# CHM111 Lab Exam topic list Fall 2010

Be sure to study pre- and post- lab questions! What we are looking for is your *understanding* of the lab procedure, you will NOT be asked to regurgitate the procedure. Can you manipulate the data? Do you understand the significance of adding/using a particular reagent? Can you create spreadsheet formulas to do calculations? Have you understood the underlying concepts as presented in the ChemPages modules?

Is this exam important? It is worth 200 lab points (that's equivalent to FIVE lab reports!)

**4. Preparation of Alum**

- understanding what a "hydrate" is
- determining moles from volume & molarity or mass data
- adding reactions together
- find limiting reagents, theoretical yield, and percent yield
- determine the amount of non-limiting reactants left over
- filtrate versus filtrant
- how yield is affected by extraneous material
- ChemPages on the "Filtration, vacuum"

**5. Solutions and Titrations**

- balance acid base reactions—know the one you did in lab!
- determine molar concentration given mass and volume or a dilution
- determine molar concentration of a reactant when given titration data
- ChemPages on the "Titration", "Buret", "Flask, volumetric"

**6. Chemistry of Copper**

- All of the reactions that were done
- How to get % yield
- Prediction of double displacement, single displacement, synthesis, decomposition reactions
- Using the activity series of metals
- Writing net ionic equations
- ChemPages on the "Filtration, vacuum" and "pH paper"

**9. Molecular Structures and Shapes**

- Be able to draw Lewis dot structures.
- Be able to construct models
- Be able to draw appropriate shapes (electronic and molecular) for molecules.
- Be able to name the appropriate shapes (electronic and molecular)
- Know those bond angles!
- Be able to determine the "molecular type" (i.e., $AB_xE_y$)

**10. Thermochemistry**

- Be able to manipulate chemical reactions to solve for $\Delta H$ using Hess's Law
- Be able to calculate $\Delta H$ given data like that in lab (so...be able to determine q!)
- Be able to write heat of formation reactions
- ChemPages: "Coffee Cup Calorimeter" & "Thermometer"