GRANDE PRAIRIE REGIONAL COLLEGE
DEPARTMENT OF SCIENCE AND TECHNOLOGY
1996/97

CHEMISTRY 1010: Introductory University Chemistry I
Section A3

PREREQUISITE: Chemistry 30 or equivalent

INSTRUCTOR: Barry Ramaswamy Office J218 539-2072

LECTURES: Monday, Wednesday, and Friday 14:00–14:50

TEXT BOOK: *CHEMISTRY* The Molecular Nature of Matter and Change
Martin Silberberg
Mosby, Toronto ©1996

LABORATORY: Chemistry 101/102 Experiments, University of Alberta, 1996/97
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, quizzes, and a brief introduction to the upcoming Laboratory experiment.

COURSE EVALUATION

October Midterm	February 12, 1997	15.0%
November Midterm	March 26, 1997	15.0%
December Exam		39.0%
Assignments and Quizzes		11.0%
Laboratory		20.0%
Total		100.0%

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.

CH1010 COURSE CONTENT

A: Matter and Stoichiometry — Chapters 1, 2, 3, 4 — Pages 1–171

- A.1 Units, uncertainty, significant figures, dimensional analysis
- A.2 Periodic table
- A.3 Naming simple compounds
- A.4 The mole
- A.5 Determining the formula of a compound
- A.6 Calculations involving a limiting reagent
- A.7 Aqueous solutions and molarity
- A.8 Precipitation reactions
- A.9 Oxidation-Reduction reactions

B: Gases — Chapter 5 — Pages 172–219

- 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 Real gases

C: Thermochemistry — Chapter 6 — Pages 220–254

- C.1 Types of energy: work and heat
- C.2 Enthalpy–endothermic and exothermic processes
- C.3 Calorimetry
- C.4 Hess's law
- C.5 Standard enthalpy of formation

D: Chemical Equilibrium — Chapter 16 — Pages 694–735

- D.1 Equilibrium condition
- D.2 Mass-action expression and the equilibrium constant
- D.3 Heterogeneous equilibria
- D.4 Applications of the equilibrium constant
- D.5 Le Châtelier's Principle

E: Acids and Bases — Chapter 17 — Pages 736–783

- E.1 The nature of acids and bases
- E.2 Acid strength and the pH scale
- E.3 Calculating the pH of strong/weak acids
- E.4 Bases
- E.5 Salts
- E.6 Mixtures of weak acids and bases

F: Ionic Equilibria — Chapter 18 — Pages 784–836

- F.1 Common ion effect
- F.2 Buffer systems
- F.3 Acid/base titrations
- F.4 Slightly soluble salts
- F.5 Complex ion equilibria