



School of Arts & Science
CHEMISTRY AND GEOSCIENCE DEPARTMENT
CHEM 160-001
Chemistry and Materials
2009Q2

COURSE OUTLINE

The Approved Course Description is available on the web @ _____

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:	Daniel Donnecke		
(b)	Office Hours:	Wednesday and Thursday 13:30 - 14:30 (Tec 232)		
(c)	Location:	Tec 232		
(d)	Phone:	370 4447	Alternative Phone:	
(e)	Email:	donnecked@camosun.bc.ca		
(f)	Website:			

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. Use the Lewis model of the atom in conjunction with the periodic table to predict the chemical and physical properties of elements, including chemical bonding and the formation of compounds.
2. Write balanced chemical equations for chemical reactions including reduction-oxidation reactions, and determine stoichiometric quantities of reactants in those reactions.
3. Determine properties of pure chemicals and of mixtures of chemicals based on solid, liquid and gaseous phases, and interpret solid and liquid phase diagrams for engineering materials.
4. Apply the principles of thermodynamics to determine rates of chemical reaction, chemical equilibrium, and energy changes in chemical transformations.
5. Apply the principles of electrochemistry to determine corrosion potential and inhibition, and electrolytic processes.
6. Apply the principles of organic chemistry to the structure and naming of organic compounds, in particular polymers, and identify properties associated with specific functional groups.

3. Required Materials

- (a) Texts: no specific text required, Course summary and lab manual online (D2L)
- (b) Other: Safety glasses, calculator

4. Course Content and Schedule

Lectures: Groups ABC: Monday, Tuesday, Wednesday, Thursday 2:30 – 3:20 pm, Tech 173

Laboratory: Group A: Friday, 12:30 - 14:20 in Tech 230 alternating weeks
Group C: Friday, 12:30 - 14:20 in Tech 230 alternating weeks
Group B: Friday, 14:30 - 16:20 in Tech 230 alternating weeks

Detailed outline

Week	Activity
1	Matter, atoms, molecules, Lewis structures Periodic Table, Ionic and covalent bonding Lab safety EVERYONE ATTENDS
2	Polar bonds, molecular shape, polar molecules Chemical reactions, mole, stoichiometry Group A <i>Lab 1</i> Stoichiometry
3	Quiz 1; Gases, liquids, solids Mixtures, solutions Group B and C <i>Lab 1</i> Stoichiometry
4	States of matter, phase changes Phase changes Group A <i>Lab 2</i> Distillation
5	Midterm Thermochemistry, thermodynamics, ΔH , ΔS , ΔG Group B and C <i>Lab 2</i> Distillation
6	Rates of reaction, equilibrium Aqueous equilibrium Group A <i>Lab 3</i> Heat of combustion
7	Oxidation/reduction, Electrochemistry Corrosion Reading Break College closed
8	Quiz 2; Metals Organic chemistry, nomenclature Group B and C <i>Lab 3</i> Heat of combustion
9	Organic chemistry, functional groups Organic chemistry, functional groups, reactions Group A <i>Lab 4</i> Aspirin
10	Quiz 3; Organic reactions; polymers Polymers Group B and C <i>Lab 4</i> Aspirin
11	Polymers, composites Composites, ceramics Review
	March 23-27: Final Examination Period

5. Basis of Student Assessment (Weighting)

(Should be linked directly to learning outcomes.)

Laboratory (4)	12%
Quizzes (3)	18%
Midterm	20%
Final	50%
Total	100%

6. Grading System

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

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	<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.
IP	<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 rd course attempt or at the point of course completion.)
CW	<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.

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.

[ADDITIONAL COMMENTS AS APPROPRIATE OR AS REQUIRED](#)