

## **Course: Chemistry, Society and the Environment, 1020 Lecture Section 21, Summer II, 2004**

**Credit:** 3 hours

**Location:** E306 Sundquist

**Times:** 8:00 - 12:30 (includes lab) MTuWTh

Lecture: 8:00 - 12:30 M, 8:00 - 10:00 TWTh (except first day of class)

Lab: 10:00 - 12:30 TWTh

**Prerequisite:** Chem 1010, high school algebra recommended

### **Instructor**

Dr. Ron Robertson

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### **Text**

*Chemistry for Changing Times* by Hill and Kolb, Pearson/Prentice Hall Publishing, 10th edition 2004 (available in APSU bookstore).

### **Supplementary materials**

From time to time additional readings may be required or suggested. These will be in the Chemistry Department library. Answers to some of the homework problems will also be in the library. A scientific calculator will be helpful for lab work. Much of the material presented in this course is available on the web at <http://www.apsu.edu/robertsonr/chem1020/chem1020.htm>.

### **Course Description and Goals**

This is a general education course in chemistry for non-chemistry majors. My main purpose is to help you understand how science and technology view and affect the human condition - for example, why and how does the burning of coal (to produce electricity) affect the environment? Or why can we use starches as a source of energy in our diet and not cellulose if they are both carbohydrates? Secondly, I also want to enhance your thinking and reasoning skills through the development of mental models that we have formulated to explain how our natural world operates, specifically in the area that we have defined to be chemistry. These goals guide my teaching and their attainment will emphasize the development of APSU general education core areas of reasoning, literacy, numerical understanding, and scientific knowledge.

We will cover much of the material contained in chapters 9-20 (though not necessarily in that order) of the text: organic compounds, energy, and polymers; carbohydrates, lipids, proteins and nucleic acids; chemical toxicity; nutrition; pharmaceuticals and over the counter personal care products; and air and water pollution. As you can see our study is mainly about the chemistry of living things and our environment. This course is a practical survey of the influence of chemistry in your daily life.

I encourage your active participation in class; I truly enjoy your questions and comments. Although I do use the lecture format, feel free to ask questions before, during and after class. I would hope to pull you "kicking and screaming" through this course. My definition of science is "organized curiosity". I hope that you don't lose your sense of curiosity and wonder as we explore together the complexities of Mother Nature. If you find yourself having difficulty, please come and see me before you get too far behind.

There are advantages and disadvantages to taking courses in the summer. The most obvious disadvantage is the speed in which we must cover material. On the other hand you should be able to focus your study on this one subject and thoroughly immerse yourself in the material. You should expect to spend roughly 12 to 14 hours of study time each week for this class. This will depend on your background in chemistry. Since our time together in class is short, I will focus first on the presentation of

ideas and concepts. I view the text as being a supplement to my presentations. You will be evaluated primarily on material that I present in class. Sometimes my presentations will be very similar to the text's treatment, but at other times my presentation may be somewhat different. It is vital that you read the text and study the class notes to get the best understanding of the material. After you think that you have an understanding of the ideas and concepts presented (after you have the mental model), you should attempt the homework problems. Some problems will merely be review type questions, but others will allow you to "flex" your intellectual muscles and see how the concepts presented can be used to answer questions that a chemist would be asked.

I will not always be able to work as many problems or answer as many questions as you or I would like in class. For this reason it is important that you feel free to come and see me. True understanding and learning takes time; don't get discouraged!

## Attendance

I consider your attendance to be vital to your progress in this course. Your attendance will be monitored, and I reserve the right to lower your grade for excessive (more than 3) absences from class. Homework assignments are given on a daily basis and depend on the progress of the class. Since I do occasionally take up homework and give pop quizzes, your grade can be affected by your absence on any given day. See the evaluation policy below for an explanation.

## Evaluation Philosophy

My general philosophy is "A grade is an inadequate report of an inaccurate judgment by a biased and variable judge of the extent to which a student has attained an undefined level of mastery of an unknown proportion of an indefinite material" (Paul Dressel) Grades are not perfect or always fair, but I will pledge to be consistent. All of you will probably not be able to make A's but all of you can be successful in this course. I like the definition of success by John Wooden (former coach of UCLA's great basketball teams): "Success is peace of mind that is the direct result of self-satisfaction in knowing you did your best to become the best that you are capable of becoming". My pledge is to help you become the best you can be within your situation and opportunities.

I will test for an understanding of ideas as well as recognition of facts. Although I have no set cutoffs for A,B,C, etc., I will guarantee you the following: A 85%, B 72%, C 60%, D 50%.

My tests are layered in complexity. I evaluate in several areas: (1) a straightforward memorization of facts, (2) an understanding of ideas and concepts, and (3) an application of ideas to problem solving situations. Many types of questions are asked: short answer, multiple choice, essay and discussion. My goal in evaluation is to obtain the most information possible about your progress in the course.

## Nuts and bolts of Evaluation

- a) You will receive one grade for this course (lecture) and another grade for lab. Unless repeating either lecture or lab you must be concurrently enrolled in both lecture and lab. The grades are independent of one another.
- b) There will be four hour exams and a final exam during the term:  
Monday, July 12  
Monday, July 19  
Monday, July 26  
Monday, August 2  
Thursday, August 5 (Final Exam over all material) 8:00 a.m. to 10:00 a.m..
- c) There will be a total of 500-550 possible points during the class. Each regular exam will count 100 points and the Final will count 150 points. Your lowest hour exam grade will be dropped. **If you miss an exam for any reason, that exam will qualify as the exam to be dropped.** If you miss a 2<sup>nd</sup> exam, a doctor's note or other approved documentation for special circumstances (approved by the instructor on a case by case basis) is necessary for exam makeup.

No exemptions are given for the Final Exam. Another 50-100 points will come from a group project

(50 pts) and pop quizzes and homework. These quiz and homework evaluations will be about 10 pts each. If you miss a quiz or homework due to illness and have a written doctor's note, or if you have other special circumstances which have been approved by me, you will be allowed to make up the work. If you do not fulfill the above requirements and are absent, you will receive a zero.

The group project is called the *OTC Evaluation of Consumer Products*. It is a research project of a class of over-the-counter consumer products. It will require substantial preparation before class. You will work individually or in groups of 2 and will give your findings to the class in a 15 minute presentation on the scheduled lab period. You will also compile a written report of your findings and a 2 page summary handout for all in the class. This project will be worth a total of 50 points - 40 for your presentation and 10 for a summary quiz. Much more info will be given to you later in the course about this project.

- d) You can work with others on all out of class assignments (homework) unless specifically indicated. Cheating on exams and quizzes will not be tolerated. A grade of zero will be assigned for that exam or quiz as a first step, and the matter will be referred to student affairs for further action.
- f) I do love to see supporting background information on essay questions. Communication skills (written and oral) are important in this course.
- g) If you have a condition that may affect your academic performance, I encourage you to make an appointment with me or with the coordinator of disability issues (telephone 221-6230) in order to discuss this matter.

### **Drop/Add Dates**

I truly hope that you will not want to or feel the need to drop this course, but if you do . . . the following dates are important.

Last day to drop without a record	July 12
Last day to drop with an automatic "W"	July 16
Last day to drop with a "W", "WD", "F", "FN", or "FA"	July 23

### **Other comments**

I truly enjoy teaching chemistry and hope that we will have a profitable term. Please feel free to come by or call my office (Room C303) or to call me at home. Help with course material, discussion of career opportunities in chemistry, or "shooting the breeze" are all possible topics for discussion. Good luck!

Chem 1020  
Summer 2004

Date	Day	Chap	Reading Assignment	Homework
July 6	T			
7	W			
8	R			
12	M	EX 1		
13	T			
14	W			
15	R			
19	M	EX 2		
20	T			
21	W			
22	R			
26	M	EX 3		
27	T			
28	W			
29	R			
Aug. 2	M	EX 4		
3	T			
4	W			
5	R	FINAL		