

Course: Chem 102L; Chemistry, Society and the Environment Lab

Section 22, Summer II, 2004

Credit: 1 hour

Location: E306 Sundquist, A304

Times: 10:00 - 12:30 TWTh

Prerequisite: Chem 101 lab

Instructor:

Dr. Ron Robertson

Office: C303 Sundquist

Office phone 221-6298

Office hours 2-4 MTuWTh

Home phone 615-763-2146

Web page www.apsu.edu/robertsonr

E-mail robertsonr@apsu.edu

Text

Laboratory Manual to accompany World of Chemistry, Blackburn, Joesten, Langford, and Craig, Saunders College Publishing, 2nd edition, 1996. Special handouts will be given for some experiments.

Safety in the lab

Our first priority in the lab is safety. You will view a video and be given safety rules the first day of class. Appropriate behavior is discussed in these rules. Another section concerns the wearing of appropriate clothing in the lab and eye protection. Safety goggles are required in the laboratory at all times. They must be splash-proof and approved by the instructor. It is your responsibility to purchase these goggles. Shorts and sandals are inappropriate and unsafe for the lab and are prohibited. Goggles, aprons and shoe coverings are available in limited quantities for rent each lab period and may allow you to participate in lab if you are not dressed appropriately. If these are not available and you are not properly dressed, you will not be able to participate in lab and your lab grade for that day will be zero.

Supplementary materials

A scientific calculator will be needed for lab calculations.

Much of the handout material presented in this course is available on the web at <http://www.apsu.edu/robertsonr/chem1020/chem1020.htm>.

Course Description and Goals

Science is a process, a way of viewing and understanding the world. It is not just a body of facts. The knowledge we have has been obtained for the most part by experiment. So it is very important to allow you an opportunity to do some "hands on" work to understand this process we call science. Your work in lab will help you to develop the APSU general education core areas of reasoning, numerical understanding, and scientific knowledge.

This course presents specific laboratory activities designed to facilitate the understanding of material covered in Chem 1020. This material includes organic compounds and polymers; pharmaceuticals and over-the-counter care products; carbohydrates, lipids, proteins and nucleic

acids; and air and water pollution. See your lecture syllabus for details. A listing of our experiments for the semester is found elsewhere in this handout.

Any lab of this type is invariably of a "cookbook" nature at times. Try to look for ideas and concepts presented or visualized in the experiments. As you prepare for our quizzes, think about and summarize in your mind these ideas. Please feel free to come to me for help

Attendance

You obviously must be in attendance in order to complete the lab experiments, and your grade depends on it. Makeup labs or quizzes will not be given unless extraordinary circumstances warrant. This will be decided at the discretion of the instructor. The evaluation section below explains this in greater detail.

Nuts and bolts of Evaluation

- a) You will receive one grade for this course (lab) and another grade for lecture. Unless repeating either lecture or lab you must be concurrently enrolled in both lecture and lab. The grades are independent of one another but the material is very integrated.
- b) Most experiments will be worth a total of 20 points. Ten points will be awarded based on the completion of the data sheets and questions in the lab manual before you leave each period. Ten additional points will also be awarded on the basis of a quiz which will be given at the beginning of the lab period following the completion of the experiment. Your lowest 10 point lab grade will be dropped. Some experiments may be worth 30 pts due to more extensive calculations that are required. These calculations will be due the class day following the lab. Please note below the time for an "extra credit" lab that will be worth 10 pts.
- c) No makeup labs or quizzes will be given except in extraordinary circumstances. A student with more than three absences for any reason may be given an F in the course. Such students will be given the option of a W as provided in APSU policies. Exceptions to these rules will be considered on a case by case basis by the instructor.
- d) There is no set "grading scale", but you are guaranteed the following: A 90%, B 80%, C 70%, D 60%. Although each student should hand in a separate lab report, it is allowable to confer with others on lab reports unless specifically indicated otherwise. Cheating on quizzes and exams 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.

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 102 Lab Summer 2004

Date	Activity	Experiment #
July 6	Syllabus, Checkin, Safety video	
7	The Molecular Weight of Butane, start Ethanol Experiment (27)	Handout
8	The Use of the Spectrophotometer and Beer's Law	Handout
13	Distillation of Ethanol	27
14	Polymer properties - Diapers, Slime, and Rubber bands (30 pt lab)	Handout
15	Enzymatic Breakdown of Starch	35
20	Isolation and Identification of a Protein	38
21	Preparation of Foamed Saccharides with Protein Inclusions	Handout
22	Analysis of Vitamin C	23
27	Preparation and Properties of a Soap	31
28	<u>Extra credit lab</u> Preparation of a Face Cream	41
29	Preparation of Organic Compounds	28
Aug. 3	Project presentations for lecture grade	
Aug. 4	Buffers and Hard Water	Handout

We will try to integrate lab and lecture as much as possible. The above schedule may be changed to accommodate this integration.