

Chemistry 329 Spring 2016 (Jin)

SYLLABUS

Lecture time: MW 11:00 – 11:50 AM

Lab time: TR 1:20 -5:25 PM

Disc time: F 11:00 - 11:50 AM

Lecture location: Chem B371

Lab location: Chem 2331, 2341, 2365

Disc location: Chem 2377, B387, B351, 2307, 2385

Instructor:Prof. *Song Jin*

office: Chem 3363

phone: 2-1562

e-mail: jin@chem.wisc.edu (Please include "Chem 329" in the subject line.)Course webpage: <https://learnuw.wisc.edu>

Office hours : M 9:50 – 10:50 AM

F 12 – 1 PM

or by appt. (Chem 3363)

Textbook: Harris, Daniel C. *"Quantitative Chemical Analysis"* 9th ed.**Other Required Material:** Lab manual (available in the Mills Street lobby of Chemistry building), Bound laboratory notebook with carbon copy, Safety goggles**Grades:**

The point distribution is as follows:

Exams:	3 exams x 130 pts	=	390 pts.
Homework:	8 assignments x 30 pts	=	240 pts.
Laboratory:	labs (13x 14pts), pre-lab quizzes (13x 6pts) project (80 pts)	lab total =	340 pts.
TA evaluation		=	30 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 twice 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 material in order to fully comprehend new material. If you have conflicts, please arrange makeup exam sessions with your TA in advance.

Exam I: March 3, Thursday 2-4 PM (7th week)Exam II: April 19, Tuesday 2-4 PM (14th week)

Exam III ("Final Exam"): May 13, Friday 2:45 – 4:45 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 material. 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 within the timeframe of the exams. **Homework will be usually due on Mondays 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 (Jan 18)	Intro	0,1
2 (Jan 25)	Units, Errors	3,4
3 (Feb 1)	Statistics	4
4 (Feb 8)	Statistics, Spectrophotometry	18
5 (Feb 15)	Spectrophotometry, Project Intro	18, 19, 20
6 (Feb 22)	Equilibria	6, 8
7 (Feb 29) (Exam I)	Acid-base	9
8 (Mar 7)	Acid-Base	9, 10
9 (Mar 14)	Acid-base titrations	7, 11
10 (Mar 21)	<i>Spring Break!</i>	
11 (Mar 28)	Titration, Systematic treatment	11, 8
12 (Apr 4)	Activity, EDTA	13, 12
13 (Apr 11)	Redox, Electrochemistry	14
14 (Apr 18) (Exam II)	Electrochemistry	15
15 (Apr 25)	Chromatography	23
16 (May 2)	Chromatography, Review	24,25

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 27 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:

The laboratory counts for a total of 34% towards your final grade and is divided into three main categories: standard experiments, lab quizzes, and project.

- There will be 13 graded standard experiments, and your grade will be based on the accuracy and precision of your results. **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 4 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, procedure (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 as we go into the semester.

Week	Date	631 Vila Rajaratnam	632 Kellen Delaney	633 Dan Kohler	634 Pingli Wei	635 Dominic Colosi
1	19-Jan 21-Jan	No Lab				
		Check-in/Weighing	Check-in/Weighing	Check-in/Weighing	Check-in/Weighing	Check-in/Weighing
2	26-Jan 28-Jan	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	2-Feb 4-Feb	Standardization of NaOH Determination of % KHP	Standardization of NaOH Determination of % KHP	Standardization of NaOH Determination of % KHP	Standardization of NaOH Determination of % KHP	Standardization of NaOH Determination of % KHP
4	9-Feb 11-Feb	Spectrophotometric Det. Of Fe Hardness of Water	Spectrophotometric Det. Of Fe Hardness of Water	Spectrophotometric Det. Of Fe Hardness of Water	Spectrophotometric Det. Of Fe Hardness of Water	Spectrophotometric Det. of Fe Hardness of Water
5	16-Feb 18-Feb	A Study of Fluorescein Chemical Oxygen Demand	Chemical Oxygen Demand A Study of Fluorescein	A Study of Fluorescein Chemical Oxygen Demand	Chemical Oxygen Demand A Study of Fluorescein	A Study of Fluorescein Chemical Oxygen Demand
6	23-Feb 25-Feb	Project--Design Pb Expt Project--Design Pb Expt	Project--Design Pb Expt Project--Design Pb Expt	Project--Design Pb Expt Project--Design Pb Expt	Project--Design Pb Expt Project--Design Pb Expt	Project--Design Pb Expt Project--Design Pb Expt
7	1-Mar 3-Mar	Project--Design Pb Expt	Project--Design Pb Expt	Project--Design Pb Expt	Project--Design Pb Expt	Project--Design Pb Expt
		Exam 1				
8	8-Mar 10-Mar	Adventures with Buffers ID of an Unknown Weak Acid	Adventures with Buffers ID of an Unknown Weak Acid	Adventures with Buffers ID of an Unknown Weak Acid	Adventures with Buffers ID of an Unknown Weak Acid	Adventures with Buffers ID of an Unknown Weak Acid
9	15-Mar 17-Mar	Bromocresol Green Practice with ImageJ	Bromocresol Green Practice with ImageJ	Bromocresol Green Practice with ImageJ	Bromocresol Green Practice with ImageJ	Bromocresol Green Practice with ImageJ
--	22-Mar 24-Mar	Spring Break				
10	29-Mar 31-Mar	Project Project	Project Project	Project Project	Project Project	Project Project
11	5-Apr 7-Apr	Project Project	Project Project	Project Project	Project Project	Project Project
12	12-Apr 14-Apr	Project HPLC	Project Fluoride ISE	Project Ag Electrode Study	HPLC Project	Project Project
13	19-Apr 21-Apr	Exam 2				
		Project	Project	Project	Project	HPLC
14	26-Apr 28-Apr	Fluoride ISE Ag Electrode Study	HPLC Ag Electrode Study	Fluoride ISE HPLC	Ag Electrode Study Fluoride ISE	Ag Electrode Study Fluoride ISE
15	3-May 5-May	Project Presentation Check Out	Project Presentation Check Out	Check Out Project Presentation	Check Out Project Presentation	Check Out Project Presentation