

CHEM 352L. PHYSICO-CHEMICAL MEASUREMENTS
SPRING 2018

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REQUIRED TEXT: Experiments in Physical Chemistry, 9th Edition
J.W. Nibler, C.W. Garland, K.J. Stine, and J.E. Kim
McGraw-Hill (2014)

COURSE DESCRIPTION: Chemistry 352L is a Writing Intensive laboratory course that couples experimentation with scientific writing. The course focuses on the understanding and application of principles of physical chemistry, the use of scientific instrumentation, and the organization and explanation of results in laboratory reports.

CHEM 352L IS A WRITING-INTENSIVE COURSE. Resources for scientific writing will be posted at our Lulima site. Also see <http://www.hawaii.edu/gened/focus/w.htm> for information on WI courses.

GRADING:

1. YOUR SEMESTER GRADE WILL BE CALCULATED FROM:

Written Reports and Notebooks	80%
Calculated from the scores of experiments run during the weeks of 1/23-1/24 (10%) and 1/30-1/31 (10%), <u>and</u> the remaining 7 experiments (60%).	
Final Assignment ("Take-Home Final")	10%
Performance in the Laboratory (as evaluated by TAs)	<u>10%</u>
(Total:	100%)

2. EACH OF THE 9 EXPERIMENTS WILL HAVE THE FOLLOWING POINT BREAKDOWN:

Notebook	15%
Abstract	5%
Introduction	20%
Experimental	5%
Data/Results	10%
Calculation/Error Analysis	15%
Discussion	25%
References	<u>5%</u>
(Total	100%)

The content of and standards for a well-conceived and well-written lab report will be explained in class. Briefly, a good lab report includes concise descriptions of both the experiment being performed and the results you obtained, among other key features. Typical CHEM 352L lab reports do NOT exceed 10 pages; points will be deducted from needlessly verbose reports.

3. **THE “REVISION” PROCESS FOR EXPERIMENTS RUN ON 1/23-1/24 AND 1/30-1/31**

To learn to write well, you need to practice, and you also need timely feedback.

You are strongly encouraged to submit your reports when they are due (see next section). There are no extensions for the lab reports (see next section for due dates and late penalties). Exceptions are made only for documented medical/family emergencies.

The first two reports must be resubmitted after they have been graded. Your first two lab reports will be extensively critiqued. The revisions must address the points of the critique. If the rewritten report earns a higher score than the original submission, the score of the rewrite will supersede (replace) the score for the original report. Due dates for revised reports will be specified in class.

4. **DEADLINES FOR LAB REPORTS AND LATE PENALTY:** All reports are due at 1:30 PM exactly one week after the completion of the experimental work. Submit the lab report to your TAs, not Prof. Kumashiro.

If you submit your report on-time, your graded report should be returned to you in ~1 week (and no more than 2 weeks!).

For Experiments 1-4 (run from 1/23-2/21): Late reports will be assessed a penalty of 20% per weekday late.

For remaining experiments (experiments from 3/6 onwards): Late reports will be assessed a penalty of 5% per weekday late, with the additional condition that **all** reports are due by Monday, April 30, 2018, 4:30 p.m. No reports will be accepted after this deadline.

5. **THE IMPORTANCE OF A GOOD LABORATORY NOTEBOOK.** In principle, it is probably the most important “15%” of your lab report grade.

As discussed on the first day, the lab notebook is a critically important tool in experimental chemistry. Prior to your lab class, you should read the experiment carefully. As part of your preparation (i.e., all written in your notebook before you get to class!), you should state the **OBJECTIVE** of the experiment for the week, outline the **PROCEDURE**, and prepare for **DATA COLLECTION** (e.g., table). Your TAs will provide additional guidance on what to include.

To reinforce good habits, **lab notebooks must be initialed by your TA before you leave the laboratory.** Your TA will initial all the pages that you’ve used for the day. A photocopy of the relevant pages of the laboratory notebook must accompany the report for each experiment. If these photocopies are missing from your lab report, then it (your report) will be returned to you without a grade (and will be assessed the appropriate penalty starting from the day it was due, not the day you get it back), if the pages are missing.

We want to see your writeup based on your data. There is no benefit in using someone else’s data. PChem Lab is not Analytical Chem lab, so your grade does not depend on the accuracy or precision of your experimental data (clearly, however, your report will be much harder to write in worst case).

6. **PLAGIARISM DOES NOT PAY**, so don’t do it. The possible results range from a “0” for the lab report to an “F” for this course (and worse!).

CHEM 352L EXPERIMENT SCHEDULE:

	1	2	3	4	5	6	7	8	9	10	11	
1/9, 1/10	Review of Syllabus (KK); General Safety Overview											
1/16, 1/17	Writing Lab Reports, Error Analysis (TAs)											
1/23, 1/24	A	B	C	D								
1/30, 1/31	B	C	D	A								
2/6, 2/7	Writing Workshop											
2/13, 2/14	C	D	A	B								
2/20, 2/21	D	A	B	C								
2/27, 2/28					All							
3/6, 3/7						A	B	C	D			
3/13, 3/14						C	D	A	B			
3/20, 3/21						B	C	D		A		
3/27, 3/28	Spring Break											
4/4, 4/5						D	A	B		C		
4/11, 4/12									A	B		
4/18, 4/19									C	D		
4/25, 4/26											All	

- 1 Exp. 3 Heat-Capacity Ratios for Gases [Squire]
- 2 Exp. 6, Heats of Combustion [Brennan]
- 3 Exp. 17, Conductance of Solutions [Squire]
- 4 Exp. 12, Chemical Equilibrium in Solution [Brennan]
- 5 NMR Spectroscopy - Lecture only (*no experiment this week*)
- 6 NMR lab (Exp. 42 or Handout) [Kumashiro]
- 7 Exp. 31, Magnetic Susceptibility [Squire]
- 8 Exp. 34, Absorption Spectrum of a Conjugated Dye [Brennan]
- 9 Exp. 39, Absorption & Emission Spectra of Iodine (Absorption only) [Squire]
- 10 Exp. 37, Vibrational-Rotational Spectra of HCl and DCl [Brennan]
- 11 Laboratory Cleanup / Course Evaluation / Take Home Final

TEAMS: **Section 1** **A:**
 B:
 C:

Section 2 **A:**
 B:
 C:
 D: