

Introduction

This course is intended for Chemistry, Biochemistry, Biology, and Pre-Health Profession majors who need a rigorous introduction to the major ideas of thermodynamics and kinetics as applied to chemical systems. The concepts introduced will be applied to systems in chemistry and biochemistry. The presentation of material will rely heavily on calculus, so leave your math anxieties behind when you come to class.

Textbook

The textbook *formally* used in this course is *Physical Chemistry* (8th Edition) by Atkins and de Paula (2006). If you have another physical chemistry text that you prefer to use, you are welcome to use that. The major topics and corresponding chapters to be covered are listed below. Since it is always good to refer to other treatments of the same material, reading other texts is encouraged. This also includes reading books that review aspects of calculus.

Topic	Recommended Reading
Introductory Concepts & Gases	3-14; 17-18
The First Law of Thermodynamics	28-46; 49-60
The Second Law of Thermodynamics	76-109
Phase Equilibrium	117-129
Simple Mixtures	136-149; 150-153; 158-166; 182-184
Chemical Equilibrium	200-214
Electrochemical Equilibrium	216-225; 229-233
Experimental Kinetics	791-816
Reaction Dynamics	747-752; 869-874; 880-881

Class Structure

Although much of this course will be in the traditional lecture/discussion format, a significant portion will involve active learning exercises. These in-class activities are included to help promote deeper understanding of the material and will be of two types: (1) quantitative problem solving in groups and (2) qualitative problem solving individually. It is imperative that students participate fully in these activities to develop a deeper understanding. Since it is not possible to participate in these activities without attending class, students are encouraged to attend as frequently as possible. Although attendance does not guarantee success, lack of attendance will most certainly have a detrimental effect on your performance.

Prerequisites

The prerequisites for this course are successful completion of one full year of calculus (through MATH 162), one full year of physics (through PHYS 202), and chemistry up through CHEM 250.

Quizzes

There will be ten short unannounced quizzes during the semester. These will be taken in the first 5-10 minutes of class. If you are late for class on a quiz day, you may miss the quiz. No make up quizzes will be given.

Homework

There will be a number of problems given as homework to help you learn the course material. Homework problems will not be collected, but will be given informal "due" dates. After these dates, the solutions to the problems will be posted. You should feel free to collaborate with your classmates in doing the homework, since different individuals have different insights into a problem.

Exams

The three regular exams for this course will last approximately 50 minutes and are pre-scheduled on the dates listed below. **Note: Missed exams CANNOT be made up.**

2/26 (Monday), 4/4 (Wednesday), 5/2 (Wednesday)

The final exam is officially scheduled for Wednesday, May 16th from 9:15-11:15 in the regular classroom.

For all regular exams, each student will be allowed to bring in notes on a 3 x 5 inch note card (one side). These note cards must be turned in with the exam and answers.

No notes will be allowed for the final exam.

Grades:

Your total points and subsequent grade for the course will be determined by one of the two following weighting schemes. The instructor will calculate the student's total points using both options and record the value that results in the higher total. You do not have to make a choice of one of these, although if you miss an exam the choice is fairly obvious.

Option 1: Exams (3)	600 pts.	Option 2: Exams (2 of 3)	400 pts.
Final Exam	200 pts.	Final Exam	350 pts.
Quizzes (8 of 10)	200 pts.	Quizzes (10 of 10)	250 pts.
	1000 pts.		1000 pts.

The final grade for the course will be calculated based on the following point scale.

A- > 850; B- > 750; C- > 600; D- > 500 (absolute point scale)

A total of 650 points are needed to earn a grade of C, which is the graduation requirement for chemistry and biochemistry majors.

Office Hours

My formal office hours are listed below. If an important issue comes up, you can drop by my office or set up a formal appointment to see me.

Monday 2:30-3:30 PM, Wednesday 8:00-8:50 AM, and Friday 9:00-9:50 AM.

Course Web-site

I will do my best to maintain a current course web-site. The information that will be found here are: syllabus, last year's exams, homework problems, and in-class questions.

Academic Honesty

The following statements are taken from the CSUSM syllabus guidelines document.

“Students will be expected to adhere to standards of academic honesty and integrity, as outlined in the Student Academic Honesty Policy. All written work and oral presentation assignments must be original work. All ideas/material that are borrowed from other sources must have appropriate references to the original sources. Any quoted material should give credit to the source and be punctuated with quotation marks.”

“Students are responsible for honest completion of their work including examinations. There will be no tolerance for infractions. If you believe there has been an infraction by someone in the class, please bring it to the instructor's attention. The instructor reserves the right to discipline any student for academic dishonesty, in accordance with the general rules and regulations of the university. Disciplinary action may include the lowering of grades and/or the assignment of a failing grade for an exam, assignment, or the class as a whole.”

“Incidents of Academic Dishonesty will be reported to the Dean of Students. Sanctions at the University level may include suspension or expulsion from the University.”