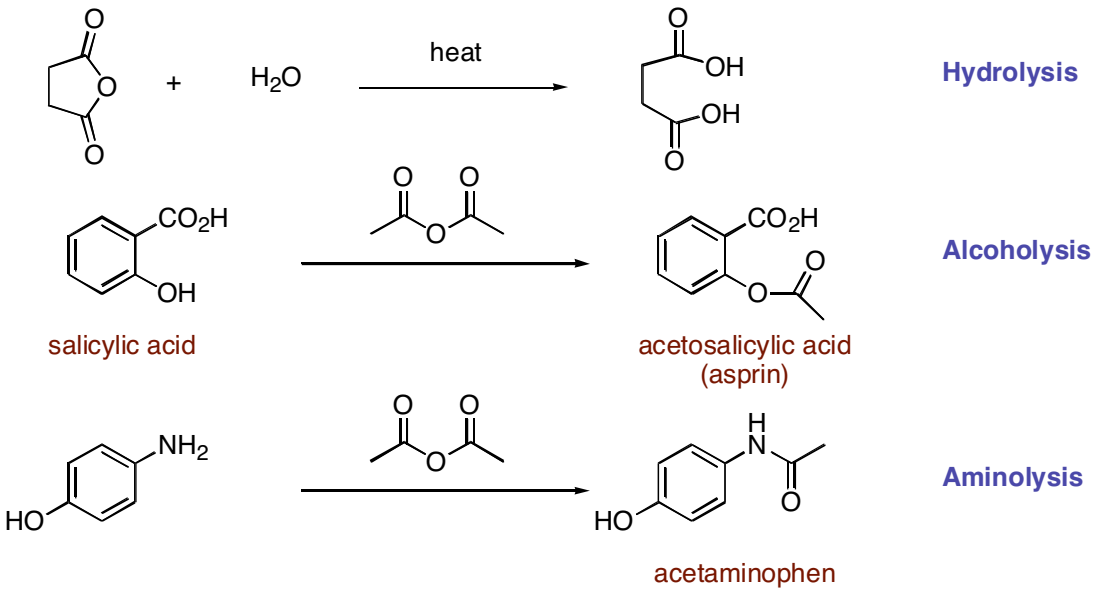
These notes can be obtained at: http://www.ndsu.nodak.edu/instruct/grcook/chem342/notes.shtml

Chapter 21: Carboxylic Acid Derivatives and Nucleophilic Acyl Subsitution Reactions

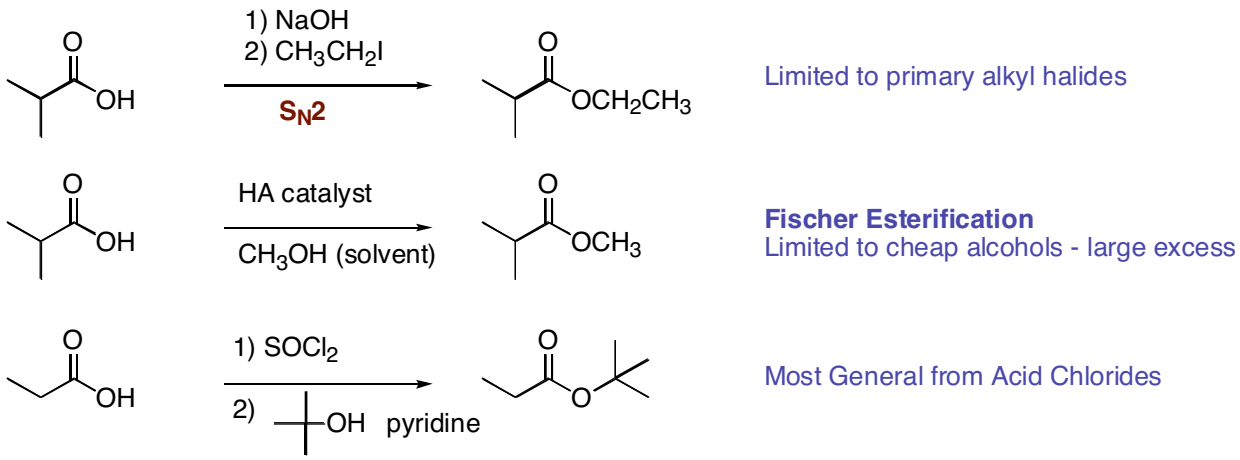
Reactions of Acid Anhydrides

Acid anhydrides react similarly to acid chlorides.



Preparation of Esters

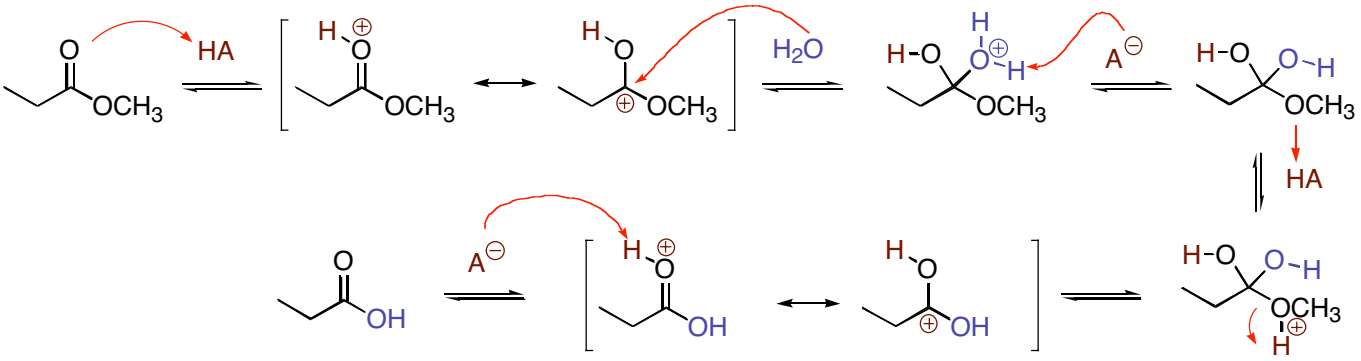
Esters can be prepared in a few different ways. The most general method is from an acid chloride and an alcohol



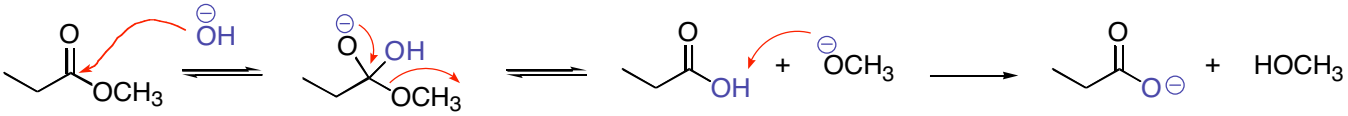
Hydrolysis of Esters

The hydrolysis of esters can be either acid or base catalyzed. Base catalysis is best because the final acid is deprotonated by the alkoxide and this drives the reaction completely to the products.

Acid Catalyzed Hydrolysis



Base Catalyzed Hydrolysis (Saponification)



Other Reactions of Esters

Amides can be made from esters however, it is more practical and general to make them from acid chlorides. Esters can be reduced with $LiAlH_4$ to the alcohol, DIBAH to the aldehyde, or Grignard reagents can be added to afford tertiary alcohols.