



General Inorganic Chemistry Laboratory II : CHEM 1112

Spring 2012

Lab Coordinator / Recitation:

Jingbo Louise Liu
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Office Hours:

M, T & R 14:00-17:30

Recitation:

Section 1112-100; N251, M, 12:00 pm - 12:50 pm
Hall 251

Section 1112-101; N251, T, 9:30 am - 10:20 am
N260-N264

Laboratory Locations:

Laboratory Manual:

Liu, *General Chemistry Laboratory Manual:
Chemistry 1112*
Kendall Hunt Publishing Company
ISBN: 978-0-7575-7217-3

Web Address:

<http://www.khwebcom.com/>

Course Description: A laboratory experience that focuses on laboratory techniques, data collection, and data analysis. The experience reinforces and promotes an understanding of the principles of kinetics, chemical equilibrium, synthesis, thermodynamics, and electrochemical systems.

Course Pre-requisite: CHEM 1311 and 1111, **Pre- or Co-requisite:** CHEM 1312

Course Objectives: To develop proper laboratory skills and techniques for safely acquiring experimental data. An understanding and application of chemical principles are used for interpreting the meaning of collected data.

Learner Outcomes: At the successful completion of this course, you will demonstrate an understanding of the key chemical principles of each experiment through the observation, collection, and summarization of experimental data using the scientific method. To do so, you will develop proper laboratory skills and techniques for acquiring reliable and reproducible data in a safety-conscience laboratory environment. The understanding will be exhibited by the successful completion of each experiment, of the five intermittent assessment quizzes, and of a final assessment quiz.

Course Topics: Included, but not limited to, the development of laboratory techniques, the collection and analysis of observed and recorded data, and the exposure to chemical phenomena, both qualitative and quantitative.

This Chemistry 1112 Syllabus is intended to be informational. The instructor reserves the right to amend or modify the syllabus in any manner that she deems necessary and in the best interest of Texas A&M University-Kingsville.

Table 1. Spring 2012 CHEM 1112-100/101 Recitation Schedule

Rec Dates/ Mon/Tue	Expt.	Content
Jan 23-24, 2012	0	Review Syllabus (Do in Recitation), Laboratory Safety (Do on-line), and Check-in (“check in” in your regular lab section)
Jan 30-31, 2012	1	Nanochemistry <i>(No need to come to the laboratories, pre-test, post-test and lab-report due by next lab section)</i> <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Feb 06-07, 2012	2	Determination of a Rate Law <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Feb 13-14, 2012	3	Determination of Equilibrium Constant <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Feb 20-21, 2012	4	LeChâtelier’s Principle <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Feb 20-21, 2012	5	Antacid Analysis <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Feb 27-28, 2012	6	Analysis of weak acid <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Mar 05-06, 2012	7	Solubility and Common-Ion Effect <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Mar 12-18	NO labs	Spring Break
Mar 19-20, 2012	8	The Thermodynamics <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Mar 26-27, 2012	9	Vitamin C Analysis <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Apr 02-03, 2012	10	Construction of Galvanic Cells <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Apr 09-10, 2012	11	Miniature Hydrogen Vehicle (Make up) <i>Pre-Test MUST be COMPLETED BEFORE LAB</i> <i>Post-Test is COMPLETED AFTER LAB</i>
Apr 16-17, 2012	Check-Out (during your lab day)	

- Each LAB is a total of 100 points (see marking scheme). The breakdown is as follows:
- The pre-lab part is 20 points and must be turned in to your TA at the beginning of the related labs, lab technician or lab instructor must sign students' papers.
- The post-lab part is 20 points and must be turned in to your TA at the beginning of the following lab assignments, lab technician or lab instructor must sign students' papers.
- Lab report is 60 points and must be turned in to your TA during the related labs, lab technician or lab instructor must sign students' papers.
- **No LATE lab report is accepted by all means.**

Note:

- The students are required to remain in the related lab until they have completed all calculations and submit the report sheet before leaving.
- At the beginning of labs, students must turn in the Pre-lab for that day's experiment and the Post-lab for the previous experiment.
- Students must complete the blackboard lab safety training if they have not previously done so. If students already completed lab safety training last semester (Fall 2011) for any class Biology, Chemistry, Engineering, etc., they do not have to repeat the training this semester (Spring 2012).

Rules and Requests

- 1) Attendance to all class recitation is **not only mandatory, but also an obligation** for a comprehensive understanding of the chemical principles of Chemistry CHEM 1112 (NOTE: All students **must attend** the recitation; otherwise, students will **NOT be allowed** to enter the laboratory).
- 2) Appropriate safety attire and appearance are required in the laboratory, including eyewear, clothing, and shoes. Arms, legs, and feet will be covered!
- 3) If you miss your lab session, check with the Technical Coordinator for the option of making up the lab with another section the same week. One laboratory makeup session is offered at the end of the semester.
- 4) The Pre-Test Assignment is due before the beginning of the laboratory session. The Post-Test Assignment is due before the beginning of the next laboratory session. The Lab Report Data Analysis section for the experiment is to be completed during lab and at the end of the lab session, the Teaching Assistant (TA) signs your Data Analysis section to prove that you did the lab. The Lab report section is completed and given in at the start of the next lab.
- 5) The use of tobacco, food, drink, and/or gum is prohibited in the laboratory. Cell phones are to be turned off during Recitation.

Laboratory Information

The Laboratory Team:

- Teams of 2 students will combine their talents in the laboratory. Teams may be selected by the Teaching Assistant (TA).
- Each member of the team will submit separately the Pre-Test Assignment for each experiment.

- Each member of the team will submit separately the Post-Test Assignment for each experiment.
- Each team member will submit a separate Data Analysis section and Lab Report at the beginning of the next lab (e.g. hand in report for Experiment 1 at the beginning of Experiment 2 and so forth)
- The pre-test, post-test are completed and submitted on-line. The lab report is also submitted on-line except the data analysis section which is completed during the lab. Print out the experimental procedure section and bring it to the lab. This will explain how to carry out the experiment. Also print out the data analysis section, which is completed as you carry-out the lab.
- Team discussions are an integral part to understanding the experiment; you are expected to discuss the techniques and procedures for collecting the data and the method(s) used for their analysis. The intent of teaming is not to establish a division of labor in the laboratory, but rather to use the collective talents of the team members for a more thorough understanding and completion of the experiment. The Laboratory Assistant will provide guidance to team participation as needed/requested. If a member is not contributing to the team effort, that person may be moved to another group or required to work on their own.

Team Member Absences:

If a team member is absent or fails to submit a Pre-Test Assignment or Lab Report, a grade of zero will be recorded for the corresponding part for that student (not the team). The remaining team members will be scored as if the entire team were present. Grossly deficient Pre-Test Assignments or Lab Report may be assessed an individualized penalty at the discretion of the Lab Assistant. If team participation falls to less than 2 for two consecutive laboratory sessions, teams may be changed by the Lab Assistant.

The format of the Lab Report should include:

- I. Cover page- experiment number and title, date of experiment, chemist, and chemist's team number, names of team partners)
- II. Objective (one or two sentences)
- III. Theory (100-200 words – use your own explanation of the theory of the experiment, general ideas, principles, concepts. Ideas from the Introduction section of the lab manual may be used. Include main equations, chemical formulas.)
- IV. Procedure (200 words: general description of the procedure as it was performed)
- V. Report sheet (From the lab manual, neatly written in pencil, to be completed before leaving the laboratory. Graphs may be done neatly by hand or by computer)
- VI. Results and discussion (200 words approximately – What are the main results of the experiment? What conclusions can be derived from the results? How good is the accuracy of your results? What systematic and random errors affected your results? Include some values and formulas when describing results and accuracy.)
- VII. References
 - Journals:
Author, Journal, Vol, page
(Such as : E. D. Wachsman, *Solid State Ionics*, 152-153, **2002**, 657-662)
 - Book:
Author, Publishers, title of the book, press, location, year, page
(Such as : Vitalij K. Pecharsky and Peter Y. Zavalij, *Fundamentals of Powder Diffraction and Structural Characterization of Materials*, Kluwer Academic Publishers, Norwell, MA, 2003, PP29-58.)

VIII. Name of your lab partner

Grading Policy

Lab Grades:

The experimental score (**60 % of total score**) is based upon the grades of the Laboratory Reports and 40 % based on the pre-lab. The grading of each team's Laboratory Report is distributed according to:

Marking Scheme (100 pts in total)

Content	Points for each question		Total Points
Pre-test			20
Lab report	Objectives:	5	60
	Introduction	5	
	Procedure	10	
	Data and observation	25	
	Conclusion	5	
	Acknowledgement	5	
	References	5	
Post test			20

Calculating your final grade:

Letter grade	points	percentage
A	>900	90%
B	800 - 899	80-89.9%
C	700 - 799	70-79.9%
D	600 - 699	60-69.9%
F	< 599	< 60%
Q	Withdraw the course (see University Calendar)	

10 Labs= 10 × 100= 1000 points in total

University Policies

Dropping the course: Follow the university calendar.

Students with Disabilities: Through SSD, TAMUK assists in academic adjustment and provides auxiliary aids to students with disabling conditions, as defined under law, who are otherwise qualified to meet the institutions academic requirements. To receive services that fall under the Americans with Disabilities Act, disabled students must register with the Office of Services for Students with Disabilities (SSD) (593-3024). Students with disabilities, including learning disabilities, who wish to request accommodations in this class, should notify the SSD Office early in the semester so that appropriate arrangements can be made.

Prohibited Conduct: Examples of behavior for students who are subject to disciplinary action are defined in the Student Handbook. For additional information, consult the Student Handbook, the University Catalog, the Student Organization Handbook, the Residence Hall Agreement, the Student Family Apartment Agreement, and/or the Residence Life Guidebook.

Drop Policy: Senate Bill 1231, passed by the Texas legislature in 2007, limits the number of drops (six) that undergraduate students may accrue without a punitive grade. Undergraduates completing a high school program and enrolling in an institution of higher education prior to fall 2007 are exempt. Undergraduate students completing a high school program and enrolling in an institution of higher education for the first time on or after the fall semester 2007 are subject to the law. (See Catalog, pp. 57+).

Important Dates	
First Class Date (For University on Wed/Jan/18/2012)	Wed/Jan/18/2012 (for CHEM 1312)
12th Class Date. No registration after this point	Thu/Feb/02/2012
Five week Date	Wed/Feb/22/2012
Spring Break	Mon/Mar/12/2012 → Sun/Mar/18/2012
Last day to drop the course with an “automatic “Q” Date	Thu/Mar/22/2012
Good Friday Holiday	Fri/Apr/06/2012
The last day to drop the course or withdraw from the university	Thu/May/03/2012 by 5:00 pm
Last Class Date (For University on Thu/May/03/2012)	Wed/May/02/2012 (for CHEM 1312)