Chemistry 192 - General Chemistry II
Course Syllabus
Spring 2012

1. Instructors:
   - Dr. David L. Freeman
     Phone: 874-5093
     Office: 333, 319 Pastore
     e-mail: freeman@chm.uri.edu
     Office Hours: MWF 11 or by appointment
   - Meredith Matoian
     Office: 115 Pastore
     e-mail: mmatoian@chm.uri.edu
     Office hour: M 10

2. Scheduling: Lecture MWF 9, 234 Pastore
   Recitation M 2, 234 Pastore
   Laboratory Section 1 W 2-5, 150 Pastore
   Laboratory Section 2 Th 8-11, 150 Pastore

   Petrucci, F. Geoffrey Herring, Jeffry D. Madura and Carey Bissonnette, Tenth Edition,
   Pearson, 2011

4. Prerequisites: CHM 101 and 102 or CHM 191

5. WWW course home page: http://www.chm.uri.edu/courses/?chm192&1
6. Course requirements:

(a) Weekly quizzes (almost every Monday during recitation). The lowest two numerical scores will be dropped in determining grades. Quiz for the week of February 20 will be given on Wednesday February 22 during lecture. 200

(b) Hour Exams (Wednesday, March 7
No quiz on Monday, March 5 and
Wednesday, April 18
No quiz Monday, April 16) 200

(c) Laboratory 150

(d) Final exam (Monday, May 7, 8-11 AM) 200

(e) Total 750

Grades are to be determined using a combination of an absolute scale and a curve. To pass CHM 192, at least 50% of the points must be earned. To obtain a C- or higher, at least 60% of the points must be earned. The remainder of the grades are determined using a curve. Based on past experience, the median of the curve tends to be a C. Incompletes are given only for valid medical reasons. A note from a medical professional is required to obtain an incomplete. Quizzes cannot be made up. If a Monday class is canceled owing to weather or any other reason, the quiz will be given during the lecture portion of the course on the next date the class meets. For the laboratory portion of CHM 192, any student failing to submit more than 5 laboratory reports for grading will receive an F. If more than 3 but less than 6 laboratory reports are not submitted for grading, 0 points will be earned for the laboratory portion of the course.

7. Overview:

As you are all aware, CHM 192 is the second semester of the full year general chemistry course sequence. Most generally, this semester we seek to understand the physical principles that govern chemical reactions. Those principles include understanding the factors that govern how fast reactions occur, the nature of the equilibrium state, and the thermodynamic principles that govern the direction of spontaneous change. Special topics include the behavior of acids and bases, precipitation reactions and electrochemistry.

As in CHM 191 the course includes 3 lectures per week, 1 recitation section per week and 1 three-hour laboratory period per week. Success in CHM 192 requires that you attend and satisfy the requirements of all three aspects.
You will receive a separate syllabus for the laboratory portion of the course. The laboratory experiments are designed to illustrate the principles learned in the lecture/recitation parts of the course.

The lecture and recitation section portions of the course are closely coupled. The recitation section has two purposes. First, with three exceptions, each recitation section will begin with a 15 minute quiz covering the material from the previous week. For those recitation periods having a quiz, after completing the quiz and reviewing the quiz solution, the remainder of the recitation section will be used to solve problems that illustrate the principles of the course.

Success in CHM 192 requires constant practice in solving problems. To help with such practice, problems sets are to be posted on the CHM 192 web page each week. The problem sets will not be collected and graded, but the problem sets are most helpful if they are treated as if they are to be collected and graded. After a portion of time solutions to the problems sets will also be posted. You are encouraged to try to solve the problems by yourselves before examining the solved problems. Keep in mind that it is far easier to understand a solution to a problem than it is to solve the problem on your own. You will need to solve the problems on your own when taking quizzes and exams.

8. The CHM 192 Web page:

In this course all problem sets, problem set solutions, quiz solutions and exam solutions are to be posted on the course web page. No paper copies of the problem sets are to be distributed. The URL of our course web page is http://www.chm.uri.edu/courses/?chm192&1. It is strongly suggested that you link to our web page to obtain the first problem set as soon as possible.

It is expected that for most of you, success in this course will require some level of help beyond classroom instruction. Because some of you may find it difficult to come to the scheduled office hours, we have installed as part of our course web pages, a page that can be used to submit questions. Questions are submitted by anyone in the class by filling out a form on the web page, and answers are distributed either to the entire class or only to the person asking the question. If the entire class is to receive a copy of the question and answer, the question is treated as anonymous; i.e. the person who asks the question is never identified. In fact, it is possible to submit a question so that even the instructor does not know who submitted the question. Anonymous questions and responses by the instructor are distributed automatically to everyone who has submitted their e-mail address to the instructor. With ordinary electronic mail, there is a private correspondence between the student and instructor. By using the web page, the entire class has an opportunity to learn from the questions submitted.

The use of the web page does not preclude personal interaction between any of you and the course instructors. All course instructors have regular office hours, and you are all encouraged to make use of these hours. Alternate meeting times can be arranged.
by appointment. Additionally, you can contact the instructors by e-mail or telephone. The e-mail address and phone number for the instructors are given on the first page of this syllabus.

To receive copies of the submitted questions and the answers to the questions, you must submit your e-mail address. To submit your e-mail address, go to our home page (http://www.chm.uri.edu/courses/?chm1921&1) and click on “Subscribe to the CHM 192 list.” On the resulting form, enter your e-mail address, click on the small “subscribe” button and then click on the submit button. You can also use this form to unsubscribe from the list in case you drop CHM 192.

Any student in CHM 192 can submit questions and comments to the instructors. Submission of such comments or questions must be made using the WWW home page for this course. The address (URL) of our home page is http://www.chm.uri.edu/courses/?chm192&1. To submit a question to the list, you must click on the highlighted text that says “submit a question to the CHM 192 list.” As an example of how to use the list, suppose a student in our class, Ms. Benzene Ring, wonders, “What is the relation between pH and pOH?” (If you don’t know what this means, don’t worry. You will understand the question early in the semester). To obtain an answer to her question, Ms. Ring links her web browser (e.g. Firefox, Safari or Microsoft Internet Explorer) to http://www.chm.uri.edu/courses/?chm192&1, and she then clicks on the text linking her to the page for questions (i.e. the highlighted text that says “submit a question to the CHM 192 list”). Ms. Ring then enters her e-mail address in the appropriate box (this is optional) and specifies whether she wants her question to be answered to the entire CHM 192 class or to her alone. Ms. Ring then types in the large box

What is the relation between pH and pOH?

Ms. Ring then clicks the “send” button. Ms. Ring’s question is received by the instructors. One of the instructors then sends an e-mail message to the whole list that might be

Subject: CHM 192 Question
The question is: What is the relation between pH and pOH?
Answer: pH+pOH=14.00 at 25 degrees C.

Now Ms. Ring and the entire class have an answer to her question.

If the answer to the question can be sent to the entire list, the answer will not indicate who asked the question. If Ms Ring wants to ask the question with full anonymity so that even the course instructors have no idea who asked the question, the e-mail portion of the form can be left blank. Of course, if the e-mail section of the form is blank, the answer must be sent to the list and not just to the sender.

Because many questions may contain mathematical formulas, we need a notation to communicate the special symbols used in the course. To avoid confusion, it is most useful if we agree on the same set of symbols. The symbols that follow are taken
from a language called \textsc{LATEX}. LATEX is a language that is frequently used to prepare scientific documents, and LATEX can be used to translate special symbols into simple text characters. By learning LATEX notation, you will learn a widely used method to communicate mathematical symbols via e-mail. The instructors plan to use these symbols in answering your questions, and it is asked that you use the same symbols in posing questions. The most important symbols are the following:

(a) Greek letters are represented by \ followed by the name of the letter. For example \(\alpha\) is typed \texttt{alpha}, \(\beta\) is typed \texttt{beta}, and so on. A Greek letter is made upper case by making the first letter of its name upper case. For example, the letter \(\Delta\) is typed \texttt{Delta}.

(b) Subscripts are represented by \{\} where the brackets contain the subscripts. For example, \(\mu_{ij}\) is typed \texttt{mu}\{\texttt{ij}\}.

(c) Superscripts are represented by \{\} where the brackets contain the superscripts. For example, \(\beta^{12}\) is typed \texttt{beta}\{\texttt{12}\}.

(d) Infinity \((\infty)\), is typed \texttt{infty}.

(e) Square roots \(\sqrt{a+b}\) are typed \texttt{sqrt}\{\texttt{a+b}\}.

(f) The arrow in chemical reactions \(\rightarrow\) is typed --->. For example \(C+O_2 \rightarrow CO_2\) is typed \texttt{C + O}\{\texttt{2}\} ---\texttt{CO}\{\texttt{2}\}.

Remember, your first task is to subscribe to the CHM 192 list by filling out the form on our web pages. You can then send questions and comments to the instructors using your web browser starting at the URL http://www.chm.uri.edu/courses/?chm192&1
9. Course outline:

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