

CHEMISTRY 0130

GRANDE PRAIRIE REGIONAL COLLEGE

Course Outline

INSTRUCTOR: Devinder Sekhon Office: C417 Phone: 539-2991

TEXT BOOK: Chemistry, The Study of Matter, by Dorin, Demmin & Gabel

NATURE OF THE COURSE: This is a one semester course. It is basically a lecture course with two-hour lab per week.

GRADING: The final grade in the course will be awarded based on your performance on two major exams, three short exams, and the lab. The break down is as follows:

LAB	=	23%
FINAL	=	30%
MID TERM	=	20%
3 SHORT EXAMS	=	27%

IMPORTANT NOTE:

1. You **MUST** pass the lab component (minimum 45%) to pass the course.
2. All exams must be written at the scheduled times unless **PRIOR** arrangements have been made with the instructor.
3. The students must meet the prerequisites for the course.

ATTENDANCE: Attendance is compulsory in the course. A student with 20% or more unexcused absences in lecture and/or lab may be refused to write the final exam.

COURSE CONTENT:

The following topics will be covered over the semester. The numbers in the parentheses indicate the corresponding chapter(s) of the text.

1. **REVIEW:** Naming of compounds (7); Chemical equations (9), Stoichiometry (10).

2. GASES: Kinetic Molecular Theory; Gas laws, Real and Ideal gases, Gas constant; Van der Waal forces (12).
3. ENERGY CHANGES IN CHEMICAL REACTIONS:
Enthalpy, Measurement of enthalpy changes, Exothermic and Endothermic reactions; Heat of reaction, Heat of formation; Heat of combustion; Hess' Law of heat summation; Problems based on energy changes (17).
4. CHEMICAL KINETICS:
Rate of a chemical reaction; Factors affecting the rate of reaction; Rate Law; Transition State Theory (17).
5. CHEMICAL EQUILIBRIUM:
Reversible reactions; Equilibrium State; Law of Mass Action; Equilibrium Constant; Heterogeneous equilibria; Equilibrium calculations; Changing the equilibrium State; Le Chatelier's Principle (18).
6. ACIDS AND BASES:
Introduction; Arrhenius Concept; Bronsted-Lowry Concept; Conjugate Acid-Base pairs; Strength of acids and bases; Dissociations; pH; pOH; Calculations using dissociation constants and pH (19, 20).
7. ELECTROCHEMISTRY:
Oxidation and Reduction; Oxidation numbers; Balancing Redox equations; Galvanic Cells; Reduction Potentials; Standard Electrode Potentials; Standard Hydrogen Electrode; E.M.F. of a cell; Storage Cells and batteries; Electrolysis; Problems based on electrolysis (21, 22).

The final grade assignment is based on your overall score as follows:

90 - 100	9
80 - 89	8
72 - 79	7
65 - 71	6
56 - 64	5
50 - 55	4

4 is a minimum grade to pass.

CHEM 0130
Computer Software

Introduction to General Chemistry QD 31.2 S 64

Disk 3	Chemical formulas and chemical equations
Disk 7	Gas Laws
Disk 8	Acids and Bases, pH

ALBION SOFTWARE

1. Gas Laws QC 175.C45

MICROPHYS

CHEM 1	QD 456.C4521
PC 11	Specific Gas Laws
PC 12	General Gas Laws
PC 24	Mole Concept
PC 8	Calorimetry
CHEM 2	QD 456.C4522
PC 25	Molarity
PC 28-31	Stoichiometry
PC 33	pH and logarithm
PC 34	
PC 34	EMF of Cells.