

Chemistry 327 Fall 2014

SYLLABUS

Lecture time: TR 8:50 - 9:40 AM

Lab time: TR 1:20 -4:20 PM

Dis. time: W 7:45 – 8:35 AM

Lecture location: Chem B371

Lab location: Chem 2331, 2341, 2365

Dis. location: Chem 2307, 2377, 2381, 2311, 2373

Instructor:Professor *Song Jin*Office hours (tentative): T 9:40 – 10:40 AM
F 12– 1 PM

office: Chem 3363

phone: 2-1562

or by appt. (Chem 3363)

e-mail: jin@chem.wisc.edu (Please include "Chem 327" in the subject line.)Course webpage: <https://learnuw.wisc.edu>**Textbook:** Harris, Daniel C. *"Exploring Chemical Analysis"* 5th ed.**Other Required Material:** Lab manual (available in the Mills Street lobby of Chemistry building), bound laboratory notebook, Safety goggles**Grades:**

The point distribution is as follows:

Exams:	3 exams x 130 pts	=	390 pts.
Homework:	9 assignments x 30 pts	=	270 pts.
Laboratory:	labs (14x 15 pts = 10 pts results + 5 pts lab notebook carbon), pre-lab quizzes (15x 5 pts)		
	lab total	=	285 pts.
Project		=	40 pts
TA evaluation		=	15 pts.
<i>Total:</i>			<i>1000 pts.</i>

The intended grading scale is:

A	890-1000
A/B	840-889
B	790-839
B/C	740-789
C	680-739
D	600-679
F	<599

However, the scale may be shifted to reflect overall class performance. You will be updated changes to the scale during the semester.

Exams:

There will be three exams this semester. The exams are not cumulative; however, most of the material is inherently pedagogical. Therefore, in general you must have a firm understanding of previous materials in order to fully comprehend new material. The first two exams will be conducted during the lab sessions. If you still have conflicts, please arrange makeup exam sessions with your TA in advance.

Exam I:	Oct 14, Tuesday, lab time (7 th week)
Exam II:	Nov 13, Thursday, lab time (11 th week)
Exam III ("Final Exam"):	Dec 16, Tuesday, 12:25 PM

Homework:

You may work on these assignments as a group, but you must turn in your own homework. Be sure to note that the homework assignments directly reflect exam materials. If you can not work out the problems yourself after the completion of the homework, you will not gain the *proficiency* required to solve the problems on the exams. **Homework will be due on Thursdays at the beginning of lab sessions. No late assignments are accepted. This is a strict deadline.**

Course Outline:

The tentative course schedule is as follows:

Week	Lecture Topics	Book Chapters
1 (Sep 2)	Intro, Units	0,1
2 (Sep 9)	Errors, Statistics	3,4
3 (Sep 16)	Statistics	4
4 (Sep 23)	Statistics, Spectrophotometry	4, 18
5 (Sept 30)	Spectrophotometry	18, 19, 5
6 (Oct 7)	Equilibria, Acid-base	7, 8
7 (Oct 14) (Exam I)	Acid-base	8, 9
8 (Oct 21)	Acid-Base	9, 11
9 (Oct 28)	Acid-base titrations	10, 11
10 (Nov 4)	Titration, Systematic treatment	10,11,12
11 (Nov 11) (Exam II on Nov 13)	Activity, EDTA	12,13
12 (Nov 18)	Redox, Electrochemistry	14,15
13 (Nov 25)	Electrochemistry, Thanksgiving!	14, 15
14 (Dec 2)	Electrochem, Chromatography	15, 21
15 (Dec 9)	Chromatography, Last class Dec 11	21,22,23
16 (Dec 16) (Exam III)		

This schedule will change as we go along, depending on how we do in these lectures. You should also note that textbook chapters 0, 2, and 6-2 are devoted to analytical laboratory practices. Although you will not be directly tested on these chapters, you may find information in these chapters that will boost your performance in the laboratory.

Laboratory:

- There will be 14 graded standard experiments at 15 pts each and your grade will be based on the accuracy and precision of your results. To encourage you to keep good notes during labs, 5 pts for each lab are given for turning in the carbon copy of the lab notebook. **The results from these experiments are to be turned in no later than the start of the laboratory period following the completion of the experiment.** You will lose 2 pts/day if the result is turned in late.
- The primary goal of the pre-lab quizzes is to prompt you to prepare for the labs beforehand and to test your knowledge and understanding of the concepts behind the standard experiments. Overall, being “prepared” for a lab means you are familiar with the: overall concepts and goals of the experiment; methods used in the experiment to accomplish the goals; procedures (enough so that you understand the impact of each step on the chemistry and the calculations, e.g. dilutions, stoichiometry, etc); and calculations (enough so that you understand how to perform the calculation required for the experiment given a set of raw data). You can have two attempts at each quiz, the higher grade will be the final grade. It is advised that you make your first attempt for each quiz at least 1 day before the lab so that you have time to ask questions before your second attempt, in case you encounter any difficulties. The quiz for each lab becomes unavailable when that lab starts.
- The lab project could be the most challenging and also most rewarding part of this course. We will discuss the project in more details in October.

Week	Date	601 Amanda Buchberger	602 Audrey Forticaux	603 Zengwei (Tony) Chen	604 Brandi Bonfert	605 Rebeca Pinhancos
1	2-Sep 4-Sep	Check-in/Weighing Exp. Volumetric Apparatus	Check-in/Weighing Exp. Volumetric Apparatus	Check-in/Weighing Exp. Volumetric Apparatus	Check-in/Weighing Exp. Volumetric Apparatus	Check-in/Weighing Exp. Volumetric Apparatus
2	9-Sep 11-Sep	Standardization of HCl Standardization of NaOH	Standardization of HCl Standardization of NaOH	Standardization of HCl Standardization of NaOH	Standardization of HCl Standardization of NaOH	Standardization of HCl Standardization of NaOH
3	16-Sep 18-Sep	Determination of % KHP Hardness of Water	Determination of % KHP Hardness of Water	Determination of % KHP Hardness of Water	Determination of % KHP Hardness of Water	Determination of % KHP Hardness of Water
4	23-Sep 25-Sep	Hardness of Water Ascorbic Acid Method	Hardness of Water Ascorbic Acid Method	Hardness of Water Ascorbic Acid Method	Hardness of Water Ascorbic Acid Method	Hardness of Water Ascorbic Acid Method
5	30-Sep 2-Oct	Spike Recovery and MDL <i>Finish labs</i>	Spike Recovery and MDL <i>Finish labs</i>	Spike Recovery and MDL <i>Finish labs</i>	Spike Recovery and MDL <i>Finish labs</i>	Spike Recovery and MDL <i>Finish labs</i>
6	7-Oct	Fluorescence Lab	Fluorescence Lab	Fluorescence Lab	Fluorescence Lab	Fluorescence Lab
	9-Oct	Project	Project	Project	Project	Project
7	14-Oct	EXAM 1				
	16-Oct	Project	Project	Project	Project	Project
8	21-Oct	Project	Project	Project	Project	Project
	23-Oct	Project	Project	Project	Project	Project
9	28-Oct 30-Oct	Weak Acid Weak Acid (continued)	Weak Acid Weak Acid (continued)	Weak Acid Weak Acid (continued)	Weak Acid Weak Acid (continued)	Weak Acid Weak Acid (continued)
10	4-Nov 6-Nov	Adventure with Buffers Study of BCG	Adventure with Buffers Study of BCG	Adventure with Buffers Study of BCG	Adventure with Buffers Study of BCG	Adventure with Buffers Study of BCG
11	11-Nov	<i>Finish labs</i>	<i>Finish labs</i>	<i>Finish labs</i>	<i>Finish labs</i>	<i>Finish labs</i>
	13-Nov	EXAM 2				
12	18-Nov 20-Nov	Gas Chromatography Chemical Oxygen Demand	High Performance LC Gas Chromatography	Chemical Oxygen Demand High Performance LC	Fluoride Ion Electrode Chemical Oxygen Demand	Chemical Oxygen Demand Ag Electrode Study
13	25-Nov	Fluoride Ion Electrode	Ag Electrode Study	Gas Chromatography	High Performance LC	Fluoride Ion Electrode
	27-Nov	<i>Thanksgiving Day–No Lab</i>				
14	2-Dec 4-Dec	Ag Electrode Study High Performance LC	Chemical Oxygen Demand Fluoride Ion Electrode	Ag Electrode Study Fluoride Ion Electrode	Gas Chromatography Ag Electrode Study	High Performance LC Gas Chromatography
15	9-Dec 11-Dec	<i>Finish labs</i> /Check out <i>No Lab</i>	<i>Finish labs</i> /Check out <i>No Lab</i>	<i>Finish labs</i> /Check out <i>No Lab</i>	<i>Finish labs</i> /Check out <i>No Lab</i>	<i>Finish labs</i> /Check out <i>No Lab</i>