

## Syllabus-CHEMISTRY 112-Spring 2012

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### **PREREQUISITE:**

CHEM 111 with a grade of "C" or higher or equivalent

### **RECOMMENDATION:**

It is strongly recommended that the preceding prerequisite be completed within four years prior to the date of enrollment in CHEM 112.

### **Lecture Required Material:**

- *Chemistry, A Molecular Approach, 2<sup>nd</sup> edition, by Nivaldo J. Tro*  
You do not need to buy the Access Code for the textbook online material.
- *Scientific Calculator. Note: Graphing calculators are not allowed in exams.* Also calculators in combination with electronic communication devices and /or photography are not allowed.
- *Packet, Safety in the Chemistry Laboratory. This material can be downloaded and printed from my webpage listed above, or from [www.cerritos.edu/chemistry](http://www.cerritos.edu/chemistry)*
- *Scan-tron #882 for the Safety Quiz in the lab.*
- *Safety goggles with splash protection in compliance with ANSI Z87.1-1989 as required by California State Law.*
- *Lab apron. (Lab coat is not acceptable)*
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### **Learning outcomes:**

After successfully completing Chem 111, you should be able to do the following:

- Apply knowledge of microscopic (molecular) interactions to explain or predict macroscopic properties.*
- Apply critical thinking strategies in solving algorithmic and conceptual problems in chemistry.*
- Incorporate chemical principles to explain lab results and vice versa.*
- Apply laboratory skills to perform chemical analysis including collection of data, computations, and statistical analysis of the results.*
- Use effective written communication of chemical information.*
- Make effective use of current technology to collect and analyze data.*

### **Lecture Notes**

Lecture outline is online <http://www.cerritos.edu/mzewail>. Click on Chemistry 112 Lecture. You will be given the first few pages of the lecture outline in class. After that you are required to download and print out the lecture outlines and bring them to lecture with you.

### **Attendance:**

You are expected to attend class regularly. If you have been or intend to be absent for legitimate reasons, inform the instructor. Roll will be taken at the beginning of the hour. If you are late to class, you will not be accounted for in the roll sheet and will be marked absent. You may be dropped from the class if you are considered absent for three class meetings or more. However, you are still responsible for checking out of the laboratory. If you fail to check out, your records will be placed on administrative hold.

**Absence:** Students are responsible for all missed announcements and lecture material during an absence

### **Withdrawal:**

If you find it necessary to drop the course, you must follow the steps outlined below in order to receive a "W" grade. Do not just stop attending class!

a) Check out of the laboratory and receive a laboratory clearance form. This must be done during the regularly scheduled laboratory time. If this is not possible, you can make an appointment with the chemistry stockroom personnel at (562)860-2451 ext. 2695, however, there is a fee for the stockroom service.

b) Complete the official withdrawal procedure required by the Admissions Office. This can be done online.

**NOTE:** April 20, 2012 is the last day to withdraw.

### **Examinations**

All examinations and quizzes will be announced. There will be given:

a) Five exams, each worth 100. The lowest exam score will be dropped. If you miss one of the five exams, this will count as the exam that is dropped. All exams will be closed books/closed notes. All books and papers must be out of sight. Complete setups must be given in order to receive credit. That is, no credit for providing the answers without showing your work. Exams and quizzes will count as 50% of your course grade.

b) A two-hour final examination that will count as 15% of the course

### **Missed Exams:**

No make up will be given for missed exams or quizzes. You must take each exam at the time and on the date it is scheduled for your class. **NO EXCEPTIONS.**

### **Course grade**

The course grade will be broken down in the following manner:

Lecture exams, quizzes and homework	50%
Lecture Final exam	15 %
Laboratory	35 %

<b><u>Grading Scale</u></b>	<b><u>percent</u></b>	<b><u>Letter grade</u></b>
	90 and above	A
	80-89	B
	70-79	C
	60-69	D
	59 and below	F

To achieve a "C" or better for Chem 112 you must obtain overall grade of 70% or higher, and:

- pass the lecture portion
- pass the laboratory portion
- pass the lecture Final Exam

**Cheating Policy:** If you cheat in lab or in lecture, you will be dismissed from the course with an "F" grade.

**\*\*\* Absolutely no audio/video recording or photographing is allowed in lab or lecture without the instructor's permission.**

## Chemistry 112 General Chemistry 2nd Semester, Spring 2012

### Lecture Schedule and Assigned Problems

- **Textbook to buy:** *Chemistry, A Molecular Approach, 2<sup>nd</sup> edition, by Nivaldo J. Tro*

Answers to most of the text problems are in the back of the text. These problems are assigned and will be collected at the discretion of the instructor. It is your responsibility to work these problems; similar types of problems will be on quizzes and examinations.

Week of	TOPIC	CHAPTER READING	PAGES	TEXTBOOK ASSIGNED PROBLEMS
Jan 9	Thermochemistry:	6	230-268	Ch. 6: 58,78,80,84,87
	Bond Energies	9.1	386-390	Ch 9: 78
	Oxidation Number and Redox Equations	4.9	162-168	Ch 4: 88,90,92
Jan 17 Jan 23	Electrochemistry	18 (except 18.5)	814-856 (except 831-835)	Ch 18: 9,16,19,28,40,44,46,48,50,52,56,58,60,64, 74,76,78,80,88,2,106
	<b>Exam I</b>			
Jan 30 Feb 6	The Quantum Mechanical Model of the Atom	7	276-309	Ch. 7: 15,16,27,32,41,42,44,52( $m=1.673 \times 10^{-27}$ kg) , 63,68,72
	Electron Configuration	8.1-8.7	315-336	Ch. 8: 66,68
Feb 13	Molecular Geometry Resonance structures and formal Charges	10.1-10.5 9.7-9.9	398-415 378-385	Ch. 10: 36,38,40,42, Ch 9: 52,54,60,62,66,68,74,76
	<b>Exam II</b>			
Feb 21 Feb 27	Valence Bond Theory	10.6-10.7	417-432	Ch 10: 62,64,66,
	Molecular Orbital Theory	10.8	432-446	Ch 10: 70,74,76,80
	<b>EXAM III</b>			
Mar 5 Mar 12	Transitional Elements and Coordination Chemistry	24	1046-1071	Ch 24: 12,13,15,16,18,24,26,30,34,36,38,40,42, 44,46,48,52
Mar 19	Equilibrium of Complex Ions	16.8	755-759	Ch 16: 109,110,112,146
Mar 26	Chemical Thermodynamics	17	768-803	Ch.17:16,17,26,40,42,43,44,52,56,58,60, 62,66,67,68,70,72
	Free Energy, cell potential, and equilibrium constant	18.5	831-835	Ch 18: 66,68,70,86
	<b>EXAM IV</b>			
Apr 9 Apr 16	Chemical Kinetics	13	562-600	Ch 13: 44,48,50,52,54 (b,c,d),56,74,76,82,86,8,94,104
Apr 23 Apr 30	Organic Chemistry	20	902-941	Ch 20: 36,38,40(a,b,d),42,44,54,56,60,62,74,78, 82,86,96(a,b,c,e), 98(a,c,d), 100
	<b>EXAM V</b>			
May 7	Nuclear Chemistry	19	864-891	Ch 19:32,34,36,46,48,50,52,68
	<b>Final Exam on Wednesday May 16, 2012 12:00-2:00 pm</b>	<b>Practice: Review Questions for Chem 112 Final Exam</b>		