**PO 2 Unit Exam**

**Study Guide**

This exam will cover chapters 6, 7, and 8. This study guide is meant to be a guide, not tell you what will be on the test. Please use it in a way that helps you better focus your studying to deeply understand the fundamental concepts (mathematically and conceptually) behind the material we covered in class.

* Delta E vs Delta H
* Q and W. What situations can occur to make Delta E positive (or negative)? How do they relate to Delta H?
* Trends atomic radius and ionic radius and why.
* Trends in ionization energy
* If you shot three different frequencies of energy at a molecule, one might make the molecule actually rotate (move/spin), another might just make the molecule vibrate (shake), and another might just make the molecules undergo electronic transition (electrons jump and reorder). If the only frequencies you had to choose from were from radio waves, microwaves, and infrared, what could each energy possibly do to the molecule?
* Calorimetry. What is it and how to you use it mathematically? Why do you use it?
* Endo verse exo thermic
* Successive ionization energies
* Photoelectron spectra. How do you interpret the graphs? See my website if you need help.
* Thermal equilibrium. What is it and how do you solve for it mathematically?
* Hess’s Law. How do you use it to solve for delta H?
* How do you solve problems when given delta H of formations for individual substances in a chemical reaction?
* How do you solve for energy when given wavelength? frequency? When you solve for energy are you solving for a group of photons or just one? Could you calculate how much energy a group of photons has?
* How do you calculate the frequency (or wavelength) of light that’s required to remove one electron from a metal, via the photoelectric effect?
* How do you solve using the de Broglie equation?
* Electron configurations for ions and neutral atoms