Exam I Review Sheet
Exam I will cover chapters 1, 2, 4, & 10. It will be multiple choice (probably about 30 questions). Exam will be Wed September 8 @ 5:30PM and ~1 hour will be allowed.

Chapter 1 Topics
• Steps in the Scientific Method
• The definition of and the difference between a law and a theory
• Be able to identify and know the difference between qualitative and quantitative observations

Chapter 2 Topics
• Writing numbers in scientific notation
• Writing numbers in standard notation
• Converting between different metric units – know the information in Table 2.2 (see p.19)
• Writing numbers with the correct number of significant figures (know the rules for counting significant figures (see p. 24) and rules for rounding off (see p. 25).)
• Performing calculations and expressing the answer in the correct number of significant figures – know the rules for using significant figures in calculations (see p. 26-27)
• Solving problems by dimensional analysis / converting from one unit to another (see p.31)
• Temperature conversions (°F, °C, and K)
• Density calculations

Chapter 4 Topics
-Element symbols
-Dalton’s Atomic Theory
-Writing formulas for compounds
-Structure of the atom (protons, electrons, neutrons): numbers, charges, relative masses
-Identifying the mass number / atomic number for an element and then using this to calculate numbers of protons, electrons, neutrons.
-Isotopes same element = different number of neutrons
-Calculating numbers of protons, neutrons, electrons for isotopes
-Periodic Table
  -names of groups / areas on periodic table
  -Identifying metals / nonmetals / metalloids
  -Identifying what charge ion will form according to position on the periodic table
-Properties of metals / nonmetals / metalloids
-Diatomic molecules – know which elements exist as diatomic molecules (Table 4.5)
-Ions
  -Charges (See Fig 4.19)
Chapter 10 Topics
• Be able to relate energy and wavelength of light: low wavelength = high energy, high wavelength = low energy
• Know the principal components of the wave-mechanical model of the atom (green box on page 293-294)
• Pauli Exclusion principle: an orbital can hold a maximum of two electrons and those two electrons must have opposite spins
• Be able to write the electron configuration for an element (1s^2 2s^2 2p^6, etc)
• Be able to use the noble gas configuration shorthand notation to write the electron configuration
• Be able to write the box diagram, using arrows to show the direction of electron spin in each orbital
• Remember that you first need to fill each orbital with one electron before pairing up another electron of opposite spin
• Know the periodic trends for metallic character, ionization energy, atomic size, etc. and be able to compare elements