



CHEMISTRY 1210 (S10), SPRING 2010

INSTRUCTOR INFORMATION

Instructor: Dr. Roshan Cader
Office : A3670, Phone: 599-2657, Voice-Mail: 9162
E-Mail: *Roshan.Cader@kwantlen.ca*

Office Hours: Tuesday: 01:00 - 02:00 pm, Thursday: 03:00 - 04:00 pm
[Monday/ Wednesday: 8:00 - 09:00 pm (Richmond Campus)]

GENERAL COURSE INFORMATION

Credits: 4, transferable directly to UBC, SFU, Uvic and UNBC

Class Times: Tuesday: 02:00 - 03:50 pm (Room D336)
Thursday: 12:00 - 01:50 pm (Room D336)

Prerequisites: Chemistry 1110, and Math 1112 (or higher level) or Mathematics 12 (C or better grade)

Instruction Format: Two lectures per week (two hours each) and one lab per week (three hours)

Required Material: **Textbook:** "CHEMISTRY", M. Silberberg, McGraw Hill, 5th Ed., (2009); Chemistry 1210 Lab Manual, one Laboratory Notebook, a Lab Coat, Safety Glasses, Goggles or Side Shields (to be worn with regular glasses); Contact Lenses can not be worn in the laboratory. *All chemistry courses will require the **Sharp EL-531W calculator**, and its available from the Kwantlen Bookstore. This and the **Aurex SC-6136 calculator** (which was used in the past) are the only two calculators allowed.*

Supplementary Material: The Chemistry Department Web Pages contain **Lab Hand-in Sheets (select Surrey Campus Section!)**; *Supplemental Course Material; Problem Sets with Answers* and copies of past midterm and final exams. This material can be accessed at: www.kwantlen.ca/science/chemistry or directly at my home page: www.kwantlen.ca/science/chemistry/faculty/rcader/

Optional: *STUDY GUIDE & SOLUTIONS MANUAL* for "CHEMISTRY", M. Silberberg

EVALUATION

<u>Lecture (70%)</u>		<u>Laboratory (30%)</u>	
Two Exams	40	Pre-lab Assignments	2
Final Exam	30	Lab Reports/Unknowns	20
		Lab Exam	8

Attendance:

Students are expected to attend all lectures, tutorials and laboratory sessions. If you miss a lab for a legitimate reason (e.g. illness), please consult your lab instructor about a possible make-up lab. Make-up tests will not be available; if you miss a test for a legitimate reason, the value of the final exam will be increased accordingly. The Final Examination date is set for April 26, 2010. Do not make any travel plans during this period because you will not be allowed to take any Chemistry Finals earlier than scheduled.

IMPORTANT DATES

Jan. 10 (Sunday)	Last day to add a course or to drop a course without a "W" appearing on your transcript
Feb. 11 (Thursday)	Exam #1
Feb. 15-27	Reading Break
March 13 (Saturday)	Last day to drop a course ("W" will appear on your transcript)
April 08 (Thursday)	Exam #2
April 19 (Monday)	Last day of scheduled classes (<i>note: Thursday April 15th last class for Chem. 1210/ S10</i>)
April 26 (Monday)	Final Examination Day (Room: D 334, Time: 11:30 -02:30 pm)

GRADE GUIDELINES

What follows are the guidelines used to determine your final grade in Chemistry 1210. Satisfactory completion of the laboratory portion of the course (i.e. an overall lab mark of 60% or better) is required to obtain a C or better grade.

Grade	Percent	Requirements
A+	90 - 100	Minimum of 80% on final exam
A	85 - 89	Minimum of 70% on final exam
A-	80 - 84	Minimum of 65% on final exam
B+	76 - 79	Minimum of 60% on final exam
B	72 - 75	Minimum of 60% on final exam
B-	68 - 71	Minimum of 55% on final exam
C+	64 - 67	Minimum of 50% on final exam
C	60 - 63	Minimum of 40% on final exam
C-	56 - 59	Minimum of 40% on final exam
D	50 - 55	Some work can be incomplete
F	<50	

TENTATIVE SCHEDULE AND OUTLINE OF COURSE TOPICS

[Textbook: "CHEMISTRY", M. Silberberg, McGraw Hill, 5th Ed., (2009)]

Chapter 17	Equilibrium - Le Chatelier's Principle, aqueous and gaseous systems, determination of K_c and K_p (2 lectures)
Problems	Supplemental Problem Set: "Problem Set #5 Gas equilibrium"
Chapter 4.5 – 21.1	Redox Reactions - oxidation numbers, redox systems, normality, and equivalent weights (1 lecture)
Problems	Supplemental Problem Set: "Problem Set #1 Oxidation-reduction Reactions and stoichiometry"
Chapter 21	Electrochemistry – electrolytic and galvanic cells, electrode potentials, concentration dependence of EMF (Nernst equation), concentration cells, pH meters and fuel cells, corrosion (2 - 3 lecture)
Problems	Supplemental Problem Set: "Problem Set #2 Electrochemistry"
Chapter 16	Kinetics – measurement of rate, order, differential and integrated rate equations of zero, first, and simple second order reactions, half-life, temperature dependence, energy of activation, reaction mechanisms, steady state approximation (2 - 3 lectures)
Problems	Supplemental Problem Sets: "Problem Set #3 Chemical Kinetics" and "Problem Set #4 Chemical Kinetics (Continued)"
Chapter 18	Acids and bases – Arrhenius, Bronsted-Lowry, and Lewis acids and bases, strong and weak acids and bases, conjugate pairs (2 lectures)
Chapters 18 & 19.1-19.2	Acid-Base Equilibria -, titration curves, buffers, indicators and salt hydrolysis, titration of strong and weak acids and bases, polyprotic acids (1 - 2 lectures)
Problems	Supplemental Problem Set: "Problem Set #6 Acid-base equilibria"
Chapter 19.3-19.4	Solubility Equilibria - ionic equilibria, solubility of ionic compounds and K_{sp} , common ion effect (2 lectures)
Problems	Supplemental Problem Set: "Problem Set #7 Solubility and complex-ion equilibria"
Chapter 9.4	Chemical Bonding - bond enthalpies (1 lecture)
Chapters 6 and 20	Thermodynamics – Work and heat, state functions, laws of thermodynamics, enthalpy, entropy, internal energy and free energy, spontaneity of reactions, equilibrium constant and free energy, temperature dependence of K (2 lectures)
Problems	Supplemental Problem Set: "Problem Set #8 Thermodynamics"

Chapter 12 Intermolecular forces; properties of liquids; vapor pressure; Clausius-Clapeyron equation; boiling, melting, triple and critical points; heating and cooling curves; phase diagrams of a one-component system; types and properties of crystals; lattice energy; Born-Haber cycle; X-ray diffraction; unit cells and crystal systems; closest packing of spheres; radius ratios of ions. (*1 - 2 lectures*)
Problems: *Supplemental Problem Set:* "Problem Set #9 Liquids, solids and solution"

Chapter 13 Solutions - The solution process; concentration units; Raoult's Law and ideal solutions; non-ideal solutions; distillation; Henry's Law; colligative properties of non-electrolyte and electrolyte solutions: vapor pressure lowering; freezing point depression; boiling point elevation and osmotic pressure.
(*2 lectures*)
Problems: *Supplemental Problem Set:* "Problem Set #9 Liquids, solids and solution"

Kwantlen Poly.University Policy on Plagiarism and Cheating (Policy C.8)

Introduction

1. Definitions

Cheating, which includes plagiarism, occurs where a student or group of students uses or attempts to use, unauthorized aids, assistance, materials or methods. Cheating is a serious educational offense.

Plagiarism occurs where a student represents the work or ideas of another person as his or her own.

Policy

Kwantlen University College condemns all forms of cheating. If it is determined that a student has cheated, the University College will proceed with discipline in the following manner:

1. For most first offences, a grade of zero will be awarded for the affected assignment, test, paper, analysis, etc.;
2. For most second offences, a failing grade will be assigned in the affected course;
3. Depending upon the circumstances surrounding a first or second offense, a more severe level of discipline may be imposed by the University College;
4. Where deemed appropriate in the circumstances, for any third offence, the matter must be referred to the University College Vice President Learner Support under Policy No. C.21 Student Conduct for the assignment of discipline, which may include suspension or expulsion from the University College.
5. Any student who contributes to an act of academic dishonesty by another student may face disciplinary action. This policy must be communicated in all Course Presentations.

Procedural Guidelines

1. When an instructor or invigilator believes that a student has cheated (which includes intent to cheat), the student will be asked for an explanation of the events that led the instructor or invigilator to make the allegation. If after hearing the explanation, the instructor or invigilator still believes that the student has cheated, the instructor or invigilator will gather all available evidence and inform the Dean in writing. Documentation should include, but is not limited or restricted to, a clear description of the offence (the date when the incident occurred or was detected, the course number and section, the student's name and number); evidence (cheat notes, plagiarized samples, photocopies of, or actual, unpermitted aids or materials, etc.) as applicable; and names and phone numbers of witnesses, if applicable. It should be sent to the Dean within 10 days of the incident or discovery, unless there are problems contacting the student. The instructor or invigilator will inform the student of her/his decision regarding the assignment of a grade to the affected work and that the documentation will be forwarded to the appropriate Dean.
2. The Dean, upon (and only upon) receipt of the written information from the instructor or invigilator, will assign any additional disciplinary action which may be in order under the policy described above, and will inform the Registrar.
3. The Registrar will maintain a record of each offence in the student's file.
4. The affected student has the right at any time to consult with a University College counsellor and/or the student ombudsperson.
5. Except in circumstances where the matter has been referred to the President under Policy No. C.21 Student Conduct, a student may appeal a decision or penalty under this policy to the Kwantlen University Appeals Committee (L.6 Appeals of Academic Decisions).