

CHEM100

Concepts of Chemistry

Spring, 2007 (Web Based)

A. Objective and Student Conduct

This course is designed for the nonscience major to give them a fundamental understanding and appreciation for what is involved in the complex discipline known as chemistry. The entire universe, and in particular our small part known as the planet earth, is a complex mixture of chemical materials that interact in chemical reactions to create every material thing in the universe. In order for us to deal with our world and make knowledgeable decisions that affect the chemical balance and delicate existence of life on this planet, we need a knowledge base that it is hoped this course can at least begin to give.

In terms of the Core Curriculum objectives, the following areas will be addressed: (1) **Critical Thinking/Problem Solving** through questions and problems requiring deductive reasoning in problem sets and exams; (2) **Communication Skills** through the use of Calibrated Peer Review writing assignments that require both writing skills and analysis of written material; (3) **Breadth of Knowledge and Intellectual Perspective** through questions and problems on problem sets and exams.

Students in this course are expected to demonstrate academic honesty in all work. This requires that students know and adhere to the Boise State University Student Code of Conduct which can be found on the course website (See B.3 below).

B. Text, Instructor, and Web Information

1. Text & Related Material

- a. (Required) **Textbook:** *World of Chemistry - Essentials*; by Melvin D. Joesten, James L. Wood, and Mary E. Castellion, 3rd Edition
- b. (Optional) **Study Guide:** *Study Guide with Selected Solutions* by Volland, W., 3rd Edition - This book contains solutions (not just answers) to the odd-numbered problems in the textbook along with some additional materials and practice questions. Whether it will be helpful depends on the individual.
- c. Other Resources Offered by the Textbook Publisher
 1. (Not Used) "CNN CD-ROM: Everyday Chemistry"
 2. (Not Used) "InfoTrac College Edition"
 3. (Optional, Free) "Brooks/Cole Chemistry Resource Center" - This site contains some potentially useful material in addition to what is found in the Student Guide above. To access, the address is www.brookscole.com/chemistry. Once there, select **Liberal Arts Chemistry** and then under the course textbook (see (a) above) select **Student Book Companion Site**. The next page will list a number of potentially useful materials which you may access free of charge.
- b. **Lecture Notes:** These are available as either PDF or PPT files for downloading and printing on the course website (see B.3 below) by clicking on the **Lectures** button from the main page. Notes will become available for each chapter on the Friday before the quizzes over that chapter (see the Schedule).

2. Instructor Contact

Name: Dr. Gary D. Mercer

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BSUW312C (West Campus)

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Boise, ID 83725-1520

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Note: All of my on-campus teaching duties are at the West Campus facility so that is where I will spend most of my time. I can, however, arrange on Mondays or Wednesdays for a Boise Campus meeting if necessary.

3. Course Website

- a. The course website can be accessed using the address, **blackboard.boisestate.edu** (note there is no "www." at the beginning of this address). After logging in with your username (student number) and password, the next page to come up will be your Blackboard main page where you can select from among the courses you are taking that are using Blackboard. Selecting "CHEM100" will take you to the main page for this course.
- b. During the first week of classes, students are expected to begin monitoring their BroncoMail account or go to the BroncoMail website and set it up so that mail sent to BroncoMail is forwarded to an active email address that is monitored regularly. Instructions for forwarding BroncoMail can be found at: **helpdesk.boisestate.edu/students/broncomail/using_broncomail.shtml**

Note: Failure to monitor email sent to your BroncoMail account could lead to missing important information. Such failed communications are not the responsibility of the instructor.

- c. Students are expected to access this website on a daily basis and check the Announcements and obtain any needed documents.
- d. Items listed in the Schedule at the end of this Syllabus will generally be posted to the website without an Announcement. Other items not listed will be posted with an Announcement to alert students to their presence and how to find them.
- e. If an item should be posted (available) but you cannot find it, please let me know as I may have forgotten to take care of it. Allow me a few hours grace time before calling or sending an email message.
- f. If you wish to check your grades or view an old exam or quiz, you may use the following procedure:
(1) Click on the **Tools** button; (2) Click on **My Grades**; and then if you wish to view the quiz or exam
(3) Click on the score of the desired exam or quiz. The quiz or exam will be displayed showing the questions, how you answered each question, whether it was right or wrong, and the correct answer if you answered it incorrectly.

4. Answering Questions

Since we will not be meeting in a classroom or lab, the usual modes of addressing questions to the instructor will not be as available. I will be glad to answer questions and discuss issues about the course in person (normal business hours), over the phone, or by email. Please restrict email inquiries to matters that require short responses. I will check my email several times each day during the week and occasionally on weekends.

C. Math Requirements

Although there are no formal math prerequisites for this course, some basic math skills will be expected and used periodically throughout the course. The skills needed will be the arithmetic functions of addition, subtraction, multiplication, and division and the ability to identify values in a "story problem". When "equations" are necessary, simple methods of solving will be introduced so that actual algebra skills will not be required. A simple calculator with the basic arithmetic functions will be useful but not mandatory for the course.

D. Important University Dates

January 29th - Last day to add a class, drop a class without a "W" appearing on the transcript, or change from audit to credit or credit to audit.

February 27th - Last day to drop a class or to completely withdraw from all classes.

E. Homework

1. Homework assignments from the textbook are found on the course website by clicking on the **Assignments** button. Homework assignments become available for each chapter by the Friday before the quizzes over that chapter (see the Schedule). Homework should be used along with chapter reading to attain competency in a section of material before proceeding to the quizzes (see J.1 below).
2. Homework will be for practice only and will not be handed in or graded. Answers to Self-Tests and Matching Sets are found in Appendix E (p. 503), answers to Exercises are found in Appendix F (p. 511), and answers to the odd-numbered Questions (end of the chapter) are found in Appendix G (p. 513).

F. Exams & Quizzes

1. **General** - A bank of questions has been created for each chapter (starting with Chapter 2). Questions for a Chapter Quiz, Practice Quiz, or Practice Exam will come from the entire question bank(s) for the chapter(s) covered by the assessment (exam or quiz). Questions for Exams will come from (1) a subset of questions selected by the instructor from the same question bank(s) and (2) original questions (not to exceed 20% of the questions on the exam).
2. **Practice Quizzes** - (0 points each) - There will be a Practice Quiz created on the course website for each quiz (see Quizzes below), These Practice Quizzes will be made up of 5 questions randomly selected from the question bank for that chapter, will not be timed, and can be taken an unlimited number of times from any computer. They will be available from the time they are posted until the end of the semester by clicking on the **Exams & Quizzes** button on the main course page and then selecting the **Practice Quizzes** folder.

3. **Chapter Quizzes** - (10 points each) - There will be a Quiz created on the course website for each chapter starting with Chapter 2 and ending with Chapter 13 (see the Schedule) that will be made up of 10 questions randomly selected from the question bank for that chapter. Each quiz will have a time limit of 45-minutes, will contain 10 questions, and may be taken as many times as you wish. A student is allowed to use the textbook and any other "written" materials provided on the Blackboard Course Website (notes, homework questions and solutions, Useful Information Page, etc.) except for printouts of previously taken Quizzes or Practice Quizzes. No other sources such as other human beings are allowed. Students are on their honor to abide by these rules (see Section A above) and may take the quiz from any computer during the time period allowed as defined in the Schedule below. Chapter Quizzes will be available as indicated in the Schedule by clicking on the **Exams & Quizzes** button and then selecting the **Quizzes** folder.

Note: The score that will ultimately be recorded for a particular Chapter Quiz is the one for the last time the quiz was taken, not necessarily the highest score obtained (i.e., there is a little strategy involved here).

Note: Since a quiz is active for a full week and since you may take it as many times as you like, there will be absolutely no late quizzes allowed for any reason!

Note: Immediately after completing a quiz, students should check their grade (see B.3.f above) to make sure the completed quiz was accepted by Blackboard. If any symbol besides the score appears in the appropriate space, you must retake the quiz before the deadline in order to have a score for that quiz.

4. **Midterm Exams** - (120 points each) - There will be two (2) Midterm Exams which will be "open-book" proctored exams that take place in the Chemistry Computer Lab (Room SN335) at the times and having the coverage indicated in the Schedule. These exams will be made up of 40 questions from the chapters involved and will have a 60-minute time limit. Since these are "open-book" exams, students are allowed to use the following materials: (1) the textbook, (2) the lecture notes provided on Blackboard, (3) student-prepared handwritten notes on chapter material, and (4) the instructor prepared Useful Information Page.

Note: Students should come to each exam prepared with (1) pencils and/or pens; (2) a calculator if desired; (3) Reference materials as detailed above.

Note: Students should not expect to be able to look up all answers as the time will be limited. Material must still be learned with use of notes and text restricted to "emergency" needs.

Note: If you live some distance from campus so that attending an on-campus exam is a hardship, there is a mechanism for arranging a remote test. If you feel that you need to use this option, consult the document, "Remote Testing Procedure" found under **Course Documents** on Blackboard.

Note: No exams or quizzes will be dropped in this course.

Note: If an exam is missed, it may be made up within 24 hours of the exam time by contacting the instructor by phone (email is not acceptable) prior to the exam or before 5:00 pm of the day of the exam. This contact must be made or a make-up will not be allowed! No make-ups for quizzes will be allowed. If the instructor is not available, leave a contact number where you may be reached.

5. **Practice Exams** - There will be no practice exams. Students are free to use the Practice Quizzes which will always be available once they have been activated to review questions from the various chapters covered by an exam

G. Lab

1. The lab component of the course will involve twelve (12) experiments conducted on your own at home (see Schedule). Each experiment will be worth 10 points (total 120 points).
2. Download and read the separate document "Lab Information" found on Blackboard by clicking on the button "Labs" for additional information on the requirements and workings of the lab component of the course.

Note: In order to receive a passing grade in the course, students must turn in a minimum total of ten (10) acceptable experiment reports. Failure to turn in the minimum number of acceptable reports will result in a grade of D or F in the course.

H. Miscellaneous Assignments

1. These assignments are varied in type and will occur throughout the semester. Consult the Schedule for the exact timing of each assignment.
2. **Syllabus Quiz** (20 pts.) - A quiz over this syllabus and the Lab Information document will be given during the first week of class (see Schedule for exact days and times). It is located by clicking on the **Exams & Quizzes** button and then selecting the **Quizzes** folder.
3. **Short-Story Reading Assignment** (20 pts.) - In the last half of the semester (see Schedule for exact days and times) you will be asked to read a short story and answer a few questions about it via Blackboard. The assignment will be accessed by clicking on **Assignments**.
4. **Short Essay Assignments** (80 pts. total) - Three (3) writing assignments will be given during the semester (see Schedule below) through a web-based program called Calibrated Peer Review (CPR). The first assignment will be a very short one to acquaint you with the system and will be worth 15 points. The last two assignments will be somewhat longer and be worth 30 and 35 points. More detailed information about CPR will be given in a separate document.

I. Grading

1. Grades for the course will be determined from the activities described above (Sections F - H above).

2. The total number of points possible from the above activities is shown in the table below.

Source	Points	Percentage of Grade
Midterm Exams (2)	240	40.0 %
Chapter Quizzes (12)	120	20.0 %
Miscellaneous Assignments	120	20.0 %
Lab (12)	120	20.0 %
Total	600	100.0 %

3. The scale by which grades will then be determined is the following:

Grade	Percentage	Points	Grade	Percentage	Points
A	100-90	600-540	D	65-50	389-300
B	90-80	539-480	F	50-00	299-000
C	80-65	479-390			

4. **Extra-Credit:** Each week there will be a puzzle related to a subject that is being studied that week or has been studied earlier. The value of each puzzle will be 3 points. The maximum extra-credit that will be allowed for each student is 25 points. Extra-credit assignments will come in the form of a document (called the "Assignment") and then responses will be submitted by submitting a "Report" on Blackboard. Assignments will be made available on a Monday at noon and will be available until the following Monday at noon. No late extra-credit assignments will be accepted and they will only be accepted using the procedure outlined above. These assignments may be accessed by clicking on the **Assignments** button and then selecting the **Extra-Credit** folder.

Note: The Extra-Credit folder contains two folders. The "Assignment" folder contains the assignment documents which should be downloaded and the puzzle worked out. Once this is done, your answer(s) should be submitted by opening the "Report" folder and taking the Blackboard "Quiz" for that assignment.

Note: There are more than 25 points of extra-credit possible but once a student reaches that maximum, no more extra-credit will be counted for that student.

J. Recommended Study Routine

1. Your first step for each quiz section should be to study well all materials (textbook, notes, and chapter questions and problems).
2. After this initial study phase has been completed, take a practice quiz and use the results from the practice session to point out areas of weakness in your knowledge.
3. Restudy the weak areas and then retake the practice quiz.
4. Repeat #2 and #3 above until you have mastered the material which will be indicated by a consistent score of 80% to 100% correct. The student should then be ready to take the actual quiz.
5. Reviewing for an exam should use the above general procedure with the additional consideration of "weaning" yourself away from the use of "open book" materials and developing your own Personal

Information sheet which can be used in conjunction with the instructor provided Useful Information sheet on the exam (see F.4 above).

6. Do not attempt to memorize the answers for the questions using the Practice Quizzes and Quizzes by taking them an "infinite" number of times because the question banks are too large for this to be practical. Also, remember that actual printouts of Quizzes or Practice Quizzes are not allowed while taking a Quiz (see F.4 above).

K. Taking Quizzes at Home

1. If you are on a dial-up connection, you should be aware that while you are taking a quiz, there is no communication between your computer and your ISP (internet service provider) from the time you receive the quiz and the time you submit it. Thus, there is always the possibility that you could get "dumped" by the ISP for inactivity. To prevent that, it is recommended that you scroll to the bottom of the quiz and click on **Save** periodically. This will tell your ISP that you are still using the connection. When you are finished with the quiz and wish to have it graded, you should then click on **Submit**.
2. Especially when taking quizzes that count, do not click anywhere outside the quiz window (you may use the scroll bar at the right) during the quiz. No questions require the keyboard for answering them so you are encouraged to also keep your hands away from it. Clicking in the wrong place or hitting a wrong key could cause you to be "dumped" from the exam resulting in a score of zero. It is suggested that you use the Practice Quizzes to probe the "illegal" actions so you will know the limitations when you start taking actual Quizzes.

L. Semester Schedule

In this schedule, important assignment beginning and ending times are indicated by "**START**" and "**END**" notation to highlight when things begin and end. This is particularly important for assignments where late is not an option for which there are several such as chapter quizzes and extra-credit.

Day	Activity
Jan 15 (Monday)	University Holiday Use the first week preparing for the class by (1) reading Chapter 1 in the textbook (There are no lecture notes or homework assignment for this chapter.), (2) making sure you have the proper technology to deal with the course requirements, (3) carefully acquainting yourself with the course Syllabus and Lab Information document, and (4) obtaining the lab equipment kit from the Chemistry Stockroom.
Jan 16 (Tuesday)	START: Syllabus Quiz at noon.
Jan 19 (Friday)	END: Syllabus Quiz at noon. Completion of setting up email monitoring at noon. Lecture Notes and Homework Assignment for Chapter 2 along with Appendices A, B, and C available at noon.

Jan 22 (Monday)	Lab Experiment #1 (Measurements) available at noon. START: Extra-Credit #1 at noon.
Jan 24 (Wednesday)	Chapter 2 (including Appendices A, B, and C material) Practice Quiz available at noon START: Chapter 2 (including Appendices A, B, and C material) Quiz at noon.
Jan 26 (Friday)	Lecture Notes and Homework Assignment for Chapter 3 available at noon.

Jan 29 (Monday)	START: Report for Lab Experiment #1 (Measurements) at noon. (See Lab Information Document for submission requirements) Lab Experiment #2 (Graphing) available at noon. END: Extra-Credit #1 at noon. START: Extra-Credit #2 at noon.
Jan 31 (Wednesday)	END: Chapter 2 (including Appendices A, B, and C material) Quiz at noon. Chapter 3 Practice Quiz available at noon. START: Chapter 3 Quiz at noon. START: Text Entry for CPR Writing Assignment #1 at noon.
Feb 2 (Friday)	END: Report for Lab Experiment #1 (Measurements) at noon. Lecture Notes and Homework Assignment for Chapter 4 available at noon.

Feb 5 (Monday)	START: Report for Lab Experiment #2 (Graphing) at noon. Lab Experiment #3 (Density) available at noon. END: Extra-Credit #2 at noon. START: Extra-Credit #3 at noon.
Feb 7 (Wednesday)	END: Chapter 3 Quiz at noon. Chapter 4 Practice Quiz available at noon. START: Chapter 4 Quiz at noon. END: Text Entry for CPR Writing Assignment #1 at noon. START: Calibrations & Reviews for CPR Writing Assignment #1 at noon.
Feb 9 (Friday)	END: Report for Lab Experiment #2 (Graphing) at noon. Lecture Notes and Homework Assignment for Chapter 5 available at noon.

Feb 12 (Monday)	START: Report for Lab Experiment #3 (Density) at noon. Lab Experiment #4 (Half-Life) available at noon. END: Extra-Credit #3 at noon. START: Extra-Credit #4 at noon.
Feb 14 (Wednesday)	END: Chapter 4 Quiz at noon. Chapter 5 Practice Quiz available at noon. START: Chapter 5 Quiz at noon. END: CPR Writing Assignment #1 at noon.
Feb 16 (Friday)	END: Report for Lab Experiment #3 (Density) at noon. Lecture Notes and Homework Assignment for Chapter 6 available at noon.

Feb 19 (Monday)	University Holiday START: Report for Lab Experiment #4 (Half-Life). Lab Experiment #5 (Hydrates) available at noon. END: Extra-Credit #4 at noon. START: Extra-Credit #5 at noon.
Feb 21 (Wednesday)	END: Chapter 5 Quiz at noon. Chapter 6 Practice Quiz available at noon. START: Chapter 6 Quiz at noon.
Feb 23 (Friday)	END: Report for Lab Experiment #4 (Half-Life) at noon. Lecture Notes and Homework Assignment for Chapter 7 available at noon.

Feb 26 (Monday)	DUE: Lab Experiment #5 (Hydrates) interim results by email (see Experiment Procedure) by noon. START: Report for Lab Experiment #5 (Hydrates) at noon. Lab Experiment #6 (Reaction Rate) available at noon. END: Extra-Credit #5 at noon. START: Extra-Credit #6 at noon.
Feb 28 (Wednesday)	END: Chapter 6 Quiz at noon. Chapter 7 Practice Quiz available at noon. START: Chapter 7 Quiz at noon.
Mar 2 (Friday)	END: Report for Lab Experiment #5 (Hydrates) at noon.

Mar 5 (Monday)	START: Report for Lab Experiment #6 (Reaction Rate) at noon. END: Extra-Credit #6 at noon. START: Extra-Credit #7 at noon.
Mar 7 (Wednesday)	END: Chapter 7 Quiz ends at noon. START: Text Entry for CPR Writing Assignment #2 at noon.
Mar 9 (Friday)	Exam #1 over Chapter 2 (including Appendices A, B, and C material) through Chapter 7 (1:00-2:00 pm in SN335). Lecture Notes and Homework Assignment for Chapter 8 available at noon.

Mar 12 (Monday)	Lab Experiment #7 (Mysterious Golf Ball) available at noon. END: Extra-Credit #7 at noon. START: Extra-Credit #8 at noon.
Mar 14 (Wednesday)	Chapter 8 Practice Quiz available at noon. START: Chapter 8 Quiz at noon. END: Text Entry for CPR Writing Assignment #2 at noon. START: Calibrations & Reviews for CPR Writing Assignment #2 at noon.
Mar 16 (Friday)	Lecture Notes and Homework Assignment for Chapter 9 available at noon.

Mar 19 (Monday)	Lab Experiment #8 (Acids & Bases) available at noon. END: Extra-Credit #8 at noon. START: Extra-Credit #9 at noon.
Mar 21 (Wednesday)	END: Chapter 8 Quiz at noon. Chapter 9 Practice Quiz available at noon. START: Chapter 9 Quiz at noon. END: CPR Writing Assignment #2 - at noon.
Mar 23 (Friday)	Lecture Notes and Homework Assignment for Chapter 10 available at noon.

Spring Break

Apr 2 (Monday)	START: Report for Lab Experiment #8 (Acids & Bases) at noon. Lab Experiment #9 (Vitamin C) available at noon. END: Extra-Credit #9 START: Extra-Credit #10 at noon.
Apr 4 (Wednesday)	END: Chapter 9 Quiz at noon. Chapter 10 Practice Quiz available at noon. START: Chapter 10 Quiz at noon.
Apr 6 (Friday)	END: Report for Lab Experiment #8 (Acids & Bases) at 5:00 pm. Lecture Notes and Homework Assignment for Chapter 11 available at noon.

Apr 9 (Monday)	DUE: Lab Experiment #9 (Vitamin C) interim results by email (see Experiment Procedure) by noon. START: Report for Lab Experiment #9 (Vitamin C) at noon. Lab Experiment #10 (Calorimetry) available at noon. END: Extra-Credit #10 at noon. START: Extra-Credit #11 at noon.
Apr 11 (Wednesday)	END: Chapter 10 Quiz at noon. Chapter 11 Practice Quiz available at noon. START: Chapter 11 Quiz at noon. START: Text Entry for CPR Writing Assignment #3 at noon.
Apr 13 (Friday)	END: Report for Lab Experiment #9 (Vitamin C) at noon. Lecture Notes and Homework Assignment for Chapter 12 available at noon.

Apr 16 (Monday)	START: Report for Lab Experiment #10 (Calorimetry) at noon. Lab Experiment #11 (Colligative Properties) available at noon. END: Extra-Credit #11 at noon. START: Extra-Credit #12 at noon.
Apr 18 (Wednesday)	END: Chapter 11 Quiz at noon. Chapter 12 Practice Quiz available at noon. START: Chapter 12 Quiz at noon. END: Text Entry for CPR Writing Assignment #3 at noon. START: Calibrations & Reviews for CPR Writing Assignment #3 at noon.
Apr 20 (Friday)	START: Short-Story Reading Assignment at noon. END: Report for Lab Experiment #10 (Calorimetry) at noon. Lecture Notes and Homework Assignment for Chapter 13 available at noon.

Apr 23 (Monday)	<p>DUE: Lab Experiment #11 (Colligative Properties) interim results by email (see Experiment Procedure) by noon.</p> <p>START: Report for Lab Experiment #11 (Colligative Properties) at noon.</p> <p>Lab Experiment #12 (Phosphorus Analysis) available at noon.</p> <p>END: Extra-Credit #12 at noon.</p> <p>START: Extra-Credit #13 at noon.</p>
Apr 25 (Wednesday)	<p>END: Chapter 12 Quiz at noon.</p> <p>Chapter 13 Practice Quiz available at noon.</p> <p>START: Chapter 13 Quiz at noon.</p> <p>END: CPR Writing Assignment #3 at noon.</p>
Apr 27 (Friday)	<p>END: Report for Lab Experiment #11 (Colligative Properties) at noon.</p> <p>END: Short-Story Reading Assignment at noon.</p>

Apr 30 (Monday)	<p>START: Report for Lab Experiment #12 (Phosphorus Analysis) at noon.</p> <p>START: Report for Lab Experiment #7 (Mysterious Golf Ball) at noon.</p> <p>END: Extra-Credit #13 at noon.</p> <p>START: Extra-Credit #14 at noon.</p>
May 2 (Wednesday)	END: Chapter 13 Quiz at noon.
May 4 (Friday)	<p>END: Report for Lab Experiment #12 (Phosphorus Analysis) at noon.</p> <p>END: Report for Lab Experiment #7 (Mysterious Golf Ball) at noon.</p>

May 7 (Monday)	<p>Exam #2 over Chapter 7 through Chapter 13 (1:00-2:00 pm in SN335).</p> <p>END: Extra-Credit Assignment #14 at noon.</p> <p>END: Submission of any late assignments at 5:00 pm.</p>
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