Camosun College Chemistry 150B

Quarter 3 - April to June, 2004

Instructor: Blair Humphrey, CBA 146, Telephone 370-4447
e-mail: humphreb@camosun.bc.ca
web: http://www.camosun.bc.ca/~humphreb
Office hours: Wednesday 1030-1220

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

Lab. Manual: On the web site; www.camosun.bc.ca/~humphreb/c150ab.htm and follow the links.

Timetable
Lectures: Tuesday 15:30-16:20,Wednesday 14:30-16:20
Laboratory: Thursday, 14:30:17:20 Alternate weeks

Intended learning outcomes: the student will be able to:

1. Determine the properties of polymers, ceramics and other engineering materials based on bonding and molecular interactions.
2. Calculate physical properties of solutions.
3. Determine rate constants, order of reaction and activation energy for simple chemical reactions.
4. Determine concentrations of participating molecules in chemical equilibria, in particular, aqueous equilibria.
5. Determine the pH of dilute aqueous solutions of acids and bases.
6. Explain the importance of total energy, enthalpy, entropy and free energy in chemical processes.
7. Balance redox reactions. Determine the voltages of simple electrochemical cells. Describe the role of electrochemistry in corrosion and corrosion control.
8. Use orbital theory to describe the properties of metals and semiconductors.

Evaluation

Laboratory (4)	10%
Quizzes (4)	20%
Midterm	20%
Final	50%
Total	**100%**

Grading as in calendar

Course Outline

Date	Topic	Text chapter
April 6	Solids, structure and bonding	
April 7	Polymers	
April 8	Lab. 6: Distillation Group 1	
April 13	Polymers	
April 14	**Quiz 1;** Ceramics	
April 15	Lab. 6: Distillation Group 1	
April 20	Composites, concrete	
April 21	Solutions	
April 22	Lab. 6: Distillation Group 1	
April 27	Solutions	
April 28	**Quiz 2;** Kinetics	
April 29	Lab. 7: Gravimetric determination of chloride, Group 1	
May 4	Kinetics	
May 5	Kinetics	
May 6	Review	
May 11	Equilibria	
May 12	**Midterm**	
May 13	Lab. 7: Gravimetric determination of chloride, Group 2	
May 18	Equilibria	
May 19	Aqueous equilibria	
May 20	Lab. 8: Bromination of acetone, Group 1	
May 25	Aqueous equilibria	
May 26	Aqueous equilibria	
May 27	Lab. 8: Bromination of acetone, Group 2	
June 1	**Quiz 3;** Thermodynamics	
June 2	Thermodynamics, Electrochemistry	
June 3	Lab. 9: pK_a of acetic acid, Group 1	
June 8	Electrochemistry	
June 9	**Quiz 4;** Electrochemistry	
June 10	Lab. 9: pK_a of acetic acid, Group 2	
June 15	Metals	
June 16	Semi-conductors	
June 17	Review	
June 21-25	Exam period	