Grande Prairie Regional College

DEPARTMENT OF SCIENCE AND TECHNOLOGY

SEP 1995

W.94

CHEMISTRY 2750 PHYSICAL CHEMISTRY

Note: Restricted to Engineering students only.

PREREQUISITE:	**CH 2710**
LECTURES:	**Monday, Wednesday, and Friday 11:00 - 11:50 a.m.**
SEMINAR:	**One hour, TBA**
LABORATORY:	**Friday 15:00 - 17:50 on alternate weeks**
TEXTBOOK:	***Physical Chemistry*, 4th Edition by P.W. Atkins**
LABORATORY:	**University of Alberta *Physical Chemistry Laboratory Manual* for CH 271/273** **Also required are a hard-covered laboratory notebook with graph paper, lab coats, and safety glasses.**

COURSE EVALUATION

Assignments	10%
Lab Work	25%
First Midterm Exam	15%
Second Midterm Exam	15%
Final Exam	35%
Total	100%

10726-106 Ave., Grande Prairie, AB T8V 4C4 (403) 539-2911 FAX (403) 539-2832

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COURSE OUTLINE CH 2750

1. Chemical equilibrium and Gibbs free energy: Gibbs function minimum; composition of reactions at equilibrium; response of equilibria to pressure and temperature.

2. Solutions: colligative properties; osmotic pressure applications; ionic solutions and their properties -- equilibrium electrochemistry; conductance properties and ionic mobilities -- ion transport.

3. Structure and properties of fluids: gases, diffusion and viscosity; diffusion in liquids -- Fick's First Law

4. Colloids and surfaces: surface tension; vapour pressure above a curved surface; capillary action; classification and preparation of colloids; surface structure and stability; surface tension and surfactants; Gibbs surface tension equation.

5. Reaction mechanisms and kinetics: rates of chemical reactions; chain reactions; homogenous catalysis; autocatalysis; collision theory; diffusion-controlled reactions; activated complex theory; Erying equation; thermodynamic aspects -- in the gas phase and reactions between ions; adsorption isotherms; adsorption and heterogeneous catalysis.

NOTE: Lectures are supplemented by regular problem sets which make applications of concepts to practical systems. Emphasis is placed on a problem-solving approach rather than memorization of unit formulas for narrowly limited contexts.

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