

# Chemistry 31X Autumn 2006

## Professors Fayer and Waymouth

### General Information and Course Outline

- Instructors:** Professor Michael D. Fayer                      Professor Bob Waymouth  
Office: Keck, Room 113    Office: Stauffer I, Room 205  
Phone: 723-4446    Phone: 723-4515  
[fayer@stanford.edu](mailto:fayer@stanford.edu)    [waymouth@stanford.edu](mailto:waymouth@stanford.edu)
- Office Hours:** Fayer: Fridays, 3 to 4 pm, 9/25 – 10/13; 11/27 – 12/7, room 113 Keck  
Waymouth: Thursdays, 3 to 4 pm, 10/16 – 11/ 17, room 205, Stauffer I
- Head TA's:** Matthew Robbins, Head TA                      Kevin Welsher, Administrative TA  
[mdr@stanford.edu](mailto:mdr@stanford.edu)    [kwelsher@stanford.edu](mailto:kwelsher@stanford.edu)
- TA's:** Tara Benz    [tbenz@stanford.edu](mailto:tbenz@stanford.edu)  
Emily Fenn    [eefenn@stanford.edu](mailto:eefenn@stanford.edu)  
Muneaki Nakamura    [mrn@stanford.edu](mailto:mrn@stanford.edu)  
Debanti Sengupta    [debanti@stanford.edu](mailto:debanti@stanford.edu)  
Scott Tabakman    [tabakman@stanford.edu](mailto:tabakman@stanford.edu)  
Jason Wagoner    [jwagoner@stanford.edu](mailto:jwagoner@stanford.edu)
- Content:** CHEM 31X is an advanced introduction to chemistry for students with a background in chemistry. Students are expected be comfortable with Chapters 1-4 and the beginning of Chapter 5 in the textbook. This includes basic concepts in stoichiometry, periodicity, Lewis dot structures, and chemical calculations involving the use of balanced chemical equations, the mole concept, and gas laws. This material will have been covered in a typical high school chemistry course, but courses in different high schools vary widely. The course will cover a lot of material at a rapid pace.
- Students who are not comfortable with the material indicated above and feel that a slower pace would be better for them should take the CHEM 31A/B sequence.
- Lectures:** 9:00 AM or 11:00 AM MWF, Braun Auditorium, Mudd Building  
**The class will begin promptly on the hour. Please be in your seat a few minutes before the class begins and be ready to go.**
- Professor Fayer will teach the first 3 and last 2 weeks of the course covering quantum chemistry and thermochemistry. Professor Waymouth will teach the middle 5 weeks of the course covering chemical reactions and equilibria.
- Text:** Chemistry: Science of Change, Fourth Edition, Oxtoby, Freeman, and Block 2003.

**Information:** CHEM 31X Web Page: <http://coursework.stanford.edu>. Register on Axxess and/or add yourself to the class. All announcements, course notes, problem sets, solution sets, section assignments, scheduling, etc. will be posted as HTML or PDF files, which will open on a PC or Mac computer.

**Email List:** You will be automatically subscribed to the CHEM 31X email list when you sign up on Coursework. The website (coursework) will be used as the primary means of communicating important information about course material, homework assignments, and exams to you. Please make sure you give us a valid email address and that you check email regularly, as important announcements will be sent by email as well.

**Sections:** Each student will be assigned a specific recitation section (1hr/week).

**Section signup is performed through the course website starting Monday, September 25 after class and ending Friday, September 29 at 5:00 pm.** Signup requires that 4 section times be selected in order of your preference. No preference is given for early signup. It is in your own best interest to make sure that 4 different section times are submitted by the deadline. If one section time is selected for four choices and that choice is not obtained, an available section will be randomly assigned to you. Section assignments will be posted online on or before Sunday, October 1.

Section attendance is recommended but not required.

**Grading:** Your course grade will be determined from your scores on the problem sets (10%), 2 midterms (20% each), and the final exam (50%). If you miss more than one midterm or the final, you must withdraw from the class.

**Problem Sets:** Problem assignments will be announced weekly by posting to the website every Wednesday after class. Problems will be from the text and additional problems not in the text will also be assigned. The additional problems will cover material from the lecture that is not specifically in the text. Some supplementary problems relating to topics covered in the lectures may be posted later in the week and will be due with that week's problem set. Problem set due dates are listed in the course calendar and should be handed in by noon in your TA's folder located in the hall on second floor of Mudd outside Mudd 231. The grading is to check that you are doing the problems sets completely. Problem sets are not graded in detail. A solution set will be posted to the website so that you can carefully assess your own performance and learn from your mistakes. Grades will be assigned as follows: 10 (every problem completed in detail and substantially correct), 5 (most but not all of the problems completed in detail; needs work), 0 (completely unsatisfactory). Problem sets are not tests. You may work with your friends and get help from the TAs. Everyone can get perfect problem set scores by putting in the necessary work and getting help in a timely manner when needed. Stay on top of the problem sets. Don't wait until the last minute.

**Exams:** There will be two midterms and one final exam. Normal lectures will be held on the mornings of the midterm exams. Midterm exams are all on Wednesday evenings. These exam periods are the Wednesday sessions stated in the Time Schedule, and are treated as a part of the normal class period (i.e. these tests are NOT given outside of the regularly scheduled class times). Problems associated with taking the exam must be communicated well in advance (a minimum of 24 hours) to a professor and the Head TA to give sufficient time to resolve the problem, if possible.

Midterm 1	October 18	Wed. 7:00-8:00 PM
Midterm 2	November 15	Wed. 7:00-8:00 PM
<b>Final Exam</b>	<b>December 13</b>	<b>Wed. 3:30-6:30 PM</b>

Exam locations will be announced in class and posted to the course website.

**There will be no make-up exams.** If you are unable to attend any of these examination times, we suggest that you consider taking CHEM 31A and B. Please insure that you do not schedule your holiday plans prior to the final exam.

#### **Missing an exam**

If you will miss a midterm for any reason, (illness, family emergency etc), you must communicate this to the Head TA or a professor as soon as possible. before the exam. If you take an exam, it will be graded and counted toward your final grade. **If you miss a midterm WITHOUT a valid reason, your grade on that midterm will be zero.**

#### **Scheduled conflicts:**

- If you know that you will be away during one of the midterms, you must inform **both a professor** and the **Head TA with as much advance notice as possible**. For example, if you are on a sports team and will be away at competition during one of the exams, we can arrange for you to take the exam on the road. Such arrangements can take a couple of weeks to set up, so let us know as soon as you know you will be away.

Students requiring special arrangements, such as alternative venues, for taking exams must inform the Head TA **at least one week** in advance.

Blank exams from previous years and their corresponding solutions will be available at the appropriate times on the course website. We highly recommend that you work these exams as an integral part of studying for this course as a means of assessing your comprehension of the material.

**Regrades:** *Requests for regrades must be made in writing no later than 1 week after the exam has been returned.* Do not hesitate to ask for a regrade if you have a well-defined issue with the grading of the exam. The issue being raised for regrade must be clearly stated in a brief note and accompanied by the **entire** exam. The

entire exam is subject to regrade and this can result in either an increase or decrease in your grade.

**Help:** Chemistry 31X is a large class, and there are many people organized to help you.

The following list outlines places to receive help in this course:

1. TA Office Hours will be held at a variety of times. The times and locations will be announced on Coursework and listed in the course calendar. Office hours are designed to provide one-on-one help with an aspect of the course.
2. Discussion sections of approximately 20 students with a teaching assistant will be scheduled during the first week of class. Sections provide a very good opportunity to get your questions answered in a much less formal setting than the lecture hall. Questions that cannot be dealt with in a 300-person lecture can be discussed in Section. If you need to contact your TA outside of section, please use email (email addresses are posted on the website and are listed above).

For help with solving specific problems on problem sets, etc., see the TA's at their office hours or in Section for help with problem sets.

If you have a personal issue that is beyond the ability of your TA or the Head TAs to solve, or if for any reason you do not feel comfortable discussing a personal issue with the TAs, please contact either Professor Fayer or Waymouth for a private meeting.

**Supplementary Texts:** No reading in these books is required. They will be on reserve in the Chemistry Library for those wishing to obtain a slightly different perspective on the material covered in class.

Zumdahl, *Chemical Principles, 5th Edition*  
McQuarrie and Rock, *General Chemistry, 3rd Edition*  
Mahan and Myers, *University Chemistry, 4th Edition*  
Atkins and Jones, *General Chemistry, 4th Edition*  
Oxtoby, *Principles of Modern Chemistry, 2<sup>nd</sup> Edition*

**Disabilities:** Students who have a disability that may necessitate an academic accommodation or the use of auxiliary aids and services in class, need to initiate the request with the **Disability Resource Center** (123 Meyer Library, 723-1066, TDD 725-1067, <http://www.stanford.edu/group/DRC/>) and inform the HTA as soon as possible.

**Required Reading:**

Chapter 16	all
Chapter 17	all
Chapter 18	all
Chapters 2.3, 4.4 and 12.1	
Chapter 4	all
Chapter 5	all
Chapter 7	all
Chapter 8	all
Chapter 10	all
Chapter 11	all

\* You are responsible for all the material in Chapters 1 through 4.

Based on each lecture, it will be clear where we are in the reading list. The lectures will not read the book to you. The lectures will cover material that is in the book in a different manner. Some topics that are in the book will not be covered explicitly in lecture. Some topics in the lecture will not be in the book. You are responsible for all material assigned in the book and covered in the lecture.

The following is a suggestion of how to keep up with the class.

1. Read quickly through the chapter that we are about to work on before the lecture.
2. Download the power point slides and look through them.
3. Hear the lecture.
4. Read the chapter again carefully.
5. Go through your notes and the power point slides for the lecture.
6. Work the assigned problems.

It is extremely important to stay completely current with the class. If you are even part of one chapter behind, you may have difficulty following what is happening in class.