

Chemistry 327 Fall 2016

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: 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 (15 x 14 pts = 10 pts results + 4 pts lab notebook carbon), pre-lab quizzes (15 x 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	900-1000
A/B	850-899
B	800-849
B/C	740-799
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 18, Tuesday, lab time (7th week)Exam II: Nov 22, Tuesday, lab time (12th week)

Exam III ("Final Exam"): Dec 17, Sunday, 10:05 AM

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 6)	Intro, Units	0,1
2 (Sep 13)	Errors, Statistics	3,4
3 (Sep 20)	Statistics	4
4 (Sep 27)	Statistics, Spectrophotometry	4, 18
5 (Oct 4)	Spectrophotometry	18, 19, 5
6 (Oct 11)	Equilibria, Acid-base	7, 8
7 (Oct 18) (Exam I)	Acid-base	8, 9
8 (Oct 25)	Acid-Base	9, 11
9 (Nov 1)	Acid-base titrations	10, 11
10 (Nov 8)	Titration, Systematic treatment	10,11,12
11 (Nov 15)	Activity, EDTA	12,13
12 (Nov 22) (Exam II on Nov 22)	Redox, Electrochemistry Thanksgiving!	14,15
13 (Nov 29)	Electrochemistry,	14, 15
14 (Dec 6)	Electrochem, Chromatography	15, 21
15 (Dec 13)	Chromatography, Last class Dec 15	21,22,23
(Dec 17) (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.

ACADEMIC MISCONDUCT:

It is expected that all students will conduct themselves with honesty, integrity, and professionalism. Any student caught cheating on an exam will receive an F in the course. This penalty includes incidents such as looking at another student's paper during an exam or altering an exam after it has been graded and then submitting it for re-grading. Any student caught cheating on a lab or homework assignment (for instance, copying another person's work or fabricating data) will receive a zero for that assignment. A second infraction will result in an F for the course. More information on what constitutes academic misconduct and UW policies on handling misconduct can be found at:

<http://www.wisc.edu/students/saja/misconduct/UWS14.html>.

Laboratory:

- There will be 15 graded standard experiments at 14 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, 4 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 (Lichen Xiu)	602 (Feng Pan)	603 (Yuzhou Zhao)	604 (Megan Petti)	605 (Kellen Delaney)
1	6-Sep 8-Sep	Last Day off! We will have a Discussion, 7:45 AM Wednesday. See course schedule for location details.				
		Check-in/Weighing Lab	Check-in/Weighing Lab	Check-in/Weighing Lab	Check-in/Weighing Lab	Check-in/Weighing Lab
2	13-Sep 15-Sep	Volumetric Apparatus Standardization of HCl	Volumetric Apparatus Standardization of HCl	Volumetric Apparatus Standardization of HCl	Volumetric Apparatus Standardization of HCl	Volumetric Apparatus Standardization of HCl
3	20-Sep 22-Sep	Standardization of NaOH % KHP in a Mixture	Standardization of NaOH % KHP in a Mixture	Standardization of NaOH % KHP in a Mixture	Standardization of NaOH % KHP in a Mixture	Standardization of NaOH % KHP in a Mixture
4	27-Sep 29-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	4-Oct 6-Oct	Spike Recovery and MDL Finish labs	Spike Recovery and MDL Finish labs	Spike Recovery and MDL Finish labs	Spike Recovery and MDL Finish labs	Spike Recovery and MDL Finish labs
6	11-Oct 13-Oct	A Study of Fluorescein Spec. Det. of a Mixture	A Study of Fluorescein Spec. Det. of a Mixture	A Study of Fluorescein Spec. Det. of a Mixture	A Study of Fluorescein Spec. Det. of a Mixture	A Study of Fluorescein Spec. Det. of a Mixture
7	18-Oct 20-Oct	EXAM 1				
		High Performance LC	Weak Acid	Weak Acid	Weak Acid	Weak Acid
8	25-Oct 27-Oct	Weak Acid Weak Acid (cont)	High Performance LC Weak Acid (cont)	Weak Acid (continued) High Performance LC	Weak Acid (continued) Adventures with Buffers	Weak Acid (continued) Adventures with Buffers
9	1-Nov 3-Nov	Adventure with Buffers Study of BCG	Adventure with Buffers Study of BCG	Adventure with Buffers Study of BCG	High Performance LC Bromocresol Green	Bromocresol Green High Performance LC
10	8-Nov 10-Nov	Project Project	Project Project	Project Project	Project Project	Project Project
11	15-Nov 17-Nov	Project Project	Project Project	Project Project	Project Project	Project Gas Chromatography
12	22-Nov 24-Nov	EXAM 2				
		Thanksgiving Day—No Lab				
13	29-Nov 1-Dec	Gas Chromatography Silver Electrode	Chemical Oxygen Demand Gas Chromatography	Fluoride Ion Electrode Silver Electrode	Chemical Oxygen Demand Silver Electrode	Project Fluoride Ion Electrode
14	6-Dec 8-Dec	Fluoride Ion Electrode Chemical Oxygen Demand	Silver Electrode Fluoride Ion Electrode	Gas Chromatography Chemical Oxygen Demand	Fluoride Ion Electrode Gas Chromatography	Silver Electrode Chemical Oxygen Demand
15	13-Dec 15-Dec	Finish labs/Check out No Lab	Finish labs/Check out No Lab	Finish labs/Check out No Lab	Finish labs/Check out No Lab	Finish labs/Check out No Lab