

Chem 351 – Fall 2010

Physical Chemistry I: Chemical Thermodynamics

Instructor: John Head (Office: Bilger 241A – Email: johnh@hawaii.edu)

Message Board: Class information and copies of all course handouts will be posted on laulima.hawaii.edu/portal .

Textbook: "Physical Chemistry," P. W. Atkins and J. dePaula, 9th edition, Freeman (2010) and "Solutions Manual"

Prerequisites: Chem 162 or 181 and Chem 274; Physics, 272; Math 243, or equivalent

Exams: Three mid semester exams (20 pts each) and a Final (40 pts)

Homework: Problem sets are to be completed and handed in for grading (20 pts)

Course Grade: will be based on 120 pts obtained from the homework (20 pts) and the exams (100 pts)

Learning Objectives

Develop an understanding of how the laws of thermodynamics can be applied to various physical processes and reactions in chemistry.

Develop a feel for the chemical information provided by various state functions such as internal energy U , enthalpy H , entropy S , Gibbs free energy G and the chemical potential μ .

Learn how to apply thermodynamics to recognize when a system is in equilibrium or when the state of system will spontaneously undergo a change to a different state.

Develop quantitative problem solving skills in the application of thermodynamics to different chemical systems.