Review Guide for exam 1 Chemistry 116:

1. Be able to calculate valence electrons in a compound or ion
2. Understand the vital force theory and how it was discredited
3. Be able to draw Lewis structures that follow the octet rule
4. Be able to identify orbital and molecular geometry
5. Determine approximate bond angle and hybridization on a molecule or ion
6. Be able to draw resonance forms
7. Understand electronegativity and apply the concept to determine if a molecule is polar or non-polar
8. Know functional groups
9. Know the Intermolecular forces and their effect on boiling point and viscosity and how branching of isomers changes the boiling point.
10. Be able to classify carbon atoms as primary, secondary or tertiary (or higher for C),
11. The student should be able to draw structural, condensed and line angle formulas for alkanes, cycloalkanes, alkenes and aromatic compounds and determine molecular formula from each type of drawing
12. Be able to recognize constitutional isomer pairs versus identical versus cis-trans isomers versus unrelated
13. Be able to draw structural isomers of compounds from a molecular formula
14. Recognize geometric (cis-trans) isomers in alkane rings and alkenes.
15. Translate di-substituted cyclohexane to chair form maintaining the geometry
16. Know how to name alkanes, alkenes, alkynes and aromatic compound and know when to put geometry into the name

* Make sure to know ortho, meta , para in naming di-substituted aromatic compounds

1. Know the common name of alkyl groups and prefixes for the halogens
2. Know the combustion reaction (balancing included) and the monohalogenation in light of alkanes
3. Know reaction of alkenes and alkynes

* Know when to use Markovnikov's Rule

1. Know basic reaction pattern of aromatics
2. Be able to write a mechanism with arrow pushing for alkenes that uses the Markovnikov's Rule