Camosun College Chemistry 150B
Quarter 3 - April to June, 2005

Instructor: Blair Humphrey,

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Office hours:	Tuesday, 1430-1520; Wednesday, Thursday, 1330-1420

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

Lab. Manual: On the web site; 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 **Grading as in calendar**

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

Course Outline

Date		Lecture topic
April 5		Solutions
April 6		Solutions
April 7		**Lab. 6**: Distillation Group 1
April 12		Polymers
April 13	**Quiz 1;**	Polymers, Ceramics
April 14		**Lab. 6**: Distillation Group 2
April 19		Composites, Concrete
April 20		Concrete
April 21		**Lab. 7**: Gravimetric determination of chloride, Group 1
April 26		Metals, Kinetics
April 27	**Quiz 2;**	Kinetics
April 28		**Lab. 7**: Gravimetric determination of chloride, Group 2
May 3		Kinetics
May 4		Review
May 5		Kinetics
May 10		Equilibria
May 11	**Midterm;**	(1½ hours)
May 12		**Lab. 8:** Bromination of acetone, Group 1
May 17		Equilibria
May 18		Aqueous equilibria
May 19		**Lab. 8**: Bromination of acetone, Group 2
May 24		Aqueous equilibria
May 25		Aqueous equilibria
May 26		**Lab. 9**: pK_a of acetic acid, Group 1
May 31		Thermodynamics
June 1	**Quiz 3;**	Thermodynamics, Electrochemistry
June 2		**Lab. 9**: pK_a of acetic acid, Group 2
June 7		Electrochemistry
June 8	**Quiz 4;**	Electrochemistry, corrosion
June 9		Review
June 14		Batteries, Semi-conductors
June 15		Review
June 16		Review
June 20-24		Exam week