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CHEM 112-02, General Chemistry II, Spring 2000

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Syllabus

Chemistry 112, General Chemistry II
Spring Semester, 1999-2000 - M Hour

Instructor: Robert G. Mortimer

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DESCRIPTION: This course is the second semester of a two-semester sequence of courses covering the composition, structure, properties, and reactivity of substances. It will emphasize the chemical principles that enable us to understand chemical reactions.

GOALS: To succeed in this course, you should work toward the following goals:

1. Mastery of Factual Chemical Knowledge. Chemistry includes a large quantity of factual information, and much of the factual knowledge is summarized and generalized by scientific laws. In this course, you will enlarge your factual knowledge of the laws of chemistry.

2. Understanding of Chemical Theories. Factual chemical information is explained and correlated by chemical and physical theories. In this course, you will enlarge your understanding of these theories and your ability to apply these theories to specific chemical systems.

3. Demonstration of an Ability to Apply your Knowledge and Understanding. You should be able to demonstrate that you can use your knowledge and understanding both appropriately and creatively.

4. Development of Problem-solving Skills. Much of what is done in chemistry requires the use of logical reasoning to determine what analysis is needed to solve a problem, and then applying mathematics and other tools to solve the problem. In this course, you will practice and enlarge these skills.

TEXTBOOK: William R. Robinson, Jerome D. Odom, and Henry R. Holtzclaw, Jr., *Essentials of General Chemistry*, 10th edition, Houghton Mifflin Co., New York, 1997.

Conduct of the Course:

1. Class meetings: The class will meet at the M hour, Tuesdays and Thursdays, from 9:40 a.m. to 11:10 a.m. The course will be conducted as lectures and discussions with class participation. You are expected to attend every meeting of the class and to be prepared to participate.

2. Reading Assignments: You should plan to read the textbook material at least twice. You should read it quickly before the lecture covering that material, without worrying about details, and more carefully afterwards. **3.**

Quizzes: There be occasionally be unannounced quizzes, which can cover material you should have read as well as material already discussed in class.

4. Homework: There will be a set of homework problems assigned for each chapter. You must write out a complete solution for every problem, first attempting every homework problem individually. You may not consult other students' solutions that have already been worked out. Group efforts in which students work problems collectively without first having attempted them individually are not permitted, but you may work together with other students on a specific homework problem after you have attempted it individually. The instructor's solutions to the problems will be placed in the Chemistry Library on the due date for the homework set. After you have completed the problems, you will grade your own homework, using the instructor's solutions as a guide. A correct or nearly correct solution for any problem is worth two points, a solution that is approximately half correct is worth one point, and a solution that is less than one-fourth correct is worth no points. After you have graded your homework, you will write your score on your paper and turn it in to the instructor so that the score can be recorded.

5. Examinations: There will be three 90-minute examinations and a final examination. The final examination will cover the entire two-semester course. We will probably use the American Chemical Society standardized examination (multiple-choice) for the final examination.

Grading:

Each one-hour examination will count 100 points, and the final examination will also count 100 points. The homework will count 100 points. Each unannounced quiz will count 4 to 10 points. The final grade will be determined as follows:

Letter grade	Percentage of total points
A-/A	90-100
B-/B/B+	80-89
C-/C/C+	70-79
D-/D/D+	55-69

Getting Help:

The instructor will be available for individual consultations in Room 211K during most hours between 8:30 a.m. and 5:00 p.m. except during M and C periods, and during Tuesday and Wednesday afternoons.

Tentative Lecture Schedule:

Period	Date	Chapter	Topic
1	Jan. 13	Ch. 11.	Intermolecular forces, liquids and solids
2	Jan. 18	Ch. 11.	
3	Jan. 20	Ch. 11.	
4	Jan. 25	Ch. 12.	Solutions and colloids
5	Jan. 27	Ch. 12.	
6	Feb. 1	Ch. 12.	
7	Feb. 3	Ch. 13.	Chemical Kinetics
8	Feb. 8	Ch. 13.	
9	Feb. 10		Examination 1. Chapters 11, 12, and 13
10	Feb. 15	Ch. 14.	Chemical Equilibrium
11	Feb. 17	Ch. 14.	
12	Feb. 22	Ch. 15.	Acids and Bases
13	Feb. 24	Ch. 15.	
14	Feb. 29	Ch. 15.	
15	Mar. 2		Examination 2. Chapters 14 and 15
	Mar. 7	Spring recess	
	Mar. 9	Spring recess	
16	Mar. 14	Ch. 16.	Weak electrolytes
17	Mar. 16	Ch. 16.	
18	Mar. 21	Ch. 17.	Precipitates (part of Chapter)
19	Mar. 23	Ch. 19.	Electrochemistry; Oxidation and Reduction
20	Mar. 28	Ch. 19.	
21	Mar. 30	Ch. 19.	
22	Apr. 4	Ch. 19.	
	Apr. 6	Ch. 19	
23	Apr. 11	Examination 3. Chapters 16, 17, and 19	
24	Apr. 13	Ch. 18.	Chemical Thermodynamics
25	Apr. 18	Ch. 18.	
26	Apr. 20	Easter recess	
27	Apr. 25	Ch. 18	
28	Apr. 27	Review	
	May 3	Final Examination, 1:00 p.m.	One alternate time can be arranged.

LABORATORY: Chemistry 112L, General Chemistry Laboratory II, is taken with this lecture course. It is a separate course with a separate grade, carrying one credit hour. Laboratory manuals are available in the Chemistry Storeroom, room 302K. Depending on your section, your first laboratory session will be

Tuesday, January 18, Wednesday, January 19, or Thursday, January 20 . You should obtain your manual and read the first experiment before your first meeting.