Chemistry 31A Autumn 2005
Chemical Principles I
Professors Chidsey and Scharberg

Upon successful completion of this course:

- You will understand the structure of matter and the types of energy associated with chemical transformations.
- You will understand how experimental data leads to the development of conceptual models.
- You will combine chemical principles to explain complex phenomena.
- You will be prepared to study chemical dynamics in Chem 31B: Chemical Principles II.

Skills developed in Chem 31A:

- You will apply your critical thinking skills to analyze and solve problems in chemistry.
- You will construct your own conceptual understanding and exam taking skills through a progressive sequence of observation, reading, group discussion and argument, writing, and problem solving.
- You will develop your communication skills in discussing chemistry and explaining your conclusions in writing.

Learning environment for Chem 31A:

- 2-week learning cycle: you will first participate in a hands-on activity and demonstration designed to promote experience with and insight into fundamental chemical phenomena, followed by reading and guided inquiry to further develop and solidify your understanding of the concepts. You will then complete a problem set to practice applying concepts you have developed and learned, and finally you will take an exam at the end of the two weeks.
- Spencer model: Each topic will be typically developed from empirical data to a conceptual model that explains a broad range of phenomena.

General Information and Course Structure

Instructors:

Professor Chris Chidsey
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Professor Maureen Scharberg (Visiting Professor)
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office: Mudd 233
Teaching Assistants:
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Web Site:  www.stanford.edu/class/chem31a  is the publicly accessible website. A few hours after registering for Chem 31A on Axess, you will have access to the full CourseWork Chem 31A website.


Required PRS transmitter:  You must have a PRS transmitter (available from the bookstore) to answer questions posed during lecture. Short PRS quizzes will be given at the beginning of lectures on days where an assigned reading is due. These quizzes will provide you, as well as the professors, with immediate feedback as to your understanding of the current material. Please register your PRS transmitter on coursework by Tuesday (9/27) 3 pm.


Lectures:  MWF 1:15-2:05  Hewlett 200

Office Hours:  Office hours are available for students who need further clarification of concepts presented in lecture, or have made solid attempts on the homework assignment or other practice problems and require further assistance working through them. Students are highly encouraged to rework misunderstood problems from returned exams with a TA during office hours.

Times
TAs:  Sunday 7-10 pm  Location:  60-62A
Tuesday 1-4 pm  Location:  Keck 337
Tuesday 7-10 pm  Location:  Herrin 60 195
Sections: Sections will be held on Thursdays and Friday mornings. During Section, students will participate in mini-labs and hands-on demos that will demonstrate and build general chemistry principles through group learning. Attendance is mandatory.

Please sign-up for section in Coursework (you must be registered in Axess to enter the Coursework site and sign-up for sections). Section sign-up in coursework will start on Thursday 9/22 and end at 3pm on Tuesday. Your sections assignments will be posted in coursework by lecture on Wednesday (9/28).

Outreach: Outreach workshops will be held on Monday and Wednesday evenings (except exam evenings) to help build basic skills through practice exercises that will reinforce major concepts from lecture and for exams. Outreach provides an open environment for students to practice their skills at a slower pace and get immediate explanations as questions arise. Exercises covered will be posted on the class website. Attendance is optional.

Times and locations: Mon and Wed (except exam evenings) 7-8 pm at Hewlett 200

Graded Work: Completing the conceptual questions assignment will be worth 0.5% of your grade.

Section participation will be worth 0.5% of your grade per week (total 5%).

There will be four short reports (1-3 pages) on activities in Section. You are encouraged to discuss the activities with others prior to composing your report, but the actual report must be solely your composition. Each report will be graded for content and composition and be worth 1% of your grade. (total 4%)

There will be 60 quiz questions throughout the quarter associated with the reading/problem assignments. Your best 40 quiz answers will each be worth 0.1% of your grade. (total 4%)

There will be many additional PRS questions throughout the lectures. You will receive credit worth 0.1% of your grade for each of the first 15 that you answer whether correct or not. (total 1.5%)

There will be five written problem sets for the course. You will have 10 days to complete each problem set. You are encouraged to work on the problems with
others, but you must compose your answers to each problem set on your own. A substantially correct set of solutions will receive credit worth 1% of your grade, a marginal set 0.5% and an unsatisfactory set 0%. A detailed answer key will be posted immediately after the problem set is due to allow you to make a detailed assessment of your own performance. (total 5%)

There will be four one-hour exams on Wednesday evenings at 7:00pm. The first will be worth 5% of your grade, the second 9%, and the third and fourth will each be worth 13%. The final exam will be on Thursday, December 15, 8:30-11:30am and will be worth 40% of your grade. (total 80%)

Grades will be out of 1000 points. For example, you will see 5 points in the grades section of coursework if you have completed the assignment.

You must not enroll in classes or other weekly activities that conflict with the one-hour or final exams.

Exam Regrades: Regrade requests must be turned in to the Head TA no later than one week after the exam. The exam must be accompanied by a cover letter explaining why you are seeking a regrade. Once submitted, any part of the exam may be regraded.

Students with Disabilities: If you have a disability that may necessitate an academic accommodation or the use of auxiliary aids and services in class, you must initiate the request with the Disability Resource Center (563 Salvatierra Walk, 723-1066 voice, 725-1067 TTY)

Letter Grade: Your course grade will be determined on an absolute basis. The letter grade will correspond to the following overall fractions of your total score:

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<thead>
<tr>
<th>Fraction</th>
<th>Grade</th>
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<tbody>
<tr>
<td>≥95%</td>
<td>A+</td>
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<tr>
<td>≥90%</td>
<td>A</td>
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<tr>
<td>≥85%</td>
<td>A-</td>
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<td>C-</td>
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<td>&lt;40%</td>
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