

CHEM 3090 -- Spring 2009
Experimental Physical Chemistry

Instructor: Dr. William M Moore (E-Mail: William.moore@usu.edu)

Section 1 meets on Tuesday 1:30 - 5:20 pm

Section 2 meets on Thursday 1:30 - 5:20 pm

Experiment #1 Gas Phase Kinetics

Experiment #2 Enzyme Kinetics

Experiment #3 Simple Order Kinetics

Experiment #4 Photochemistry of Riboflavin

Experiment #5 Magnetic Susceptibility

Experiment #6 Library Report on Kinetics or Quantum Chemistry

Experiment #7 Infrared Spectrum of a Diatomic Molecule

Experiment #8 Visible Spectrum of Iodine

Date of Expt.	Group	A	B	C	D	E	Report due
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Jan 6 & 8							Meeting in Lab for discussion of the experiments
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Jan 13 & 15	Expt.	1	3				Jan 27 & 29
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Jan 20 & 22	Expt.	1	2				Feb 3 & 5
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Jan 27 & 29	Expt.	2	1				Feb 10 & 12
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Feb 3 & 5	Expt.	3	1				Feb 17 & 19
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Feb 10 & 12	Expt.	4	6				Feb 24 & 26
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Feb 17 & 19	Expt.	6	5				Mar 3 & 5
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Feb 24 & 26	Expt.	5	4				Mar 17 & 19
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Mar 3 & 5	Expt.	8	7				Mar 24 & 26
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Mar 17 & 19	Expt.	8	8				Mar 31 & Apr 2
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Mar 24 & 26	Expt.	7	8				Apr 14 & 16
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Mar 31 & Apr 2	Mandatory meeting ML 109 for critique of experiments 1, 2, 3						
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Apr 7 & 9	Mandatory meeting ML 109 for critique of the experiments 4, 5						
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Apr 14 & 16	Mandatory meeting ML 109 for critique of the experiments 7,8						
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Before the first lab you are expected to read the description of your experiment.

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

It is important that you be familiar with the written material and the equipment for each experiment when you come to lab. 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.

There is a computer for each experiment. Make good use of your time. Where appropriate write down the results on space provided in the Lab Manual. Then transfer the data to an Excel spreadsheet. After the experimental part is finished process the data during the remaining time. Save the spreadsheet often to avoid loss of results. Either transfer the spreadsheet to a disk or send it to your E-Mail address.

The experiments will be done with two students to an experiment. The instructor on will do the pairing at the first meeting. Turn in a signed copy of the spreadsheet before you leave the lab. After you have signed the copy of the spreadsheet, each partner must finish the report without help from the other partner. Identically finished reports will be severely reduced in points.

You are required to follow all safety rules--especially wearing **safety glasses**. You are also expected to utilize techniques learned in previous lab courses (e.g., proper usage 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. Clean up any messes or spills that may occur. Do not place chemicals directly on the pans of the balances!

This course differs in several important ways from previous lab courses you have taken. These experiments are condensed versions of old research projects. It is the instructor's responsibility to make sure that the equipment is in working order, but it is your responsibility to complete the experiment. In many cases, the results from the experiments can approach some of the best data available. This is intended to prepare you for science in the real world!

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).
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**

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 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). It is possible for an excellent report to receive a grade of zero, but the report must still be submitted.

Grading:

Two reports @ 150 pts.	300
Six reports @ 100 pts	600
Three quizzes @ 30 pts	90
Oral presentation	10

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