

University of Maryland, College Park

SIE General Chemistry Syllabus

Chemistry 131, Section SES1
Chemistry Building (CHM), Room 1402, College Park

Spring, 2011

Class Schedule:

Lectures - Mondays	6:30 to 9:30 p.m.	CHM 1402
Discussions - Wednesdays	6:30 to 7:20 p.m.	CHM 0124

Lecturer:

Dr. E. L. Chang echang@umd.edu

You can reach me by e-mail and I'll try to get back to you as soon as practical.

Website:

<http://www.life.umd.edu/classroom/chem131/evening>

Laboratory Instructors:

Natalia White

Required Materials:

Chemistry: A Molecular Approach, Tro, Custom UMD Edition (ISBN 978-0-5-5870180-2; no response card needed). The text should also come with a Mastering Chemistry (online web-based learning) access key for online homework at <http://masteringchemistry.com/>. If the card is not bundled with the textbook, you can purchase it separately.

Weather Emergency Policy:

We will follow University of Maryland College Park policies. Please consult College Park's Weather Alert page whenever there is a chance of campus closing:

http://www.umd.edu/emergencypreparedness/weather_emer/

Recommended (non-required) texts:

It is recommended that students get hold of another cheap, used general chemistry textbook to read along with the Silberberg text, it is always beneficial to view the subject matter from a slightly different approach.

Course Description:

Chem 131 is the first half of a concentrated, intensive introductory course to the breadth of the field of chemistry. While there are no prerequisites, a good background in high school algebra and general science will be of great help. The objective of this course is to familiarize the student with some of the concepts and terminology of chemistry. It is hoped that in the process the student will also start to approach situations and view the world with a more analytical eye and deeper understanding.

We will cover such subjects as: stoichiometry, the gas laws, the periodic table, electronic configurations, molecular geometry, acid-base, oxidation-reduction reactions, reaction rates, chemical equilibrium, weak acid-base equilibria, intermolecular forces, and phase diagrams. By the end of this semester, the student should have a general understanding of the basic structure of atoms and molecules, the role of valence electrons in chemical properties, and the concepts of acid-bases. In addition, the student should also have the ability to perform such basic chemical operations as balancing complex oxidation-reduction equations and drawing Lewis structures.

There will be 6 unannounced quizzes and 3 scheduled exams.

Grading Breakup:

5 of 6 quizzes (20 points each)	100 points
Two examinations (100 points each)	200 points
Final examination	200 points
Total possible	<hr/> 500 points

Preliminary Guideline for Letter Grades :

A	500-450 points (90%)
B	449-400 points (80%)
C	399-350 points (70%)
D	349-300 points (60%)
F	299- 0 points

Homework:

The constant practice of a subject is necessary for its mastery, therefore homework will be mandatory. Homework, however, will not be collected or graded. Instead, the student should note which problems give difficulty and come to the recitation section on Tuesday evenings to discuss them. The problems assigned are only a sampling and are meant to be a minimum representative set. In other words, do more problems of your own selection whenever you can.

Extra Help: (Some of these options may only be available to UMCP students and/or may not be open during summer)

- Ms. Susan Jenney is an excellent tutor. Ask me for contact info.
- Reading and Study Skills Laboratory (Shoemaker Room 2201). Help is available here for students on basic survival skills such as note-taking, study skills, test-taking tips, etc.
- Intensive Educational Development (I.E. D., Room CHM-0112). This clinic has tutors available by appointment to help students.
- A list of graduate students available for private tutorial is maintained in CHM-1206. Fees and times are to be directly negotiated.

Make-up Policy:

Due to the concentrated nature of this course, there will not be any make-ups for quizzes. But, there will be six quizzes, of which the lowest of six is dropped (standing in for a missed quiz) for everyone. If you miss one of the two midterms, you can either elect to take a makeup before the next lecture after the regular exam date (provided you have an excused absence and that you notify me within one day of the regularly scheduled exam) or you can elect to let the final exam—which is comprehensive—count for 300 points. Missed final exams may be made up only in the case of illness of student (doctor's note needed), or other circumstances beyond control of the student and that would prevent class attendance. The procedure is for the student to receive an incomplete ("I"), to arrange to take the final exam make-up (after the regularly scheduled final exam date), and for the student to sign a contract promising to take the make-up within one semester or receive a grade based upon his or her performance up to the final exam.

Academic Honesty

The student is expected to adhere to the highest standards of conduct for this course. Cheating on quizzes, exams, copying of data, creating data, and other undesirable behavior can be the basis for immediate dismissal from class or other appropriate actions. Please be prepared to present picture i.d.'s, upon request, for exams and labs.

Lecture Schedule
Spring 2011 (Subject to Adjustments)

<u>Week</u>	<u>Date</u>	<u>Chapter</u>	<u>Subject (Monday 6:30-9:30 p.m.)</u>
1	1/24	1, 2	Matter, Measurement, Problem Solving
2	1/31	2, 7	Atoms and Elements
3	2/7	7, 8	Quantum Mechanical Model of the Atom
4	2/14	8, 9	Periodic Properties of the Elements
5	2/21	9, 10	Chemical Bonding I (exclude 9.4, .10, .11)
6	2/28	1 - 9	EXAM I
7	3/7	≤10.7, 3	Chemical Bonding II (exclude 10.8)
8	3/14	≤3.10, 4	Molecules, Compounds, Chem. Equations
9	3/21		SPRING BREAK
10	3/28	4	Chem. Quantities and Aqueous Reactions
11	4/4	6	Thermochemistry
12	4/11	10 - 6	EXAM II
13	4/18	14	Chemical Equilibrium
14	4/25	14, 15	Acids and Bases
15	5/2	15, 11	Intermolecular Forces (no solid state)
16	5/9	11	Catch up and Review
17	5/16	All	Final Exam (comprehensive)

Review Questions and Exercises

Minimum suggested set of homework problems. You should do more:

Chapter 1

33, 37, 39, 43, 53, 55, 57, 59, 71, 75, 79, 83, 91, 97, 99

Chapter 2

39, 41, 47, 49, 51, 53, 57, 59, 61, 65, 69, 73, 75, 79, 85, 111

Chapter 7

7, 14, 30, 37, 39, 41, 43, 47, 53, 59, 63, 67, 69, 71a, 75, 81, 87

Chapter 8

11, 20, 29, 45, 47, 51, 55, 59, 61, 63, 65, 69, 71, 93, 97, 119

Chapter 9

4, 14, 18, 20, 37, 49, 51, 55, 63, 65, 71, 73, 85a, b, 113

Chapter 10

4, 7, 16, 31, 35, 41, 47, 49, 57, 59, 61, 65, 85, 89

Chapter 3

4, 6, 9, 10, 11, 29, 31, 33, 37, 41, 47, 51, 53, 57, 59, 63, 67, 79, 81, 89, 93, 95, 97, 101, 111, 117, 119, 125

Chapter 4

3, 7, 23, 25, 29, 33, 37, 43, 45, 49, 53, 57, 65, 67, 69, 71, 73, 75, 81, 87, 89, 91, 95, 99, 107, 115, 129

Chapter 6

15, 25, 25, 39, 49, 57, 61, 63, 65, 73, 75, 77, 81, 83, 85

Chapter 14

14, 20, 21, 23, 29, 33, 35, 41, 45, 47, 49, 53, 55, 61, 63

Chapter 15

35, 37, 39, 41, 45, 57, 61, 65, 87, 89, 91, 95, 101, 107, 111

Chapter 11

7, 8, 51, 53, 55, 57, 61, 65, 67, 69, 71, 75, 85, 87