GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE AND TECHNOLOGY
2000/2001

CHEMISTRY 1020: Introductory University Chemistry II

PREREQUISITE: CH1010 or equivalent

INSTRUCTORS: Barry Ramaswamy Office J218 Phone 539-2072
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.
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 weekly problem sets, and a brief introduction to the upcoming Laboratory experiment.

COURSE EVALUATION

February Midterm	February 13 and 14, 2001	20%
March Midterm	March 28 and 29, 2001	20%
April Exam		38%
Assignments		2%
Laboratory Reports		10%
Laboratory Exam		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: Thermochemistry	Chapter 6	Pages 202–239
A.1 Types of energy; work and heat		
A.2 Enthalpy–endothermic and exothermic processes		
A.3 Calorimetry		
A.4 Standard enthalpy of formation		
B: Thermodynamics	Chapter 18	Pages 724–755
B.1 Entropy and the Second Law		
B.2 Entropy of the system and the surroundings		
B.3 Free energy		
B.4 Free energy and equilibrium		
C: Electrochemistry	Chapter 19	Pages 756–801
C.1 Redox reactions and standard electrode potentials		
C.2 Galvanic cells and spontaneous redox reactions		
C.3 Cell potential, electrical Work, and free energy		
C.4 Dependence on concentration-the Nernst equation		
C.5 Electrolytic cells		
D: Chemical Kinetics	Chapter 13	Pages 506–555
D.1 Reaction rates		
D.2 Introduction to rate laws		
D.3 Determining rate law form		
D.4 Integrated rate law		
D.5 Arrhenius equation		
D.6 Reaction mechanisms		
D.7 Catalysis		
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		
F: Chemical Bonding	Chapters 9 and 10	Pages 328–408
F.1 Types of chemical bonds		
F.2 Ionic bonding		
F.3 Lattice energy		
F.4 Covalent bonding		
F.5 Electronegativity and bond polarity		
F.6 Lewis structures; octet rule, resonance, formal charge, exceptions		
F.7 VSEPR theory and molecular shape		
F.8 Hybridization		
F.9 Molecular orbital theory		
G: Intermolecular Forces	Chapter 11	Pages 416–456
G.1 Physical states and phase changes		
G.2 Types of intermolecular forces		
G.3 Properties of liquids and solids		
H: Transition Elements and Coordination Compounds	Chapter 22	Pages 870–897
H.1 Properties of the transition metals		
H.2 Coordination compounds		
H.3 Structure of coordination compounds		
H.4 Crystal field theory		