CAMOSUN COLLEGE
DEPARTMENT OF CHEMISTRY AND GEOSCIENCE
CHEM 110 GENERAL COLLEGE CHEMISTRY I
SPRING 2004
COURSE OUTLINE

1. Instructor Information

Instructor: Lawrence Lee

Office Hours: Mon and Wed: 5:00 p.m. - 6:00 p.m. All other times can be arranged by e-mail appointment

Location: F 308B.

E-mail: lalee@uvic.ca

2. Required Materials

(a) Text: Chemistry, 4th Edition, by Ralph Burns (Prentice Hall)

(b) Chemistry 110 Lab Manual (in-house)

(c) Laboratory Safety Glasses

All of the above items are available for purchase at the Camosun College Bookstore

3. Intended Learning Outcomes

1. Identify, describe and account for the general characteristics of gases, liquids and solids - interionic and intermolecular forces; vaporization and condensation; melting and freezing; specific characteristics of water.
2. Utilize solution terminology, account for and compare the solubilities of ionic and molecular compounds, and describe the impact of temperature and pressure on solubility.
3. Describe the characteristics of solubility equilibria and use mathematical techniques employed in dealing with this phenomenon.
4. Describe and account for the colligative and osmotic properties of aqueous solutions.
5. Account for differences in the rates of chemical reactions, apply Le Chatelier=s Principle to equilibrium processes, and explain how catalysts influence reaction rates.
6. Apply mathematics and equilibrium constant expressions to descriptions of reversible reactions and chemical equilibria.
7. Identify Arrhenius, Bronsted and Lewis acids and bases, and describe the chemical properties of each type of substance.
8. Describe the ionization of water, the pH scale, weak and strong acids and bases, neutralization and the actions of buffer solutions.
9. Perform mathematical calculations involving pH, hydronium ion concentrations and acid-base titrations.

10. Define oxidation and reduction and assign oxidation numbers to the elements of substances involved in oxidation-reduction reactions. Demonstrate the ability to use oxidation numbers in balancing redox reactions.
11. Demonstrate an understanding of electrochemistry and account for the characteristics and uses of the standard hydrogen electrode, standard reduction potentials, electrolytic and voltaic cells.
12. Describe the characteristics of the major types of organic compounds B alkanes, alkenes, alkynes, aromatic hydrocarbons, alcohols, ethers, aldehydes and ketones, carboxylic acids and esters, amines and amides.

13. Course Content and Schedule

(a) Course Content. The following is a brief summary of the material to be covered in the course, along with the appropriate chapter references:

Topic	Chapter(s)
Review	2.1 B 2.9, 3.1 B 3.3, 3.7 B 3.12 4.2 B 4.12, 5.4, 5.6. 6.1-6.6, 9.1-9.8
Reaction Rates and Chemical Equilibrium	15
Gases, Liquids and Solids	12, 13
Solutions	14
Acids and Bases	16
Oxidation and Reduction	17

(b) **Scheduled Lectures** (3 per week): Mon: 12.30 to 1.20 pm (F 210), Wed: 12.30 to 1.20 pm (F 210), Thurs: 12.30 to 1.20 pm (F 268).

(c) **Scheduled Laboratory Experiments** (1 per week): Tues: 10.30 am to 1.20 pm (F 356). If you miss a scheduled experiment you will be assigned a mark of zero for that experiment unless you have a medical reason for doing so and can produce a doctor=s note.

(d**) Assignments**: End-of-chapter questions assigned approximately once every two weeks. They are not marked so hand-in is not required. However I STRONGLY recommend that you try them because the tests I will set you will relate strongly to the assignment questions. Solutions will be posted outside my office and put on reading reserve in the Library.

(e) **Weekly Tutorial Sessions**: These sessions will be approximately 50 minutes in duration and will run at the beginning of each lab period. These sessions will be used to go over questions being currently covered in the lectures.

(f) **Tests and Exams**:

Weekly Quizzes - 25 minutes (Covers material presented previous week)

Midterm exam I - 60 minutes (Covers material presented in weeks 1-6)
Midterm exam II - 60 minutes (Covers material presented in weeks 7-13)

Final exam - In the week following the end of the semester. The final is 180 minutes duration and covers **all** the material covered in the course.

Notes

1. All tests and exams are fully written with no multiple choice questions.

2. If you are unable to take a test or exam at the scheduled time during the semester for medical reasons you must inform me as soon as possible. In the event a test or the midterm is not written, the weighting for that test or midterm will be transferred to the final exam.

3. Tests are scheduled during lecture periods. The midterm is scheduled during the lab period. You will NOT perform an experiment in week 10.

14. Basis of Student Assessment (Weighting)

The overall mark for the course, expressed as a percentage, is obtained in the following way:

10 quizzes	10%	
2 midterm exam:	20%	
1 Final exam:		30%
Laboratory work:	20%	
Total:	100%	

Notes: (a) You must obtain a mark of at least 50% in the lab portion of the course in order to pass the overall course. If you fail to hand in more than three lab reports you will not pass the lab portion of the course.

(b) If you obtain a mark in the final exam which is better than the marks you obtained in any test or midterm then I will substitute the inferior mark(s) with an equal weighting from the final exam (I hope this makes sense!).

15. Grades

Your percentage mark for the course will be converted to a letter grade using the following (official Arts and Science) guide:

>95 A+	80-84 B+	65-69 C+	50-59 D	0-49 F
90-94 A	75-79 B	60-64 C		
85-89 A-	70-74 B-			

6. Learning and Support Services for Students

There are a variety of services available for students to assist them throughout their learning. This information is available in the College Calendar, Registrar=s Office or the College web site at http://www.camosun.bc.ca

7. Academic Conduct Policy

There is an Academic Conduct Policy. It is the student=s responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, Registration, and on the College web site in the Policy Section.

www.camosun.bc.ca/divisions/pres/policy/2-education/2-8