



**School of Arts & Science**  
**CHEMISTRY AND GEOSCIENCE DEPARTMENT**  
**CHEM 150B-01**  
**Engineering Chemistry 2**  
**2008Q3**

## COURSE OUTLINE

The Approved Course Description is available on the web @  
<http://humphreyb.disted.camosun.bc.ca/c150bofficial.pdf>

### 1. Instructor Information

(a)	Instructor:	Blair Humphrey		
(b)	Office Hours:	T,W 2:30-3:20, R 1:30-2:20		
(c)	Location:	Office Tech 232, Lecture Tech 173, lab Tech 230		
(d)	Phone:	370-4447	Alternative Phone:	
(e)	Email:	<a href="mailto:humphreb@camosun.bc.ca">humphreb@camosun.bc.ca</a>		
(f)	Website:	<a href="http://humphreyb.disted.camosun.bc.ca/">http://humphreyb.disted.camosun.bc.ca/</a>		

### 2. Intended Learning Outcomes

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

1. Calculate the properties of ideal gases.
2. Describe the differences between ideal and non-ideal gases.
3. Calculate physical properties of solutions.
4. Determine rate constants, order of reaction and activation energy for simple chemical reactions.
5. Determine concentrations of participating molecules in chemical equilibria, in particular, aqueous equilibria.
6. Determine the pH of dilute aqueous solutions of acids and bases.
7. Explain the importance of total energy, enthalpy, entropy and free energy in chemical processes.
8. Balance redox reactions. Determine the voltages of simple electrochemical cells. Describe the role of electrochemistry in corrosion and corrosion control.
9. Use orbital theory to describe the properties of metals and semiconductors.

### 3. Required Materials

**Text:** General Chemistry for Engineers, prelim. edn., James O. Glanville, Prentice Hall, 2001 (Recommended only, not required.)

**Lab. Manual:** On the web site; <http://humphreyb.disted.camosun.bc.ca/c150b.htm> and follow the links.

#### 4. Course Content and Schedule

		Lecture topic
Week 1		Vapour pressure, phase diagrams Liquids, mixtures, and solids
	Lab. 6	Distillation
Week 2	Quiz 1	Solutions
	Lab. 6	Solutions, Polymers
Week 3		Distillation
	Lab. 7	Polymers, Ceramics Composites, Concrete
Week 4	Quiz 2	Gravimetric determination of chloride Concrete
	Lab. 7	Metals, Semi-conductors Gravimetric determination of chloride
Week 5		Kinetics Kinetics
	Review	
Week 6	Midterm	Equilibria Equilibria
	Lab. 8	Bromination of acetone
Week 7		Aqueous equilibria Aqueous equilibria
	Lab. 8	Bromination of acetone
Week 8		Aqueous equilibria Thermodynamics
	Lab. 9	pK <sub>a</sub> of acetic acid
Week 9		Electrochemistry Electrochemistry
	Lab. 9	pK <sub>a</sub> of acetic acid
Week 10	Quiz 3	Electrochemistry, Corrosion
	Review	
Week 11	Quiz 4	Batteries Batteries
	Review	
June 16-20		Exam week

#### 5. Basis of Student Assessment (Weighting)

Laboratory (4)	10%
Quizzes (4)	20%
Midterm	20%
Final	50%
<b>Total</b>	<b>100%</b>

**6. Grading System**  
**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](http://camosun.ca) for information on conversion to final grades, and for additional information on student record and transcript notations.

Temporary Grade	Description
<b>I</b>	<i>Incomplete:</i> 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.
<b>IP</b>	<i>In progress:</i> 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 3 <sup>d</sup> course attempt or at the point of course completion.)
<b>CW</b>	<i>Compulsory Withdrawal:</i> 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. 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](http://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.