**Dougherty Valley HS AP Chemistry**

**Final Exam Study Guide**

Note: Final exam will be approx. 80 questions. You will get use a calculator, non-graphing, you will get a periodic table. The list provided here is a complete list. “\_\_\_\_\_” = ranking (1-5, 1= we learned this?, 5 = I can teach it!)

**Directions**: First rank each major topic 1-5 according to above, then rank each topic within major topic according to above. Focus your studying on the 1’s, 2’s, and 3’s…don’t worry about the 4’s and 5’s. The point is to review, study, fix or repair your thought process on topic. You know your 4’s and 5’s, you don’t study them, you review them. You also get a 4”x6” notecard, handwritten only, name, period must be on it in LOWER RIGHT CORNER

**Thermochemistry** \_\_\_\_\_

* \_\_\_\_\_ mCΔT
* \_\_\_\_\_ Enthalpy (Heat of formation, of reaction, combustion, etc…)
* \_\_\_\_\_ Hess’s Law
* \_\_\_\_\_ Heating curve
* \_\_\_\_\_ State Functions
* \_\_\_\_\_ Endo vs. Exo - thermic

**Thermodynamics** \_\_\_\_\_

* \_\_\_\_\_ Enthalpy
* \_\_\_\_\_ Entropy (system: micro states)
* \_\_\_\_\_ Gibbs Free Energy (Gibbs-Helmholz, relation to K)
* \_\_\_\_\_ State Functions

**Kinetics** \_\_\_\_\_

* \_\_\_\_\_ Rate Laws (differential, Integrated from a graph)
* \_\_\_\_\_ Method of initial rates
* \_\_\_\_\_ Rate constants units
* \_\_\_\_\_ Relationship of k to K
* \_\_\_\_\_ Reaction Mechanisms (slow, fast steps, intermediates, catalysts)
* \_\_\_\_\_ Pseudo- 1st, 2nd - order

**Equilibrium** \_\_\_\_\_

* \_\_\_\_\_ Meaning of constant value on extent of reaction
* \_\_\_\_\_ ICE tables
* \_\_\_\_\_ Le Chatèlier’s Principle

**Atomic Structure** \_\_\_\_\_

* \_\_\_\_\_ Trends (atomic radius, ionic radius, IE, electronegativity, affinity)
* \_\_\_\_\_ “Size of radius vs strength of nucleus”
* \_\_\_\_\_ Zeff
* \_\_\_\_\_ Orbitals
* \_\_\_\_\_ Electrons rules (aufbau, pauli, hunds)
* \_\_\_\_\_ PES

**Bonding** \_\_\_\_\_

* \_\_\_\_\_ Covalent, Ionic, Metallic – properties, structure
* \_\_\_\_\_ VSEPR (shapes, angles, AXE)
* \_\_\_\_\_ Hybridization (sp – sp3)
* \_\_\_\_\_ Sigma and pi bonds
* \_\_\_\_\_ Coulombs Law