Chemistry 116 - Section 1
Spring, 2007
General Course Information
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Overview

All information concerning this course is available on the course web site, www.chem.umb.edu, which you should visit frequently.

Be sure to download the Course Calendar and all other postings under "Information." You should check for new postings under "Assignments" and "Information" on a regular basis. Also check out the documents posted under the other headings.

The text for this course is Brown, LeMay, and Bursten's *Chemistry: The Central Science*, 10th ed. The book is available in the bookstore as a special bundle that includes the *Student Solution Manual* to the text.

My office hours this semester will be 7:00 - 8:30 and 9:30 - 10:00 on Monday, Wednesday, and Friday, and also 11:30-12:00 (after class) on Wednesday and Friday. However, I invite students to stop by at any time I am in my office (S/1/78). Occasionally, I may be unavailable during office hours due to meetings, absence from campus, etc. If you have trouble connecting with me, see me after class, call me, or (best) send e-mail to set up an appointment. I always respond to questions sent by e-mail, so that is another way to get your questions answered.

Course Prerequisites

You must have passed Chem 115 or an equivalent college course to enroll in Chem 116.

Also, realize that Chem 115, the prerequisite for this course, requires that students have passed Math 115 or have passed the Math Placement Test for Math 130. Students who have passed a college course in pre-calculus algebra and analytical geometry (equivalent to our Math 130) or higher mathematics courses (calculus, etc.) are exempt from this requirement. Please note that students who have only taken a statistics course (e.g., Math 125) but no higher mathematics courses do not have the necessary mathematics background to succeed in Chem 116. **If you have somehow enrolled in this course without having met the chemistry or math prerequisites, please drop immediately.**

Course Structure

Lecture: **The lectures, not the book, constitute the principal source of material for the tests**. The projected overheads that I will use in class are available for print-out on the web site under "Overheads." Most students find it useful to have these in hand during the lecture. However, much of the content of the lectures (e.g., most worked-out examples of problems) are not in these overheads. Therefore, it is imperative that you faithfully attend lectures and take good notes. In addition to mastering the lecture material, you may occasionally be required to learn certain material from the book. Otherwise, use the book to complement the lectures. Examinations ask you to demonstrate your mastery of the material through qualitative (fact- or concept-based) questions and quantitative (number- or model-based) problems. Chemistry is a quantitative subject, so great emphasis is placed on solving problems based on chemical principles. It is not enough to understand the concepts of chemistry; you must be able to apply the concepts to solve chemical problems. One of the best ways to master the material and to prepare for examinations is to try to solve problems like those assigned for homework or similar to those used as examples in class.

Discussion: ☞ **Note: Be sure you are *not* enrolled in Discussion section 8 (W 7:30), which is reserved for students in the evening section of Chem 116.** Discussions are intended to give you opportunities to deepen your understanding of the material, to explain homework problems, and to prepare you for the tests. Although you will not turn in your homework, you should always attempt to do the assignment before coming to discussion. Worked-out answers to the odd-numbered problems are available in the *Student Solutions Manual* bundled with your text. Copies of the complete solution manual (all problems) are available at the Reserve Desk in the Healey Library. Attendance in discussions will be taken, so always attend your assigned section. You may miss three sessions without penalty, but each subsequent absence will result in a 10 point deduction from the 50 point maximum for discussion. If you forget to sign the attendance sheet or arrive late to discussion you will not be given credit for attending. **Discussions will begin the week of February 5.**

Laboratory: **Chem 118 is a co-requisite for Chem 116.** You cannot receive credit for Chem 116 without passing Chem 118, unless you previously passed Chem 104 or have transfer credit for a comparable laboratory course from another institution. **Laboratories begin the week of February 5.** All matters concerning laboratory policy and scheduling will be handled by Dr. Bela Torok, whose e-mail is bela.torok@umb.edu. **If you have any issues regarding attendance or grading, please contact your laboratory instructor.** To this end, be sure you write down the name and contact information for your laboratory instructor during the first week of attendance, and keep this information throughout the semester. The schedule and handouts for the laboratories are posted on the web site, www.chem.umb.edu.

Calculators

Calculators may be used in all aspects of this course, including examinations. This semester we will have occasion to use the quadratic equation. **Therefore, you must have a calculator capable of solving the quadratic equation (i.e., second-order polynomial equations), such as the Texas Instruments TI-83, TI-86, or similar models.** Because the specific operations vary from model to model, you will need to learn how to solve the quadratic equation with your calculator on your own, using the manual that came with it. Be sure you know how to operate your calculator before you have to use it in a test situation. Before coming to a test, be sure your calculator is working properly and that it has fresh batteries (if needed) or will work in low light (if solar powered). You may bring a back-up calculator to the tests, if you like. **However, during a test you may not use any calculator or device that is capable of communicating with any other calculator or device.** Anyone bringing such a device to a test will receive a zero for the test. **Calculator sharing is not allowed during a test.**

Tests and Academic Honesty

Except in highly unusual circumstances, there are no make-up examinations. The dates for the hour examinations, which will be given during the normal lecture hour, are listed below. If you cannot attend a test for some legitimate reason (e.g., debilitating illness, death in the immediate family, car accident on the way to the university) you must call me or send e-mail in advance of the test or as soon as possible under the circumstances. In cases of real emergency you *might* be eligible to start the test late or to be excused from the examination. *Absence without notice and/or legitimate cause will result in a score of zero for the test.* Make every effort to arrive on time to each test. If you arrive late, you will not be given extra time, except in special circumstances. **No one arriving late to a test will be allowed to take the exam after the first paper has been handed in, unless special arrangements have been made in advance.** Although your lowest test score will be dropped in determining your final grade (see below), you are strongly urged to take every test.

During a test you are allowed to have pencils, erasers, and your calculator(s) (with extra batteries, if needed) – nothing else. You may *not* have notes, open books, or scrap paper. Moreover, you may not store course information in your calculator to use as an electronic "cheat sheet". Where indicated, you must show work that leads to the answers you give. This means that the correct answer with no work or work that does not logically lead to it receives no credit. Do not cheat! Your work must be your own, with no assistance received from anyone else. Furthermore, you should take reasonable precautions to ensure that no one copies from you. **Academic dishonesty will not be tolerated and may result in your failing the test, failing the course, or being expelled from the University, depending on the circumstances.**

Grades

Grades are based on the sum of points earned on the best two of three hour examinations (100 points each), a comprehensive final examination (200 points), and discussion attendance (50 points); i.e., a maximum of 450 points. **I do not "grade on the curve."** As a percentage of the 450 points possible, the minimum for each grade level is 85% = A-, 75% = B-, 65% = C-, 55% = D-. I exercise some discretion near these borders, but no student receiving less than 50% of the possible points in the course should expect a passing grade. However, any student who receives 101 points or better on the final examination will at least receive a grade of D-. You cannot get a grade of "INC" unless (1) you are passing the course, *and* (2) the reason you cannot complete the course is beyond your control.

Test Dates
Test 1 - Friday, March 9
Test 2 - Wednesday, April 11
Test 3 - Friday, May 11
Final Exam - as officially scheduled

Syllabus

Detailed reading and homework assignments will be posted each week on the web site: www.chem.umb.edu.

I intend to cover the following topics associated with the listed chapters in Brown, LeMay, and Bursten, 10th ed. in the order listed. The order in which I present subtopics within certain chapters may be different from the order of sections in the book, but we will eventually cover all the indicated material.

Topic	Chapters & Sections in Brown et al.
Gases	Chapter 10 (all sections, in order)
Intermolecular Forces, Liquids, and Solids	Chapter 11 (omit section 11.7)
Physical Properties of Solutions	Chapter 13 (omit section 13.6)
Chemical Kinetics: Rates and Mechanisms	Chapter 14 (omit "Second-Order Reactions, pp. 589-591)
Chemical Equilibrium	Chapter 15 (all sections, in order)
Acid-Base Equilibria	Chapter 16 (all sections); Chapter 17 (omit sections 17.4-17.7)
Electrochemistry	Chapter 20 (omit sections 20.7 & 20.8)
Thermodynamics	Chapter 19 (all sections)