CAMOSUN COLLEGE	***School of Arts & Science*** ***CHEMISTRY AND GEOSCIENCE DEPARTMENT*** **CHEM 110-04** **General College Chemistry 1** **2009F**

COURSE OUTLINE

The Approved Course Description is available on the web @ camosun.bc.ca

Ω *Please note: this outline will be electronically stored for five (5) years only. It is strongly recommended students keep this outline for your records.*

1. Instructor Information

(a)	Instructor:	Blair Surridge		
(b)	Office Hours:	Tuesday 10:30am-12:20 pm Wednesday 1:30 – 3:20pm Thursday 1:30 – 3:20pm Friday 1:30 – 2:20pm		
(c)	Location:	F350A		
(d)	Phone:	370-3438	Alternative Phone:	
(e)	Email:	SurridgeB@camosun.bc.ca bsurridge@shaw.ca (home)		

2. Intended Learning Outcomes

(No changes are to be made to this section, unless the Approved Course Description has been forwarded through EDCO for approval.)

Upon completion of this course the student will be able to:

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 – alkanes, alkenes, alkynes, aromatic hydrocarbons, alcohols, ethers, aldehydes and ketones, carboxylic acids and esters, amines and amides.

3. Required Materials

(a)	Text	"Chemistry, The Central Science: a broad perspective" by Brown et. al., 2007—a.k.a. B-L-B Australian Edition.
(b)	Safety Glasses	Book store has "Uvex" safety eyewear – others are OK
(c)	Lab coat	Bookstore has cloth coats available – others are OK
(d)	Lab Manual	Chem 110 laboratory manual

4. Course Content and Schedule

Lectures:

Monday	12:30 to 1:20 pm in P106
Wednesday	12:30 to 1:20 pm in F360
Friday	12:30 to 1:20 pm in F206

Unit	Topic	Reference
1	Chemical Matter, Molecules and Ions, Stoichoimetry, Atomic and Electronic Structure	Ch. 1, 2, 5, and 6 (note: not all sections in text will be covered)
2	Thermochemistry	Ch. 4
3	Chemical Kinetics	Ch. 12 Omit sections 12.5 and 12.7
4	Chemical Equilibrium	Ch. 13
5	Solution and Solubility	Ch. 11 and 3.2 precipitation
6	Acids and Bases	Ch. 14 Omit sections 14.8,14.9, & 14.11
7(Part 1)	Oxidation/Reduction	Ch. 3 (section 3.4)
7(Part 2)	Electrochemistry	Ch. 18 Omit section 18.5

Chem. 110 Lab Schedule, Thursday 10:30-1:20 in F356
(Subject to Change)

Week	Lab Date	Experiment
I	Sept 10th	Review (see Unit 1 above)
II	Sept 17th	Review (see Unit 1 above)
III	Sept 24nd	Orientation (Mandatory)
IV	Oct1st	Exp # 1, Energy Changes
V	Oct 8th	Exp # 2, Reaction rates

VI	Oct 15th	Exp # 3, Shifting Equilibria
VII	Oct 22th	**Test #1 (2.0hrs)**
VIII	Oct 29th	Exp # 4, Precipitation reactions
IX	Nov 5th	Exp # 6, Acid Base Titrations
X	Nov 12th	Exp # 7, Vitamin C and ASA
XI	Nov 19th	**Test #2 (2.0hrs)**
XII	Nov 26th	Exp # 11 Oxidation of Iron
XIII	Dec 3rd	Exp # 12 Electrochemistry
XIV	Dec 10th	Review for Final Exam

5. Basis of Student Assessment (Weighting)

Labs	20%*
Quizzes	10% (In class)**
Review Test	5% (Week III In class, 50min)*
Test I (Units 2 & 3)	15% (Week VII Lab Period, 2-hour)*
Test II (Units 4, 5, & 6)	15% (Week XI Lab Period, 2-hour)*
Final Exam (comprehensive)	35% (TBA ~Week XV, 3 hours in April)

Notes:

(1) Student must pass the lab portion of the course to obtain credit for Chem 110. All labs are to be attended and individual lab reports completed.
(2) Immediate contact must be made with instructor for missed labs due to illness or family emergencies for arrangements to be made.
(3) A test score that is not as high as that of the December final exam will be dropped automatically and its weight redistributed to the final exam. For example, if review and term test I are missed your final exam will then be 55% of the course grade!
(4) No one is allowed to write late and there will be no exceptions. Early exam is a privilege and not a right; thus, at full discretion of the instructor.

* To be confirmed during the first week of classes in September.
**Tentatively four quizzes scheduled. You will receive at least 1 week of notice before Quiz.

6. Grading System

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Standard Grading System (GPA)

Percentage	Grade	Description	Grade Point Equivalency
90-100	A+		9
85-89	A		8
80-84	A-		7
77-79	B+		6
73-76	B		5
70-72	B-		4
65-69	C+		3
60-64	C		2
50-59	D	Minimum level of achievement for which credit is granted; a course with a "D" grade cannot be used as a prerequisite.	1
0-49	F	Minimum level has not been achieved.	0

Temporary Grades

Temporary grades are assigned for specific circumstances and will convert to a final grade according to the grading scheme being used in the course. See Grading Policy E-1.5 at **camosun.ca** for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
I	*Incomplete*: A temporary grade assigned when the requirements of a course have not yet been completed due to hardship or extenuating circumstances, such as illness or death in the family.
IP	*In progress*: A temporary grade assigned for courses that, due to design may require a further enrollment in the same course. No more than two IP grades will be assigned for the same course. *(For these courses a final grade will be assigned to either the 3rd course attempt or at the point of course completion.)*
CW	*Compulsory Withdrawal:* A temporary grade assigned by a Dean when an instructor, after documenting the prescriptive strategies applied and consulting with peers, deems that a student is unsafe to self or others and must be removed from the lab, practicum, worksite, or field placement.

7. Important Dates

Week
III Sept. 22: Fee deadline
VI Oct. 12 (Thur): Thanksgiving
X Nov. 10 Last Day to Withdraw or Change to Audit…
X Nov. 11 (Wed): Remembrance Day—College Closed
XV Dec 14-19 & 21: Exam Period for Fall 2009

8. Recommended Materials or Services to Assist Students to Succeed Throughout the Course

LEARNING SUPPORT AND 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, at Student Services or the College web site at camosun.ca.

STUDENT CONDUCT POLICY

There is a Student Conduct Policy **which includes plagiarism**.
It is the student's responsibility to become familiar with the content of this policy. The policy is available in each School Administration Office, at Student Services and on the College web site in the Policy Section.

Prerequisite: Chem 11 (C grade minimum)