Chemistry 1110 R11, Spring 2008

Instructor Information

Instructor: Dr. Patrick Duffy
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Office Hours: Tuesdays 1:00 – 2:00 (Surrey, D348) and Fridays, 11:00 – 12:00 (Richmond Learning Centre)

General Course Information

Credits: 4, transferable directly to SFU, or to UBC and UVic (with 1210)

Prerequisites: Chemistry 1105 (C or better grade) or Chemistry 12 (C+ or better grade). Either Math 11 (C or better grade) or Math 0093 (C or better grade) are also required. Math 1112, if not already taken, must be taken as a corequisite.

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

Required Material: Chemistry (The Molecular Nature of Matter and Change), 4th Edition (Silberberg) -- textbook
Chemistry 1110 lab manual, a lab coat, and one laboratory notebook
Contact lenses may not be worn in the laboratory. Glasses are therefore required for people who normally wear contact lenses.

Optional: Student Study Guide and Solutions Manual for Silberberg
Organic Chemistry – A First Course (Perkins)

Evaluation

Lecture		Laboratory	
Three Exams	40	**Lab Reports/Unknowns**	22
Final Exam	30	**Lab Exam**	8

Any in-class exam not written by the student will be assigned a grade of zero unless the student can produce a medical note or other relevant documentation supporting the necessity of their absence. **Doctors' notes *must* indicate that the student was too sick to write the exam.** If such documentation is produced, the weights of the other exams will be increased so that the student will not be penalized for missing the exam. If the student is unable to write an exam, he or she must notify the instructor *before the scheduled exam time.* Labs missed without a valid excuse will result in an incomplete grade being assigned to the laboratory portion of the course. **More than three labs missed for *any reason* will result in an incomplete grade being assigned to the laboratory portion of the course.**

Important Dates

January 13 (Sunday)	Last day to add a course or to drop a course without a "W" appearing on your transcript
January 30 (Wednesday)	Exam #1
February 27 (Wednesday)	Exam #2
March 1 (Saturday)	Last day to drop a course ("W" will appear on your transcript)
March 26 (Wednesday)	Exam #3
April 14 (Monday)	Last day of scheduled classes
April 24 (Thursday)	Final Exam, 3:00 – 6:00 P.M. in room 2550

Grade Guidelines

What follows are the guidelines used to determine your final grade in Chemistry 1110. Please note the restrictions placed on your grade by both the lab component of the course and your performance on the final exam.

To get a(n):	Your overall mark (including the final and lab) must be:	And within that, you must get at least the following on the final:	And in the Lab:
A+	90 – 100	80%	All work must be complete, and
A	85 – 89	70%	you must have an overall
A-	80 – 84	65%	lab mark of at least 65%
B+	76 – 79	60%	All work must be complete, and
B	72 – 75	60%	you must have an overall
B-	68 – 71	55%	lab mark of at least 60%
C+	64 – 67	50%	All work must be complete, and
C	60 – 63	40%	you must have an overall lab mark of at least 50%
C-	56 – 59	40%	N/A
D	50 – 55	N/A	N/A
F	<50	N/A	N/A

Tentative Schedule and Outline of Course Topics

Chapters 1 – 4 (omit 4.5, 4.7)
Introduction and Review of Stoichiometry - measurements, significant figures, scientific notation, classification and nomenclature, chemical formulae, balancing equations, stoichiometric calculations including solutions, empirical formula and molecular formula (*3 lectures*)

Questions:
Chapter 1: All "blue" problems
Chapter 2: All "blue" problems except 108
Chapter 3: All "blue" problems
Chapter 4: "blue" problems from 12 – 49, 93 – 100, 106 – 121, 128 – 132

Chapter 5 (omit 5.7)
Gases - properties of gases, empirical gas laws (Boyle's and Charles'), ideal gas law, STP conditions, Dalton's law of partial pressures, calculations using gas laws, gas stoichiometry, kinetic theory of gases, molecular velocities, Graham's law of effusion, diffusion (*1lecture*)

Questions:
All "blue" problems from 48 onward, except 63, 66, 67, 69, 75, 77, 83, 117, 126, 130

Chapter 15 (omit 15.5, 15.6)	Organic Chemistry - IUPAC nomenclature, saturated, unsaturated, and aromatic hydrocarbons, alcohols, ethers, carbonyl compounds, amines, cyclic compounds, degree of unsaturation, properties and reactions, structural isomerism, geometric isomerism, functional and optical isomerism (*8 lectures*)
Questions:	"blue" problems from 14 – 34, 60 – 64, 70, 104, 122
Chapters 7 and 8	Atomic Structure and Electronic Structure of Atoms - experimental basis for modern concepts of the atom, spectra and electromagnetic radiation, Bohr model of the atom and emission spectrum of atomic hydrogen and hydrogen-like species, quantum theory, dual nature of matter, wave mechanical model, Heisenberg uncertainty principle, photoelectric effect, orbitals and quantum numbers, electronic configurations, periodic properties (*4 lectures*)
Questions:	Chapter 7: "blue" problems to 90, then 97, 100 Chapter 8: All "blue" problems
Chapters 9, 10, and 11	Properties of Atoms, Ionic and Covalent Bonds, Molecular Geometry and Molecular Orbitals - atomic and ionic sizes, ionization energies, electron affinities, ionic and covalent bonding, Lewis structures, resonance, electronegativities, VSEPR theory and molecular geometry, Valence Bond theory, hybridization on central atom in polyatomic species, molecular orbital theory applied to diatomic molecules, bond order and magnetic properties (*6 lectures*)
Questions:	Chapter 9: "blue" problems from 1 – 24, 34 – 67, 79, 83, 91 Chapter 10: "blue" problems from 1 – 59, 64 – 72, 79, 86, 88, 93, 98 Chapter 11: all "blue" problems
Chapters 12.3, and 13.1	Intermolecular Forces and Liquids - intermolecular forces (H-bonding, dipole-dipole, and London forces), types of solids (*2 lectures*)
Questions:	Chapter 12 : "blue" problems: 1, 5, 7, 9, 32, 34 – 43, 47 – 53, 69, 134 Chapter 13 : "blue" problems: 9, 11, 13
Chapter 24 (omit 24.2)	Nuclear Chemistry – naturally occurring modes of radioactive decay, equations for nuclear reactions (*2 lectures*)
Questions:	"blue problems: from 1 – 28, 50 – 58, 73 – 81, 95, 128, 140, 141

PLAGIARISM AND CHEATING POLICY

Introduction

1. **DEFINITIONS**

   Cheating, which includes plagiarism, occurs when 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 when 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 offenses, 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 President under Policy No. C21 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 invigilator, instructor, or Dean's designate, after obtaining the student's explanation, determines that a student has cheated, he or she will immediately gather the available evidence, assign a grade of zero to the affected assignment, test, paper, etc., and report the incident, with documentation, to the Dean under whose jurisdiction the course falls.

2. The Dean 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 offense 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 College Appeals Committee (C.5 Appeals of Academic or Admissions Decisions).