

CHEMISTRY 103

Fall 2013

Lecture Section 4: T R 1:00-2:15 Room 1351 Chemistry

Lecture Section 6: T R 2:30-3:45 Room 1351 Chemistry

Lecturer: Professor JR Schmidt Room 8305d 262-2996

schmidt@chem.wisc.edu

Office hours: Wednesday 9:15-10:15

Thursday 9:15-10:15

Problem Solving Sessions: To be determined

Web site: Our learn@UW web site and <http://genchem.chem.wisc.edu/>

General Chemistry Office: Room 1328 Chemistry 263-2424

Introduction. Chemistry 103 is the first semester course in a two-semester General Chemistry sequence. The second semester course is Chemistry 104. Students who take Chemistry 103 should also plan to take Chemistry 104. Chemistry 103 and 104 provide a general background concerning the principles and factual basis of chemistry. The 103-104 sequence serves as a prerequisite for advanced courses such as Organic Chemistry (341 or 343), Analytical Chemistry (327 or 329), and Inorganic Chemistry (311). Students in Chemistry 103 should demonstrate proficiency in college level algebra.

Chemistry 103 is a fun and enlightening course, but you will need to devote significant time and effort to mastering chemical principles and solving problems. To excel, you must study chemistry *every day!* Please be prepared to commit 8-12 hours outside of class each week toward this effort.

TEXTBOOKS AND OTHER MATERIAL (Required)

1. *Chemistry: The Central Science*, Brown, LeMay, Bursten, Murphy and Woodward. **This is a custom edition for UW, available at the University Bookstore and at the Underground Textbook Exchange.** Although few, if any, used copies are available, we have obtained a significantly discount price for this special edition! You may purchase either the hardcover edition or a slightly less expensive unbound edition. Alternatively, an e-text version of the book is available directly from the publisher at <http://www.masteringchemistry.com>.
2. *Chemistry 103 Laboratory Manual*, Fall 2013 and carbonless laboratory notebook. The manual and notebook can be purchased (cash only) outside the classroom during the first two week of classes and later in the General Chemistry Office (room 1328).
3. Safety goggles. Industrial quality eye protection is *required* in all chemistry laboratories.

Safety goggles that fit over regular glasses can be purchased from local bookstores or along with the lab manual and notebook. Please note that sandals are not acceptable footwear in the laboratory. Contact lenses should **not** be worn in the laboratory because fumes or splashes may be caught between them and your eye.

4. An electronic RF “clicker”. The lectures will make extensive use of student “voting” on concept tests, surveys, and other questions. You will need to buy an iClicker radio-frequency clicker and bring it to every lecture. This can be purchased at the University Bookstore.
5. An inexpensive calculator capable of calculating square roots, logarithms and exponential operations. The calculator will be used on exams, homework assignments, and in the lab. A programmable calculator may be used as long no information is stored on it, such as chemical formulas or equations. It must be of the type allowable on an ACT or SAT exams (no cell phone or iPod calculators). You must clear the memory before entering the exam room.
6. A MasteringChemistry account for access to on-line homework. This is bundled with your new textbook for no additional charge. Instructions for registering are given on the course homepage on Learn@UW. If you purchased a used textbook or received one from another student, **you must** purchase your own access to the MasteringChemistry system online at: <http://www.masteringchemistry.com>.
7. Class handouts. Pick up handouts at the back of the room before lecture. You can also obtain a copy attached to the lecture notes on our Learn@UW web site.

COURSE INFORMATION

Lectures and Textbook. During lectures I will introduce principles and illustrate concepts with examples and demonstrations. *Please* read the textbook **before** coming to class and take your own notes during lecture. In addition, a set of lecture notes taken in class by a T.A. will be available at our Learn@UW web site listed above about two days after the lecture. You will find a “chapter summary”, “key terms”, “key equations”, and “key skills” at the end of each chapter. These lists will help you focus on key points.

Discussion Section. Twice a week, you will meet with a Teaching Assistant and your classmates for discussion. In these meetings, you will discuss assigned homework problems, work with groups of students to learn new material or reinforce/review existing ideas, learn about upcoming laboratory assignments, and have a forum for answering questions. *Please* prepare for discussion by bringing specific questions to class – this is a great opportunity to learn from your TA and fellow classmates.

Problem Sets. Problem solving is a **crucial** aspect of this course and problems will be assigned on a regular basis. These will be completed online via the MasterChemistry systems. **A subset of the problems will be required, supplemented with additional recommended (but optional) practice problems.** You can log on multiple times to complete the assignment. See Learn@UW for more information on the MasteringChemistry online homework system.

The best way to learn chemistry is to do problems while and after you read the textbook and lecture notes. Your textbook is an excellent source of additional practice problems, and solutions to selected problems are given at the back of the book. Bring questions to your discussion section, to TA and faculty office hours, and to the problem solving sessions. *In order to excel in this course you **must** solve problems. Lots of them.*

Quizzes and in-class exercises. Your weekly discussion section will incorporate periodic quizzes and in-class group exercises. These are important opportunities to evaluate your progress and to reinforce the lecture material, and they count toward your final grade. Your TA will go over the quiz / exercise immediately afterwards, and **you** will grade it; however **full credit** will be awarded regardless of your score as long as you complete the quiz / exercise and turn it in. Nonetheless, you should use your score as an indication of your progress in the course. Missed quizzes / exercises **cannot** be made up, but if you complete **80% or more of the quizzes / exercises**, you will be awarded **full credit** for the corresponding portion of your grade.

Problem Solving Sessions. The TAs and professors will supervise out-of-class problem solving sessions. This is *not* a lecture, but an opportunity to work through assigned problems with other students in groups. You are **strongly** encouraged to attend one of these sessions each week and work with your fellow students to hone your problem solving skills. Do not miss this opportunity!

Lecture Demonstrations. We will use demonstrations during lecture to illustrate important ideas and facts. Be sure to make careful observations of what happens. Questions about observations or principles that have been presented via demonstrations may appear on exams.

Exams. There will be three in-class exams of 75 minutes each and one two-hour final exam. *No* makeup exams will be given. Exams may include questions based on the laboratory material. The final exam will cover material from the entire semester. **Please be alert to these exam dates.** You must report any religious conflicts with exams or laboratory exercises to your teaching assistant within the first two weeks of classes.

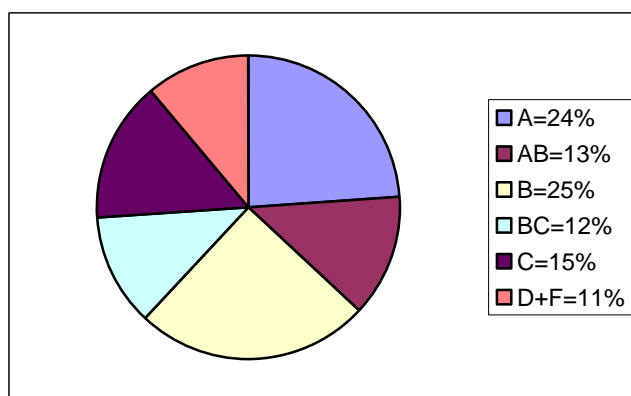
Exam Dates: Tuesday, October 1	In class
Tuesday, October 29	In class
Tuesday, November 26	In class
Final Exam: Monday, Dec 16	10:05 AM – 12:05 PM (Lecture 4)
Thursday, Dec 19	7:45 AM – 9:45 AM (Lecture 6)

Grades. Your final grade will be computed with the following scheme:

Three 50 minute exams	12% each
Online Homework	15%
Laboratory	20%
Quizzes and in-class exercises	3%
Clicker participation	2%
Final Exam	24%
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TOTAL	100%

Your scores are always available to you at Learn@UW. There are no opportunities for extra credit.

The approximate distribution of final grades is given below. It is important to note that the distribution will be adjusted upwards if class performance exceeds our expectations. For example, we guarantee that at least 24% of the grades will be A, and it may be higher.



Approximate Distribution of Final Grades

Lecture attendance and active participation are **essential** to the learning process. You will be given many opportunities to participate by voting with your clickers. If you participate in **80% or more of the voting opportunities**, you will be awarded **full credit** for the “clicker participation” portion of your grade.

Computers and Study Room: Computers are available in the general chemistry computer room (room 1375). The study hall is located in room 1371.

PLACES TO GO FOR HELP OUTSIDE CHEMISTRY 103

1) University Counseling Center. The UCC offers counseling to improve study skills and to reduce test anxiety. See <http://www.uhs.wisc.edu/services/counseling/> for a description, or call 265-5600 or stop by 333 East Campus Mall.

2) Greater University Tutorial Service. GUTS offers help in a variety of subjects (including Chemistry 103) and in improving study skills. It is a student-run, volunteer organization. See <http://guts.studentorg.wisc.edu/>

3) **Alpha Chi Sigma.** Chemistry Fraternity. Free tutoring on Wednesday night from 7 - 9 pm, 621 North Lake Street. See <http://www.chem.wisc.edu/deptfiles/genchem/TutorLists/TutorsF13.pdf>

4) **Private Tutors.** A list of private chemistry tutors (available for a fee) is available at <http://www.chem.wisc.edu/deptfiles/genchem/TutorLists/TutorsF13.pdf>

THE LABORATORY

The laboratory experiments are a vital part of this course; you will develop skills that are not easily learned or demonstrated in lectures. These skills include:

- Designing experiments and interpreting data
- Using laboratory equipment properly
- Working with your fellow students in the laboratory
- Communicating your ideas about the data through discussions and writing

You must successfully complete the laboratory assignments to receive a passing grade in this course.

Lab Preparation. You **must** prepare in advance for each laboratory exercise by writing an introduction and procedural outline in your lab notebook. During the lab period you will carry out the experiment, take notes, and complete your data analysis. All your work **must** be turned in at the end of the period in the form of the duplicate pages from your lab notebook. You will be graded on your pre-lab preparation, in-lab experimental technique and data analysis, and on your note taking skills. Your laboratory report is due at a time specified by your TA, almost always at the end of the laboratory period. Please note that late laboratory reports are not graded.

The lab schedule is printed on the attached calendar. Exercises in italics are computer labs.

Attendance. You must attend all laboratory sessions. There is no opportunity to make up a laboratory that you miss; a grade of zero will be recorded for unexcused absences. If you have an excuse for missing lab, notify your TA as soon as possible, preferably before the lab period.

Health or Disability Concerns. If you have special needs, please make an appointment to speak to your professor and TA at your earliest convenience.

Course Outline and Calendar

The course outline appears on the next page. Dates for lecture topics are **approximate**. The exam dates are **fixed**. The calendar on the page after the outline lists the lecture, exam, lab, quiz, homework, and problem solving dates. Please put the calendar in a place where you will see it each day!

Week	Date	Lect	Topic	Chapter	Lab
1	2-Sept	1	T Matter and Measurement	1	Citizenship in Lab
		2	R Atoms, Molecules, Ions	2	
2	9-Sept	3	T Atoms, Molecules, Ions	2	Solutions/Density
		4	R Atoms, Molecules, Ions	2	
3	16-Sept	5	T Stoichiometry	3	Zinc and Iodine
		6	R Stoichiometry	3	
4	23-Sept	7	T Reactions in Aqueous Solutions	4	<i>Chemical Logic</i>
		8	R Reactions in Aqueous Solutions	4	
5	30-Sept		T Exam I		No Lab
		9	R Reactions in Aqueous Solutions	4	
6	7-Oct	10	T Thermochemistry	5	Synthesis of Alum
		11	R Thermochemistry	5	
7	14-Oct	12	T Thermochemistry	5	No Lab
		13	R Thermochemistry	5	
8	21-Oct	14	T Electronic Structure of Atoms	6	Solution Calorimetry
		15	R Electronic Structure of Atoms	6	
9	28-Oct		T Exam II		No Lab
		16	R Periodic Properties	7	
10	4-Nov	17	T Periodic Properties	7	Light, Color, & Sol'ns
		18	R Chemical Bonding	8	
11	11-Nov	19	T Chemical Bonding	8	No Lab
		20	R Chemical Bonding	8	
12	18-Nov	21	T Molecular Geometry	9	Project Lab
		22	R Molecular Geometry	9	
13	25-Nov		T Exam III		No Lab
			R No Class (Thanksgiving)		
14	2-Dec	23	T Solids	12	<i>Molecular Geometry</i>
		24	R Gases	10	
15	9-Dec	25	T Gases	10	<i>Win on Solid State</i>
		26	R Intermolecular Forces	11	
16	16-Dec		Mon Cumulative Final 10:05 AM (103-4)		
	19-Dec		Thurs Cumulative Final 7:45 AM (103-6)		

Note: labs in *italics* are computer labs