
GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE AND TECHNOLOGY
1998/99

CHEMISTRY 1020: Introductory University Chemistry II

PREREQUISITE: CH1010 or equivalent

INSTRUCTOR: Les Rawluk Office J214 Phone 539-2738

TEXT BOOK: *CHEMISTRY 6th Edition*
Raymond Chang
WCB/McGraw-Hill ©1998

LABORATORY: Chemistry 102 Experiments, University of Alberta, 1998/99
Lab coats and safety glasses are compulsory, and are available at the Bookstore.

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

COURSE EVALUATION

February Midterm	February 4, 1999	6:30 pm - 8:00 pm	20%
March Midterm	March 18, 1999	6:30 pm - 8:00 pm	20%
April Exam			38%
Assignments			2%
Laboratory Reports			10%
Laboratory Exam	March 25, 1999	6:30 pm - 8:00 pm	10%

Assignments will be distributed on a weekly basis. Completion of assignments is essential to successfully understanding 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.

CH1020 COURSE CONTENT

A: Atomic Structure A.1 Electromagnetic radiation A.2 Atomic spectra and the Bohr model A.3 Quantum mechanics and the atom A.4 Orbital shapes and energies A.5 Many-electron atoms A.6 Building of the periodic table A.7 Trends in atomic properties	Chapters 7 and 8 Pages 242-327
B: Chemical Bonding B.1 Types of chemical bonds B.2 Ionic bonding B.3 Lattice energy B.4 Covalent bonding B.5 Electronegativity and bond polarity B.6 Lewis structures; octet rule, resonance, formal charge, exceptions B.7 VSEPR theory and molecular shape B.8 Hybridization B.9 Molecular orbital theory	Chapters 9 and 10 Pages 328-408
C: Intermolecular Forces C.1 Physical states and phase changes C.2 Types of intermolecular forces C.3 Properties of liquids and solids	Chapter 11 Pages 416-456
D: Thermochemistry D.1 Types of energy; work and heat D.2 Enthalpy—endothermic and exothermic processes D.3 Calorimetry D.4 Standard enthalpy of formation	Chapter 6 Pages 202-239
E: Thermodynamics E.1 Entropy and the Second Law E.2 Entropy of the system and the surroundings E.3 Free energy E.4 Free energy and equilibrium	Chapter 18 Pages 724-755
F: Electrochemistry F.1 Redox reactions and standard electrode potentials F.2 Galvanic cells and spontaneous redox reactions F.3 Cell potential, electrical Work, and free energy F.4 Dependence on concentration—the Nernst equation F.5 Electrolytic cells	Chapter 19 Pages 756-801
G: Chemical Kinetics G.1 Reaction rates G.2 Introduction to rate laws G.3 Determining rate law form G.4 Integrated rate law G.5 Arrhenius equation G.6 Reaction mechanisms G.7 Catalysis	Chapter 13 Pages 508-555
H: Transition Elements and Coordination Compounds H.1 Properties of the transition metals H.2 Coordination compounds H.3 Structure of coordination compounds H.4 Crystal field theory	Chapter 22 Pages 870-897