
GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE AND TECHNOLOGY

1999/2000

CHEMISTRY 1010: Introductory University Chemistry I

PREREQUISITE: Chemistry 30 or equivalent

INSTRUCTORS: A2 Barry Ramaswamy Office J218 539-2072
B2 Les Rawluk Office J214 539-2738
C2 Les Rawluk Office J214 539-2738

TEXT BOOK: *CHEMISTRY*
Raymond Chang
WCB/McGraw-Hill ©1998

LABORATORY: Chemistry 101 Experiments, University of Alberta, 1999/2000
Lab coats and safety glasses are compulsory, and are available at the Bookstore.
A Laboratory Breakage Deposit of \$30 per Chemistry course must be paid to the Cashier (Room C315), and the receipt must be shown to the Laboratory Technician (Mrs. Omana Pillay) during the first Laboratory class.

SEMINAR: Seminars consist of problem solving, discussion of lecture materials, and a brief introduction to the upcoming Laboratory experiment.

COURSE EVALUATION

October Midterm	20%
November Midterm	20%
Final Exam	38%
Assignments	2%
Laboratory Reports	10%
Laboratory Exam	10%

Assignments will be distributed on a weekly basis. Completion of assignments is essential to succeed in the course.

Attendance to all lectures and seminars is strongly recommended. Laboratory attendance to each specific experiment is compulsory; a passing grade in the laboratory component is required to pass the course. A doctor's medical note is required for all excused absences!

Students are required to maintain an overall average of 50% or better to pass the course.

CH1010 COURSE CONTENT

A: Matter and Stoichiometry	Chapters 1, 2, 3, 4	Pages 2–153
A.1	Units, uncertainty, significant figures, dimensional analysis	
A.2	Naming simple compounds	
A.3	The mole	
A.4	Empirical and molecular formula of a compound	
A.5	Calculations involving a limiting reagent	
A.6	Aqueous solutions and molarity	
A.7	Precipitation reactions	
B: Gases	Chapter 5	Pages 154–201
B.1	Gas laws of Boyle, Charles, and Avogadro	
B.2	Ideal gas law	
B.3	Gas stoichiometry	
B.4	Partial pressures	
B.5	Kinetic molecular theory	
B.6	Diffusion and Effusion	
B.7	Real gases	
C: Chemical Equilibrium	Chapter 14	Pages 558–595
C.1	Equilibrium condition	
C.2	Mass-action expression and the equilibrium constant	
C.3	Heterogeneous equilibria	
C.4	Applications of the equilibrium constant	
C.5	Le Châtelier's Principle	
D: Acids and Bases	Chapters 15 and 16	Pages 596–691
D.1	The nature of acids and bases	
D.2	Acid strength and the pH scale	
D.3	Calculating the pH of strong/weak acids	
D.4	Bases	
D.5	Salts	
D.6	Mixtures of weak acids and bases	
D.7	Common ion effect	
D.8	Buffer systems	
D.9	Acid/base titrations	
D.10	Slightly soluble salts	
D.11	Complex ion equilibria	
E: Atomic Structure	Chapters 7 and 8	Pages 242–327
E.1	Electromagnetic radiation	
E.2	Atomic spectra and the Bohr model	
E.3	Quantum mechanics and the atom	
E.4	Orbital shapes and energies	
E.5	Many-electron atoms	
E.6	Building of the periodic table	
E.7	Trends in atomic properties	
<i>Optional</i>		
F: Chemistry of the Main Group Elements	Chapters 20 and 21	Pages 816–869
F.1	Alkali metals	
F.2	Alkaline earths	
F.3	Halogens	
F.4	Noble gases	
F.5	Other main group elements	