Learning Objectives
Chapter 14 – Alcohols, Phenols, and Ethers

- What is a functional group? Why do chemists classify organic compounds by the functional groups they contain?
- What are the functional groups in alcohols, phenols, and ethers? You should be able to look at a structure and determine if it corresponds to an alcohol, an ether, or a phenol.
- How many bonds does oxygen form to fill its octet?
- You should be able to define an alcohol (based on its structure) as primary, secondary, or tertiary.
- You should be able to name alcohols. You should also be able to convert an alcohol name to a structure.
- You should be able to name phenols or convert a phenol name to a structure.
- What are some of the medicinal uses of alcohols? Phenols? Ethers? Thiols?
- You should be able to describe the basic physical properties of alcohols and phenols (and the reason their properties are different from those of alkanes).
  - Boiling points
  - Solubilities
- You should be able to compare two alcohols in terms of their solubilities and their boiling points.
- How are alcohols prepared? You should be able to write chemical equations for at least one way alcohols are synthesized.
- What types of reactions do alcohols undergo? You should be able to predict the products of any of these reactions (to do that, you will need to be familiar with the reactants involved in each type of reaction). You should also be able to look at the starting reactant and the ending product and determine which reactants were probably used in the reaction.
  - Make sure that you understand how Zaitsev’s rule applies to predicting the products of an alcohol dehydration
  - What happens during an intermolecular alcohol dehydration?
  - You should know the products of oxidizing different alcohols (primary, secondary, tertiary) with mild or strong oxidizing agents
- You should be able to name simple ethers using common names. You should also be able to name them by the IUPAC system. Conversely, you should be able to take the name of an ether and convert it into a structure.
- What are the sulfur analogs of alcohols? Ethers?
- You should be able to name thiols and sulfides (by common names). You should also be able to convert thiol or sulfide names to structures.