

# CHEMISTRY 142D, AUTUMN 2008

## SYLLABUS, POLICIES AND PROCEDURES

LECTURES: M, Wed, Thurs, 5:30 PM, Bagley 131

Web Addresses: <http://depts.washington.edu/chem/courses/>  
<http://courses.washington.edu/bhrchem/c142/keys.php>

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**Prerequisites:** Completed high school chemistry and placement into Math 120 or higher.

**Add or Drop:** Go to Bagley 271 (stockroom) or Bagley 292 (undergraduate services)

### INSTRUCTORS

**Class:** Bruce H. Robinson

Office: BAG 212 Telephone: 543-1773

E-mail: [robinson@chem.washington.edu](mailto:robinson@chem.washington.edu)

Office hours: Tu, F 5-6 Bagley 212

**Lab:** Dr. Andrea Carroll

Office: CHB 204K Telephone: 616-5319

E-mail: [ageddes@u.washington.edu](mailto:ageddes@u.washington.edu)

Office hours: Th 1:30-3:20

### Teaching Assistants:

Name	First	Section	Email Address
Rucker	Richard	Chem 142 DA,DD	<a href="mailto:rprucker@u.washington.edu">rprucker@u.washington.edu</a>
McGuffin	Sarah	Chem 142 DB,DF	<a href="mailto:mcguffin@u.washington.edu">mcguffin@u.washington.edu</a>
Shao	Guozheng	Chem 142 DC,DL	<a href="mailto:gzshao@u.washington.edu">gzshao@u.washington.edu</a>
Swartz	Rodney	Chem 142 DH,DI	<a href="mailto:swartzr@u.washington.edu">swartzr@u.washington.edu</a>
Deodhar	Shraddha	Chem 142 DG,DJ	<a href="mailto:ssoak@u.washington.edu">ssoak@u.washington.edu</a>
Eckert	Kevin	Chem 142 DE,DK	<a href="mailto:farscape@u.washington.edu">farscape@u.washington.edu</a>

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### MATERIALS

Except where indicated, all are available from the University Bookstore

- Zumdahl, *Chemical Principles*, Sixth Edition, Houghton Mifflin (required).
- Kelter, *Study Guide, Chemical Principles*, Sixth Edition (optional).
- Chemistry 142 General Chemistry Laboratory Manual* (required).
- Laboratory notebook with numbered pages and carbonless copies (required).
- Clicker, scientific calculator, goggles and WebAssign access card (all required). WebAssign access can also be purchased online at <http://www.webassign.net>.
- Lab coat (required).

### COURSE DESCRIPTION

The course consists of:

- o 3 lectures a week
- o 1 quiz section once a week (on Thursday)
- o 1 three-hour laboratory session most weeks of the quarter (6 total).
- o Attendance at ALL course components is essential to obtain a satisfactory grade in this course.

## ***COURSE OBJECTIVES***

**The central focus of this course is to develop quantitative problem solving skills. You will:**

- Learn to clearly pose a problem with detailed solutions for all aspects of that problem. These can include central and auxiliary equations with any needed conversion factors.
- Learn to report precision input data in solutions to problems (contains the appropriate number of significant figures).
- Use these skills to master the following fundamental chemistry topics:
  - ◆ the atomic nature of matter
  - ◆ stoichiometry
  - ◆ major classes of chemical reactions
  - ◆ properties of gases
  - ◆ chemical equilibrium
  - ◆ acids and bases
  - ◆ applications of aqueous equilibria
- Conduct laboratory exercises that:
  - ◆ emphasize and apply the concepts learned in lectures.
  - ◆ develop laboratory, data analysis, and scientific writing skills.

## ***ACADEMIC ETHICS***

**Original work performed in good faith is assumed on all laboratories/exams/worksheets.**

It is presumed that the data you record and report in laboratory is your work. University rules (Handbook, Vol. IV, Part 9, Chapter 1, Executive Order #61) define scientific and scholarly misconduct to include the following forms of inappropriate activities:

- Intentional misrepresentation of credentials
- Falsification of data
- Plagiarism

Failure to adhere to this code of ethics will result in prosecution to the fullest extent (see <http://www.washington.edu/students/handbook/conduct.html> for specifics). In short, if you have not done something yourself, do not attempt to pass it off as original work.

<b><i>GRADING</i></b>	2 midterm exams (50 min. each)	196	28 %
	Work Sheet (WS) (lowest WS dropped)	42	6 %
	Clickers (In Lecture)	42	6%
	Homework (lowest HW dropped)	84	12 %
	Laboratory	140	20 %
	<u>Final exam (1 hr. 50 min.)</u>	<u>196</u>	<u>28%</u>
	TOTAL	700	100 %

**Grade Distribution** – The undergraduate program committee policy states that the final mean GPA in Chemistry 142 should fall within the range 2.6 +/- 0.2. It is the Chemistry Department's general policy not to make grade changes of 0.1 after final class grades are submitted to Records.

**Late Policy** - *No extensions are given for WebAssign assignments. For lab report policies, refer to the front pages in the lab manual.*

## **LECTURES**

**An approximate schedule assigns chapters to be covered each week is on page 7.**

You are responsible for material covered in class AND in the textbook. Attendance at lectures is expected.

Out of respect for your classmates, please observe the following rules:

- Arrive on time. If an emergency causes you to arrive late, please enter quietly through the rear doors where available.
- Do not begin to pack up your books etc. before the end of lecture.
- Do not have conversations with your neighbor during lecture.
- Turn off your cell phone or pager.

## **LABS**

The lab consists of a pre-lab exercise, lab work, and post-lab report. The lab schedule is given on page 8.

**Attendance:** *You must attend every laboratory session.* If you miss more than one lab without an excused absence, you will fail the class. The same policies described for missing an exam apply here. If you do miss lab, please contact your TA (if possible in advance of the lab) and the stockroom (Bagley 271). We will try to schedule you into an alternate lab time. See Dr Harvey, Bagley 294, if you need to be excused (there is no alternate time, or you need to be assigned a make up lab). See the laboratory manual for more details.

**Safety:** There is an element of hazard in any laboratory course. You are required to follow the safety instructions as outlined in your laboratory manual. In particular, you are required to wear **approved safety goggles and a lab coat** during all the experiments. If you do not dress appropriately, you will not be allowed to attend the lab session. **No open-toed shoes, no bare legs or ankles will be permitted, nor will any clothing that interferes with lab activity.**

**Pre-labs:** The information necessary to prepare yourself for each lab is available via the 142 Lab link on <http://depts.washington.edu/chem/courses/>. This course uses internet-based pre-labs exclusively. You will both receive and submit your assignments online via the internet. For more details, see the WebAssign description under homework. *Check the due dates for the pre-labs to avoid being shut out.* You must score at least 3.5 points (out of 5 total) on the WebAssign pre-lab before the due date, which is set to coincide with the first scheduled lab period of the week. If you don't have the required 3.5 point score by the due date, you will have 10 points deducted from your grade for the lab report. *The purpose and procedure sections of your notebook must be completed before your lab session.*

**Lab Notebook:** Bound laboratory notebook with numbered pages (not loose leaf) **and carbonless duplicate copies** are available at the bookstore. *Please note the special nature of this lab notebook.*

- All recording and reporting must be in this notebook **IN INK**. Line through your errors neatly instead of erasing or whiting out.

- On the first page of your notebook write (i) your name and student number, (ii) Autumn Quarter 2008, (iii) the course number, Chem. 142D, and (iv) your section.
- Start the experiments on page 2.
- Write only on one side of each page when recording information in the laboratory and for the purpose and procedure sections.
- Write your name, section, and experiment number on each page you use.
- ***Be prepared to hand in the duplicate pages at the end of each lab period.***

**During Labs:** Perform only assigned work. If any deviations are necessary, consult your TA first. Record observations (data), perform all necessary calculations, and based on your results, come to some conclusion.

**Before You Leave the Lab:**

Your TA will check and make sure that you have done all assigned work He/She will initial your lab notebook and ask for a duplicate copy of your work.

**Post-Lab Reports**

The report templates are available via the 142 Lab link on <http://depts.washington.edu/chem/courses/>

- Exp. #1: Safety Exercise  
Physical Measurements and Error Analysis.  
*Pre-lab (5 pts) + notebook and Excel Template Submission (35pts)* Report due at the beginning of the next Lab session.
- Exp. #2: Identification Based on % Metal Composition and %  $\text{KClO}_3$  in a  $\text{KCl}/\text{KClO}_3$  Mixture.  
*Pre-lab (5 pts) + notebook and Excel Template Submission (35pts)* Report due at the beginning of the next Lab session.
- Exp. #3 Stoichiometry I. *Pre-lab (5 pts) + notebook and Excel Template Submission (35pts)*  
Report due at the beginning of the next Lab session.
- Exp. #4 Stoichiometry II. *Pre-lab (5 pts) + notebook and Excel Template Submission (35pts)*  
Report due at the beginning of the next Lab session.
- Exp. #5 Molecular Weight of a Low Boiling Liquid. *Pre-lab (5 pts) + notebook and Excel Template Submission (35pts)* Report due at the beginning of the next Lab session.
- Exp. #6 Titrations. Print out the Report form from the Chem. 142 lab web site and bring it with you to lab. *Pre-lab (5 pts) + notebook and Report form Submission (35pts)*. Report due by the end of the lab period.

***QUIZ SECTIONS*** See page 8 for schedule

Part of the quiz section involves completing a work sheet that your TA will hand to you during the class. The remainder of the quiz section is devoted to helping you with difficulties in understanding the lecture and lab materials.

***HOMEWORK*** This course uses internet-based homework exclusively.

You will receive and submit your assignments online via the internet. **Assignments will be available on Monday** and will be due **the following Saturday**. The internet interface is called “WebAssign” and can be accessed using the following instructions.

How to access WebAssign:

- 1) Go to [www.webassign.net/washington/login.html](http://www.webassign.net/washington/login.html)
- 2) Click on the button labeled “Log In” which takes you to the UW NetID weblogin page:

<b>UW NetID:</b> <input type="text"/>	←	Your UW Net ID (e-mail address without the "@u.washington.edu")
<b>Password:</b> <input type="text"/>	←	Your UW Net ID password

- 3) Click on the “Log In” button which takes you back to WebAssign.

**NOTES:**

- Each student must purchase an access code to use WebAssign.
- Access codes can be purchased either in person at the UW bookstore, or online at WebAssign's website. Enter the code in the assignment titled "WebAssign Registration". There is a 2-week grace period before access codes are enforced.
- Click on the "Student Guide" for information about how to use WebAssign. Also, the “Intro to WebAssign” assignment will help you learn how to use WebAssign.
- If you need additional help, see your TA or go to the Chem Study Center (BAG 330).

***HELP RESOURCES***

- **Instructor:** See instructor office hours on the front page, or make an appointment.
- **Teaching Assistant:** Your teaching assistant (TA) will advise you his/her office hours during the first week of the quarter. Your TA is an important person to your success.
- **Chemistry Study Center, Bagley 330:** The study center is open M to Th from 9:00 am to 6:00 pm and 9:00 am to 2:00 pm on F. The study center is staffed with experienced teaching assistants.
- **Undergraduate Services, Bagley 292/294:** The staff can help with scheduling problems, clicker or WebAssign problems, or issues that arise during the course.

***MIDTERM EXAMS***

**There are 2 midterm exams. The dates for these are 10/220 and 11/19.**

Chemistry knowledge is cumulative so questions on exams will often depend on knowledge from earlier chapters.

### Exam Rules

1. Bring a number 2 pencil, your calculator, and a photo ID to all exams.
2. You must sit according to the *seating charts*, posted on-line on the class web site and on the walls in the front of the classroom.

### Grading

- One hour exams will be graded and returned in quiz section.
- Keys to exams will be posted on line on the class web site.

### Re-grading (applies to Exams and Lab Reports)

- If it is a simple addition error, show the exam/report to your TA for correction.
- **Regrade must be for  $\geq 5$  pts!** To have your exam/report re-graded, it must be given to your TA **within 48 hours of its return to you** along with a note explaining what you want regraded.
- We reserve the right to re-grade the entire exam/report, so you may lose rather than gain points. Note that we will be Xeroxing a subset of the exams, and will compare your exam to the Xerox of the original. Any discrepancies will be treated as academic misconduct (see above).

### Absences

If you are absent from a midterm examination through sickness or other valid unavoidable cause, the weight of your final exam will be increased proportionately in calculating the course grade.

**Examples of unavoidable causes include:** illness, death or serious illness in the immediate family, and, provided previous notification is given, observance of regularly scheduled religious obligations and attendance at academic conferences or field trips, or participation in university-sponsored activities such as debating contests or athletic competition. Athletes, bring a letter from your coach with your schedule for the quarter to Dr. Tracy Harvey in Bagley 294.

Proper Procedures:

1. Report your absence from an hourly examination within 72 hours to Dr. Tracy Harvey in Bagley 294, and
2. Bring proof of your emergency (a doctor's note, an accident report, a memorial folder, or similar documentation). The documentation must include a contact name and telephone number.
3. Dr. Harvey will notify the instructor of the status of your absence. If your absence does not meet the above criteria, you will be given a zero for the exam.

**FINAL EXAM** – Monday, Dec. 8, 2008 6:30 - 8:20 PM in Bagley 131

The final exam will be cumulative, with an emphasis on the last half of the material.

*Note:* If you are absent from the final examination, and you are ineligible for an incomplete according to the UW regulations, a course grade of 0.0 will be given. If an incomplete is given, you must take the final exam for the same course in the next regular academic quarter in which it is offered to remove the incomplete.

### Keys to Success

1. Attend ALL classes, pay close attention and take notes.
2. Chemistry is sequential and hierarchical. You must learn and digest today's lecture before you can expect to understand tomorrow's lecture. Study at least two hours for each hour of lecture. Spend one hour studying for every hour of lab. Find a place that allows for periods of uninterrupted study. Skim through chapter or sections to be covered in the next lecture.
3. Make daily, weekly and quarterly plans and follow plan.
4. Practice what you are to do on the exams. Work many problems. Working problems is the key to success. On the first slide of each lecture are problems from the text that are "must work" problems. The exams and WebAssign homework will draw very heavily from this list of problems. Working the problems is the only way to know whether the lecture and textual material make any sense to you.
5. Talk chemistry with fellow Chem. 142 students. The study center (Bagley 330) is a good meeting place. Avail yourself of your instructor, TA and study center tutors, they are all important as resources for you.

### ***COURSE SCHEDULE:***

<b>Week</b>	<b>Lecture Topic</b>
<b>1</b> 9/24	(Classes start Wed) Administrative and Laboratory material and Chapter 1
<b>2</b> 9/29	Chapter 2, The history of Stoichiometry; naming compounds; indentifying elements and properties of elements from the periodic table.
<b>3</b> 10/6	Chapter 3. The fundamentals of a chemical reaction and stoichiometry. The advancement parameter for any reaction.
<b>4</b> 10/13	Chapter 4 Chemical Reactions in water.
<b>5</b> 10/20	Summarize first four Chapters, and First Exam (Wednesday, Oct 22)
<b>6</b> 10/27	Chapter 5, properties of Gasses; the basis of Avagadro's Hypothesis
<b>7</b> 11/3	Chapter 6 Equilibrium; I.C.E. Table; the Equilibrium Constant; the Proper reaction Quotient
<b>8</b> 11/10	(Tues Holiday) Chapter 7: Chemical equilibria of acids and bases; the important of pH.
<b>9</b> 11/17	Chapter 7 continued and Chapter 8, Acid-Bases equilibrium. Second Exam. (Wednesday, November 19).
<b>10</b> 11/24	(Thurs, Fri Holidays -- Thanksgiving) Chapter 8.
<b>11</b> 12/1	Chapter 8 Advanced applications of Acid-Base equilibrium, titration and buffers.
<b>12</b> 12/8	<b>FINAL Exam</b>

### ***LAB SCHEDULE***

WEEK	#	M	T	W	Th	F
9/24	1	--	--			
9/29	2					
10/6	3	Lab #1 Physical Measures	Lab #1	Lab #1	Lab #1	Lab #1
10/13	4	Lab #2 – Composition	Lab #2	Lab #2	Lab #2	Lab #2
10/20	5	Lab #3 – Stoichiometry I	Lab #3	Lab #3	Lab #3	Lab #3
10/27	6	Lab #4 – Stoichiometry II	Lab #4	Lab #4	Lab #4	Lab #4
11/3	7	Lab #5 – Molar Mass	Lab #5	Lab #5	Lab #5	Lab #5
11/10	8		Holiday			
11/17	9	Lab #6 – Titrations	Lab #6	Lab #6	Lab #6	Lab #6
11/24	1				Holiday	Holiday
12/1	1					
12/8	1	FINALS	FINALS	FINALS	FINALS	FINALS

Sect	Class	Day	Time	Place	Instructor
DA	QZ	thurs	230-320	MOR 225	Richard Rucker
	LB	Mon	630-920	BAG 233	
DB	QZ	thurs	330-420	CMU 243	Sarah McGuffin
	LB	Mon	630-920	BAG 233	
DC	QZ	thurs	230-320	AND 010	Guozheng Shao
	LB	Fri	330-620	BAG 233	
DD	QZ	thurs	330-420	CHL 101	Richard Rucker
	LB	Fri	330-620	BAG 233	
DE	QZ	thurs	430-520	DEN 310	Kevin Eckert
	LB	Tues	630-920	BAG 233	
DF	QZ	thurs	630-720	MEB 243	Sarah McGuffin
	LB	Tues	630-920	BAG 233	
DG	QZ	thurs	430-520	BAG 106	Shraddha Deodhar
	LB	Tues	630-920	BAG 291	
DH	QZ	thurs	330-420	LOW 115	Rodney Swartz
	LB	Tues	630-920	BAG 291	
DI	QZ	thurs	430-520	ART 006	Rodney Swartz
	LB	Wed	930-1220	BAG 233	
DJ	QZ	thurs	630-720	LOW 222	Shraddha Deodhar
	LB	Wed	930-1220	BAG 233	
DK	QZ	thurs	230-320	AND 008	Kevin Eckert
	LB	Wed	630-920	BAG 233	
DL	QZ	thurs	330-420	CDH 128	Gouzheng Shao
	LB	Wed	630-920	BAG 233	

If you would like to request academic accommodations due to a disability, please contact Disabled Student Services, 448 Schmitz, 543-8924 (V/TDD). If you have a letter from Disabled Student Services indicating you have a disability that requires academic accommodations, please present the letter to me so we can discuss the accommodations you might need for this class.