# Introduction to Physical Chemistry
# Fall, 2001

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| ***INTRODUCTION*** | |
| Tues Sept 11 | Worksheet 1: Math (partial derivatives, exact and inexact differentials), Behavior of ideal gases (chapter 1.1-1.4 & 1.11) |
| Thurs Sept 13 | Worksheet 2: Behavior of real gases (chapter 1.5-1.9) |
| ***THERMODYNAMICS - THE FIRST LAW*** | |
| Tues Sept 18 | Worksheet 3: Work, heat and the first law of thermodynamics (chapter 2.1-2.8) |
| Thurs Sept 20 | Worksheet 4: Enthalpy & heat capacities, the equipartition of energy theorem (chapter 2.9, 2.11) |
| Tues Sept 25 | Worksheet 5: Understanding gas expansion (chapter 2.12) |
| Thurs Sept 27 | Worksheet 6: Understanding thermochemistry, bond energies & enthalpies(chapter 2.13-2.15) |
| Tues Oct 2 | **Discussion and review** |
| Thurs Oct 4 | **Exam # 1** |
| ***THERMODYNAMICS - THE SECOND LAW*** | |
| Tues Oct 9 | Worksheet 7: Carnot Cycles and the Discovery of Entropy - The Second Law of Thermodynamics (chapter 3.9, 3.1 & 3.2) |
| Thurs Oct 11 | Worksheet 8: $\Delta S$ for processes involving gases, phase transitions, and chemical reactions, entropy & probability, the third law of thermodynamics (chapter 3.3-3.8) |
| Tues Oct 16 | Worksheet 8 (continued) |
| Thurs Oct 18 | Worksheet 9: Predicting spontaneous processes: Gibbs & Helmholtz energies (chapter 4.4-4.6, 4.12) |
| ***APPLICATIONS OF THERMODYNAMICS*** | |
| Tues Oct 23 | Worksheet 10: Chemical equilibrium in gaseous, solution and heterogeneous systems; effect of temperature, pressure and catalysts on $K_{eq}$ (chapter 5.1-5.9). |
| Thurs Oct 25 | Worksheet 10 (continued) |
| Tues Oct 30 | Worksheet 10 (continued) |
| Thurs Nov 1 | **Discussion and review** |
| Tues Nov 6 | **Exam #2** |
| Thurs Nov 8 | Worksheet 11: Real solutions, phase equilibria of two-component systems and colligative properties |
| Tues Nov 13 | Worksheet 11: (continued) |
| Thurs Nov 15 | **Discussion and review** |
| Tues, Nov 20 | **Final Exam** (at 10:00 am) |

Professor
Julanna
Gilbert