Chemistry 1105, Spring 2005

Instructor Information

Instructor: Dr. Paul Kaushal
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Office Hours: Mondays and Wednesdays 12 – 1, Thursdays 4-5 pm

General Course Information

Credits: 5, transferable directly to SFU and UBC (See course calendar for details)

Prerequisites: Chemistry 0094 (C or better grade) or Chemistry 11 (C+ or better grade) or Chemistry 12 (C or lower grade). Either Math 11 (C or better grade) or Math 0093 (C or better grade) are also required.

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

Required Material: General Chemistry: Principles and Modern Applications 8th Edition (Petrucci, Harwood, and Herring) – textbook
Chemistry 1105 lab manual, one laboratory notebook, and lab coat
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 Petrucci

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. 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.

Important Dates

Feb. 04	Exam #1
Feb. 17 and 18	Reading Break
Feb. 26	Last day to drop a course. "W" grade on your record
Mar. 11	Exam #2
Apr. 04	Exam #3
Apr. 20	Final exam

Grade Guidelines

What follows are the guidelines used to determine your final grade in Chemistry 1105. 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

Chapter 1:	Matter – It's Properties and Measurement: pure substances, mixtures, physical and chemical properties, metric system, unit conversions, density and significant figures (*1 – 2 lectures*)
Problems:	Review questions, then 25 – 93
Chapter 2.1 – 2.6:	Atoms and the Atomic Theory: atomic theory, isotopes, atomic mass, Periodic Table (*1 lecture*)
Problems:	2, 4 – 23, 29 – 60, 71 - 74, 76, 77, 79, 81, 82, 83, 90
Chapters 3.1, 3.4 - 3.6, 4.1, 5.1 – 5.6:	Chemical Compounds – nomenclature, writing and balancing reactions, types of reactions, ions in solution, net ionic equations, oxidation numbers, balancing redox equations (3 *lectures*)
Problems:	Chapter 3: 1, 3, 20 – 26, 67 – 78 Chapter 4: 1 – 7, 25 – 32, 81, 82 Chapter 5: 3 – 5, 12 – 16, 20 – 25, 27 – 30, 37 – 58, 77, 78, 85 – 88
Chapters 2.7, 2.8, 3.2, 3.3, 4.2 – 4.5, 5.7	Calculations with Chemical Formulae and Equations - mole concept, percentage composition, limiting reagents, percentage yields, percentage purity, combustion analysis, gravimetric and volumetric analysis (*3 lectures*)
Problems:	Chapter 2: 24 – 28, 63 – 70, 75, 80, 86 – 89, 92, 93 Chapter 3: 4 – 19, 33 – 66, 79 – 84, 91, 92, 95 – 107, 109, 110 Chapter 4: 8 – 24, 33 – 80, 83 – 108 Chapter 5: 6 – 11, 17 – 19, 26, 31 – 36, 59 – 68, 70 – 76, 79 – 83, 89 – 98
Chapter 6.1 – 6.6:	The Gaseous State - gas laws (Boyle's, Charles', combined, Ideal, Dalton's), gas stoichiometry (*2 lectures*)
Problems:	1 – 21, 25 – 28, 31 – 74, 97 – 100, 103
Chapter 7.2, 7.3, 7.6 – 7.8:	Thermochemistry - exothermic and endothermic reactions, enthalpy changes, enthalpies of formation, Hess' Law, specific heat, calorimetry (*3 lectures*)
Problems:	4 – 9, 11 – 13, 15 – 50, 71, 72, 75, 76, 78 – 89, 93, 96 – 100, 102, 103, 107
Chapter 16:	Chemical Equilibrium: Gaseous Reactions - equilibrium constants and concentrations, Le Chatelier's Principle (*3 lectures*)
Problems:	2, 4, 6 – 12, 15a - 17a, 18 – 25, 31 – 33, 35, 36, 38 – 49, 51, 52, 59 – 69, 75, 77, 82, 85 – 88
Chapter 17.1 – 17.5, 17.7	Acid/Base Concepts - theories of acids and bases, conjugate pairs, relative acidities, pH scale (*1 - 2 lectures*)
Problems:	2, 4 – 13, 16, 18, 24 – 31, 33 – 50, 52, 55 – 60, 67 – 74, 86, 87, 92

Chapter 18.1 – 18.4	Acid/Base Equilibria - weak acids and bases, K_a and K_b calculations, buffer solutions, titrations, end points and equivalence points (*3 - 4 lectures*)
Problems:	1, 2, 4 – 12, 15 – 21, 23 – 25, 27, 30, 32, 37, 42, 43, 45, 52 – 55, 59, 61, 62, 72, 75
Chapter 14.1, 14.2, 14.7 – 14.9	Solutions – electrolyte and non-electrolyte solutions, molality, colligative properties (*1 - 2 lectures*)
Problems:	4, 6 – 9, 19, 20, 23, 24, 39 – 42, 71 – 77, 79, 88, 91

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).