CH 221 Chapter Six Study Guide

- Understand the concepts of formula mass and molar mass (i.e. molecular weight) and how they relate to the mole and Avogadro's number. Be able to calculate the molar mass for *any* given compound. Master the skills necessary to convert moles to grams and grams to moles.

- Understand and be able to use percent composition in relation to empirical formulas.

- Understand the difference between empirical and molecular formulas and what is needed to calculate the molecular formula from an empirical formula (i.e. a molar mass determination such as from mass spectrometry).

- Be able to use experimental data to calculate the number of water molecules in a hydrated compound.

- Understand the definitions of solute, solvent and solution.

- Define molarity, solute, solvent and solution. Know how to calculate molarity, volume and moles if only two of the three quantities are known.

- Understand the importance of dilution in the chemistry laboratory. Know how to utilize the formula $\mathbf{M_1V_1 = M_2V_2}$ (also known as $\mathbf{c_1V_1 = c_2V_2}$). Be able to derive this equation from $moles_1$ and $moles_2$ if required.

- Recognize different concentration types (mass percentage, parts per millions, etc.)

- Be able to solve and understand the assigned problems in problem set #6.