CHEM 160 Chemistry and Materials, 2004, Quarter 2

Instructor

Blair Humphrey
Office: CBA 146, Telephone: 370-4447, email: humphreb@camosun.bc.ca
Office hours: See timetable on office door or on web site, **http://ccins.camosun.bc.ca/~humphreb**

Text

Fine, Beall & Stuehr, 2000. **Chemistry for Scientists and Engineers**, Prelim. Edn., Saunders

Lab. Manual: On the web site; www.camosun.bc.ca/~humphreb/c160.htm and follow the links.

Timetable

Lectures: Monday 13:30-15:20, Tuesday 08:30-10:20
Laboratory: Friday, 12:30:14:30 Alternate weeks

Intended learning outcomes:

- 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.
- Write balanced chemical equations for chemical reactions including reduction-oxidation reactions, and determine stoichiometric quantities of reactants in those reactions.
- 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.
- Apply the principles of thermodynamics to determine rates of chemical reaction, chemical equilibrium, and energy changes in chemical transformations.
- Apply the principles of electrochemistry to determine corrosion potential and inhibition, and electrolytic processes.
- 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.

Lab. Manual: Provided on course web site (**http://ccins.camosun.bc.ca/~humphreb/c160.htm**).

Evaluation **Grading as in 2003/2004 Camosun College Calendar, p 38**

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

Detailed outline

Date	Day	Activity	Text chapter
1/5/2004	Monday 1:30	Matter, atoms, molecules, Lewis structures	
1/6/2004	Tuesday 8:30	Periodic Table, Ionic and covalent bonding	
1/9/2004	Friday 12:30	Lab safety **EVERYONE ATTENDS**	
1/12/2004	Monday 1:30	Polar bonds, molecular shape, polar molecules	
1/13/2004	Tuesday 8:30	Chemical reactions, mole, stoichiometry	
1/16/2004	Friday 12:30	Group 1 *Lab 1* Stoichiometry	
1/19/2004	Monday 1:30	**Quiz 1;** Gases, liquids, solids	
1/20/2004	Tuesday 8:30	Mixtures, solutions	
1/23/2004	Friday 12:30	Group 2 *Lab 1* Stoichiometry	
1/26/2004	Monday 1:30	States of matter, phase changes	
1/27/2004	Tuesday 8:30	Phase changes	
1/30/2004	Friday 12:30	Group 1 *Lab 2* Distillation **Full report required**	
2/2/2004	Monday 1:30	**Midterm**	
2/3/2004	Tuesday 8:30	Thermochemistry, thermodynamics, ΔH, ΔS, ΔG	
2/6/2004	Friday 12:30	Group 2 *Lab 2* Distillation **Full report required**	
2/9/2004	Monday 1:30	Rates of reaction, equilibrium	
2/10/2004	Tuesday 8:30	Aqueous equilibrium	
2/13/2004	Friday 12:30	Reading Break College closed	
2/16/2004	Monday 1:30	Oxidation/reduction, Electrochemistry	
2/17/2004	Tuesday 8:30	Corrosion	
2/20/2004	Friday 12:30	Group 1 *Lab 3* Heat of combustion	
2/23/2004	Monday 1:30	**Quiz 2**; Metals	
2/24/2004	Tuesday 8:30	Organic chemistry, nomenclature	
2/27/2004	Friday 12:30	Group 2 *Lab 3* Heat of combustion	
3/1/2004	Monday 1:30	Organic chemistry, functional groups	
3/2/2004	Tuesday 8:30	Organic chemistry, functional groups, reactions	
3/5/2004	Friday 12:30	Group 1 *Lab 4* Aspirin	
3/8/2004	Monday 1:30	**Quiz 3**; Organic reactions; polymers	
3/9/2004	Tuesday 8:30	Polymers	
3/12/2004	Friday 12:30	Group 2 *Lab 4* Aspirin	
3/15/2004	Monday 1:30	Polymers, composites	
3/16/2004	Tuesday 8:30	Composites, ceramics	
3/19/2004	Friday 12:30	Review	
3/22-26/2004		Exam Period	