do not wear shoes that expose your feet. You are also expected to utilize techniques learned in previous lab courses (e.g., proper use of the analytical balance). Under no circumstances are you allowed to do experiments in the lab at any time other than your regular class period without approval from your instructor. Clean up any messes or spills that may occur. Do not place chemicals directly on the pans of the balances!

The experiments will be done with two students to an experiment. The pairing will be done by the instructor on a random basis. All reports should be done on the spreadsheet (EXCEL or Quattro Pro). Modern spreadsheets have most of the versatility of word processors, including the use of Greek symbols, subscripts and superscripts.

Each report should be enclosed in an inexpensive three-hole binder. The report, which is usually due two weeks after the experiment is completed, must include the following.

1. A description of the experiment can be taken from the Lab Manual

2. The raw experimental data (including chart records). This means before any data processing on your part.
3. The Excel spreadsheets with suitable graphs.
4. A brief summary of your understanding of the experiment.
5. Answers to any specific questions asked in the Manual.
6. A copy of the report should be sent to: **william.moore@usu.edu**. The name of the spreadsheet should be your last name and the number of the experiment. For example: **moore#1.xls**. **Five points will be deducted if you do not send a copy of the report.**

Each student group may develop the initial spreadsheet together during the period that the experiment is performed. A hardcopy of this initial work is handed to the instructor and signed by both students. **The remaining calculations and preparation of the report must be done separately.**

Your grade in this course is determined by your lab reports, lab performance, and quizzes given at the end of the semester. It is therefore very important to spend time thinking about and writing the lab reports. **You must complete all of the reports to pass the course.** An incomplete will be given only for medical reasons. You should not write your lab report with your lab partner. Include references in all reports. It is essential to acknowledge any printed source you use in preparing for the lab and the report.

Lab reports must be turned in no later than the beginning of class on the day specified. **Five points will be deducted for each day after the deadline (not including Sat & Sun), or 25 points per week.** It is possible for an excellent late

report to receive a grade of zero, but it must be accomplished. Almost every year, one or more students have performed every experiment and yet fail the class. In some cases only one report has been missing.

Grading:

Nine reports @ 100 pts	900
Three quizzes @ 33 pts	100

Total points	1000

Grade:

A	930 to 1000
A-	900 to 929
B+	870 to 899
B	840 to 869
B-	810 to 839
C+	780 to 809
C	750 to 779
C-	720 to 749
F	One or more missing reports

In accordance with the Americans with Disabilities Act, reasonable accommodation will be provided for all persons with disabilities in order to ensure equal participation in Chemistry 3080. A student who requires an accommodation must contact the Instructor. The disability must be documented by the Disability Resource Center. In cooperation with the Disability Resource Center, reasonable accommodation will be provided for students with Disabilities. Course material may be requested in alternate formats through the Disability Resource Center.

The administration of Chemistry 3080 will adhere strictly to the academic regulations stipulated in the most recent USU General Catalog. The complete code of Policies and Procedures for Students can be viewed at:
<http://www.usu.edu/student-services/studentcode/>