

Dr. Billie Lo (billielo@comcast.net)

Lecture: **MW 6:00 –7:15 PM SC32**

Laboratory: **Section 61 MW 2:30 – 5:20 PM SC2208**

Section 62 MW 7:30 – 10:20 PM SC2208

Office Hours: MW 5:00 – 6:00 PM S32

PREREQUISITE: Chem. 1B with a C or better.

ACCEPTABLE FOR CREDIT:

University of California, California State University and Colleges.

COURSE DESCRIPTION:

The solution equilibria including acid-base buffers and slightly soluble salts; electrochemistry including thermodynamics of voltaic cells, corrosion and electrolysis; nuclear chemistry, and coordination chemistry. Laboratory parallels lecture topics with an emphasis on qualitative analysis.

TEXTBOOK

Silberberg. Chemistry: The Molecular Nature of Matter and Change. 8th ed

Lab Manual: Can be found on-line at <http://deanza.edu/chemistry/Chem1C.html>

A simple Scientific Calculator (non-programmable) is required for all the quizzes and exams; and **Safety goggles** is a must for the labs.

STUDENT LEARNING OUTCOMES

1. Combine principle of equilibrium and thermodynamics and solve problems related to electrochemical systems.
2. Analyze unknown inorganic salts qualitatively and identify the cations and anions present in them.

THE LABORATORY

Lab safety rules are strictly enforced. **SAFETY GLASSES or GOGGLES** must be worn **AT ALL TIMES** while you are in the laboratory. Each student is required to have a **lab notebook** to outline the lab procedures, record experiment data, and calculations. It will be evaluated as part of the grade. You are expected to arrive in the laboratory on time. Preview the lab materials before coming to lab is required. Students must check out with me at the end of each lab to have their notebook stamped and sign a roll sheet. Each laboratory experiment must be completed within the specified time. When that period is over, no credit can be given for the lab, but **all labs must be completed to receive a grade in the course**. All lab work not conducted will be graded as a zero.

BASIS OF EVALUATION

A. Quizzes (Approx. 5 - 10 minutes):

Quizzes will be given either in the beginning or at the end of the lecture to those students who are present when the quizzes are passed out. No make-up quiz will be given. **Pre-lecture reading is a must** to get better grade for quizzes and better understanding of the lecture and better over-all performance in this course.

B. Hourly Exam:

Three hourly exams will be given during the quarter. Make-up exam shall be given for serious and compelling reasons only. Arrangement should be made with your instructor **PRIOR TO EXAM TIME** by all means. Any late exams if allowed will be subject to 10% deduction in grade.

C. Final Exam:

A comprehensive final exam will be given. Student who misses or fails the final exam will not receive a grade C or better.

D. Homework

It is strongly recommended that the students do the “Connect” **on-line homework**. Doing them in a timely manner would help the students understand the concepts and get better grades. On completion of 70% of the total assigned homework they will get **80 points** toward their final grades.

An access code comes with your textbook as a package. The students may be provided with an universal access code this quarter by the publisher. To access “CONNECT”

Chem 1C-61 go to: <http://connect.mheducation.com/class/b-lo-chem-1c-general-chemistry---61-fall-2017>

Chem 1C-62 go to: <http://connect.mheducation.com/class/b-lo-chem-1c-general-chemistry---62-fall-2017>

E. Attendance and withdraws:

Attendance at every meeting is required and will be count towards your grade.

*****Academic Dishonesty: Any form of academic dishonesty will be ground for dismissal from the course.**

F. Worksheets

Three worksheets will be assigned, each counts as 10 extra points.

Worksheet #	Content	Start Date	Due Date	Max Points
1	Ionic Equilibria - Review	9/25/17	10/2/17	10
2	Buffer/Titration	9/27/17	10/4/16	10
3	Balance equations	10/18/17	10/25/17	10

G. “Connect” On-line Homework Schedule

Chapter	Date Opened	Date Due
19 Acid-Base Buffer, Titration and Ksp	9/21/17	10/1/17
21 Electrochemistry	10/4/17	11/4/17
13 Solution, Colligative Properties	10/10/17	11/11/17
23 Transtion Metals and Metal Complexes	11/1/17	12/2/17
24 Nuclear Chemistry	11/3/17	12/11/17

H. Grading:

Quizzes	100+
Exams	300 Points
Final exam	250 Points
“Connect” on-line homework (complete 70% of the assigned problems)	80 Points
Lab Grade	270 Points
Lab Exams (120)	
Lab Reports(80)	
Lab Notebook (30)	
Performance/Unknown (40)	

Total 1000 Points

880+ pts A

780+ pts B

650+pts C

500+pts D

I. CHEMISTRY 1C LABORATORY RULES

1. **SAFETY GLASSES OR GOGGLES** must be worn **AT ALL TIMES** while you are in the laboratory.
2. Each student is required to have a **lab notebook** to outline the lab procedures, record experiment data, and calculations. It will be evaluated as part of the grade.
3. You are expected to arrive in the laboratory on time. Tardiness of 15 minutes or more will not be permitted. Preview the lab materials before coming to lab is required
4. Students must clean and return all items from the stock room **no later than 10:15 PM** each day of the experiment.
5. Student must check out with the instructor at the end of each lab to have their notebook stamped and sign a roll sheet.
6. Each laboratory experiment must be completed within the specified time. When that period is over, no credit will be given for the lab, but **all labs must be completed to receive a grade in the course**. All lab work not conducted will be graded as a zero.
7. **Chemical Disposal:**
Proper chemical disposal is essential. Students who do not comply with directed procedures may be dropped from the course for repeated offenses.
8. Please note that you are required to **officially** check out of your lab locker whether you remain in the course or drop the course. Failure to check out of lab on time will result in a late fee and may also result in your grades being held and a block placed on your future registration.
9. **If you drop within the first two weeks of class and fail to check out of lab, your locker may be reassigned to another student by the instructor, and you will be held responsible for any missing or broken lab locker equipment. After the first two weeks of class you must checkout by the assigned checkout date for your laboratory section.**

J. FORMAT OF THE LABNOTEBOOK (a permanently bound notebook):

1. Number and Title of the experiment
2. Purpose/theory of the experiment (brief)
3. Formula for the calculation.
4. Procedure in detail for the experiment. A photocopy of the lab manual is not allowed. Check with the lab instructor which section will be performed next to minimize preparation time and effort.

The above should be fully prepared prior to attending the lab lecture and it should be stamped before lab lecture.

5. Data (laboratory work) must be entered **immediately** and **directly** into the lab notebook **in ink**.
6. Calculations

The laboratory midterm and final are "**open-notebook**". A well-prepared notebook would be helpful during these exams.

K. FORMAT OF THE LAB REPORT

1. Number and Title of the experiment.
2. Theory (more detail) and formula for the calculation
3. Procedure for the experiment (brief).
4. Data and calculation. Show at least one set-up for each different type of calculations.
5. Results (including all graphs) and discussion.
6. Pre-lab and post lab questions if listed in the lab manual..

Report is due on day 2 of the next experiment. Penalty for late reports: 1-2 day late less 10%, 2-7 day late less 40% More than 1 week late, less 60%

CHEMISTRY 1C Fall 2017 TENTATIVE LECTURE, LAB AND EXAM SCHEDULE

WK	DATE	LECTURE &	EXAM SCHEDULE	LABORATORY SCHEDULE
1	M 9/25/17	Ch 18 Review	Acid-Base Equilibria, pH, Relative strength of acids and bases, hydrolysis of salts	Lab Check-In
	W 9/27/17	19.2	Buffer (a conjugate acid-base pair), Henderson-Hasselbalch Equation, Buffer Capacity and Buffer Range, Prepare a Buffer	Freezing Point Day 1
2	M 10/2/17	19.1 19.2	Is the mixture a Buffer? Acid Base Titration Curves (consistency of the solution changes as the titration proceeds)	Freezing Point Day 2
	W 10/4/17	19.3	Acid Base Titration Curves Equilibria of slightly soluble salts	Buffers Day 1
3	M 10/9/17	19.4	Equilibria of slightly soluble salts, Equilibria involves Metal complex	Buffers Day 2
	W 10/11/17		Exam 1	K_{sp} , Common Ion Effects Day 1
4	M 10/16/17	21.1	Redox reaction and Electrochemical cells	K_{sp} , Common Ion Effects Day 2
	W 10/18/17	21.2, 21.3 21.1,	Voltaic cells, Batteries, Standard Reduction potentials, Nernst equation Balance equations,	ANIONS DAY 1
5	M 10/23/17	21.4 21.5 21.6	Free energy and Electric Work - equilibrium constant etc. Batteries Corrosion	ANIONS DAY 2
	W 10/25/17	21.7	Nonspontaneous reaction - Electrolysis	Microscale Electrochem DAY 1
6	M 10/30/17	13.1, 13.2, 13.3	IMF and solubility (Like dissolves Like); Type of solutions; Soap, the solution Process	Microscale Electrochem DAY 2
	W 11/1/17	13.4, 13.5, 13.6	Henry's Law; Colligative Properties, Raoult's Law, the concentration terms,	Cation (1)
7	M 11/6/17		Exam 2	Lab Midterm/ Cation (2)
	W 11/8/17	13.6	Colligative properties – F.P. depression, B.P. Elevation (phase diagram), the Van't Hoff factor for electrolytes	Cation (3)
8	M 11/13/17	23.1 23.2	Transition and Inner transition Elements Coordination compounds	Cation (4)
	W 11/15/17	23.3	Complex Ions, formula and names, Isomerism	Cation (5)
	F 11/17/17	Last Day	to Drop with a "W"	
9	M 11/20/17	23.4	Coordination Compounds - Valence bond Theory, Crystal Field Theory	Cation (6)
	W 11/22/17	23.4	Crystal Field Theory (Predict Color and Magnetic properties)	Cation (7)
	Thurs day - 11/23/17	Sunday 11/26/17	Holiday – Thanksgiving	
10	M 11/27/17		Exam 3	Cation (8)
	W 11/29/17	24	Nuclear Chemistry	Cation (9)
11	M 12/4/17	24.	Nuclear Chemistry	Cation (10)
	W 12/6/16	24	Nuclear Chemistry	Lab Final/ Lab Check-out
12	M 12/11/16		Final	

