

## Chemistry 329 Fall 2017 (Jin)

### SYLLABUS

Lecture time: MW 11:00 – 11:50 AM	Lecture location: Chem B371
Lab time: MW 1:20 -5:25 PM	Lab location: MSC 5385
Lab time (section 615): MF 1:20-5:25 PM	Lab location: MSC 5360
Disc time: F 11:00 - 11:50 AM	Disc location: Chem B383, B379, B387, 2377, 2385 (depending on your section assignment)

#### Instructor:

Prof. <i>Song Jin</i>	Office hours: W 12:00 – 1 PM
office: Chem 3363	F 12 – 1 PM
phone: 2-1562	or by appt. (Chem 3363)
e-mail: <a href="mailto:jin@chem.wisc.edu">jin@chem.wisc.edu</a> (Please include “Chem 329” in the subject line.)	
Course webpage: <a href="https://learnuw.wisc.edu">https://learnuw.wisc.edu</a>	

**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, and a lab coat.

#### 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:	October 16, Monday 3-5 PM (7 <sup>th</sup> week)
Exam II:	November 20, Monday 3-5 PM (12 <sup>th</sup> week)
Exam III (“Final Exam”):	December 20, Wednesday, 7:45 – 9:45 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 material. If you cannot 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 (Sept 6 -Wed)	Intro	0, 1
2 (Sept 11)	Units, Errors	3, 4
3 (Sept 18)	Statistics	4
4 (Sept 25)	Spectrophotometry	18, 19
6 (Oct 2)	Spectrophotometry, Equilibria	20, 6
7 (Oct 9)	Acid-base	8, 9
8 (Oct 16) (Exam I)	Acid-Base	9, 10
9 (Oct 23)	Acid-base titrations, Project Intro	7, 11
10 (Oct 30)	Titration, Systematic treatment	11, 8
11 (Nov 6)	Activity, EDTA	13, 12
12 (Nov 13)	Redox, Electrochemistry	14
13 (Nov 20) (Exam II)	Electrochemistry	15
14 (Nov 27)	Electrochemistry, Chromatography	15, 23
15 (Dec 4)	Chromatography	24
16 (Dec 11)	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	611 Yuzhao Zhao	612 Stephanie Werner	613 Zihui (Jerry) Li	614 Rachel Miller	615 Meets M & F Spitha	Natalia	
1	4-Sep 6-Sep	<b>Labor Day--no lab</b>						
		Check-in/Weighing	Check-in/Weighing	Check-in/Weighing	Check-in/Weighing	Check-in/Weighing	Check-in/Weighing	
2	11-Sep 13-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	Volumetric Apparatus Standardization of HCl	
3	18-Sep 20-Sep	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	Standardization of NaOH Determination of % KHP	
4	25-Sep 27-Sep	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	Spectrophotometric Det. of Fe Hardness of Water	
5	2-Oct 4-Oct	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	A Study of Fluorescein Chemical Oxygen Demand	
6	9-Oct 11-Oct	Adventures with Buffers Project--Measuring Pb	Adventures with Buffers Project--Measuring Pb	Adventures with Buffers Project--Measuring Pb	Adventures with Buffers Project--Measuring Pb	Adventures with Buffers Project--Measuring Pb	Adventures with Buffers Project--Measuring Pb	
7	16-Oct 18-Oct	<b>Exam 1</b>						
		Project continued	Project continued	Project continued	Project continued	Project continued	Project continued	
8	23-Oct 25-Oct	Project continued ID of an Unknown Weak Acid	Project continued ID of an Unknown Weak Acid	Project continued ID of an Unknown Weak Acid	Project continued ID of an Unknown Weak Acid	Project continued ID of an Unknown Weak Acid	Project continued ID of an Unknown Weak Acid	
9	30-Oct 1-Nov	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	Bromocresol Green Practice with ImageJ	
10	6-Nov 8-Nov	Project Project	Project Project	Project Project	Project Project	Project Project	Project Project	
11	13-Nov 15-Nov	Project Project	Project Project	Project Project	Project Project	Project Project	Project Project	
12	20-Nov 22-Nov	<b>Exam 2</b>						
		Finish labs	Finish labs	Finish labs	Finish labs	Finish labs	Your lab is available for makeup work on 11/22	
13	27-Nov 29-Nov	Project Project	Project Project	Project Project	Project Project	Project Project	Project Project	
14	4-Dec 6-Dec	Fluoride ISE Ag Electrode	High Pressure Liquid Chromatography Ag Electrode Study	Fluoride ISE High Pressure Liquid Chromatography	Ag Electrode Fluoride ISE	Ag Electrode Study High Pressure Liquid Chromatography	Ag Electrode Study High Pressure Liquid Chromatography	
15	11-Dec 13-Dec	<b>Project Presentation</b> High Pressure Liquid Chromatography	<b>Project Presentation</b> Fluoride ISE	Ag Electrode Study <b>Project Presentation</b>	High Pressure Liquid Chromatography <b>Project Presentation</b>	Fluoride ISE <b>Project Presentation</b>	<b>Project Presentation</b>	