

Today

Next Class

Reactions of Esters  
Section 15.3-15.9

Reaction of Amides , Nitriles, and Acid Anhydrides  
Sections 15.10-15.16

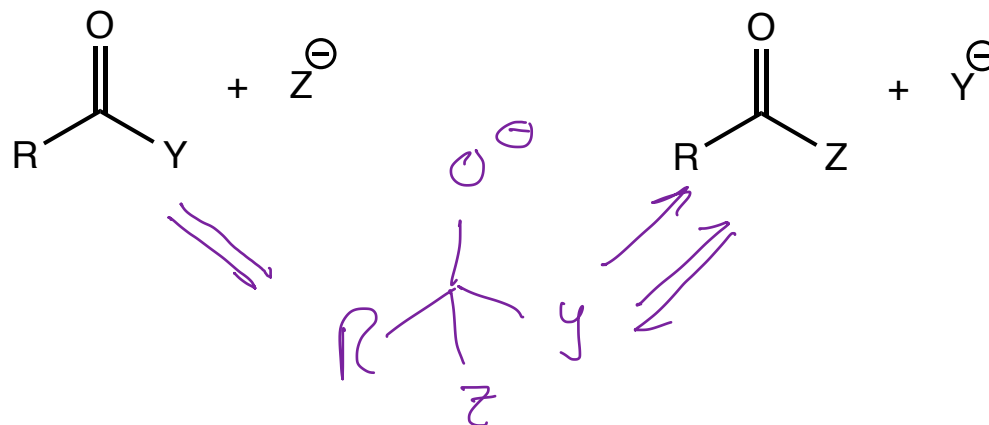
One more week of video conferencing office hours.

Test 2 will be postponed to March 25, so we can finish chapter 15.

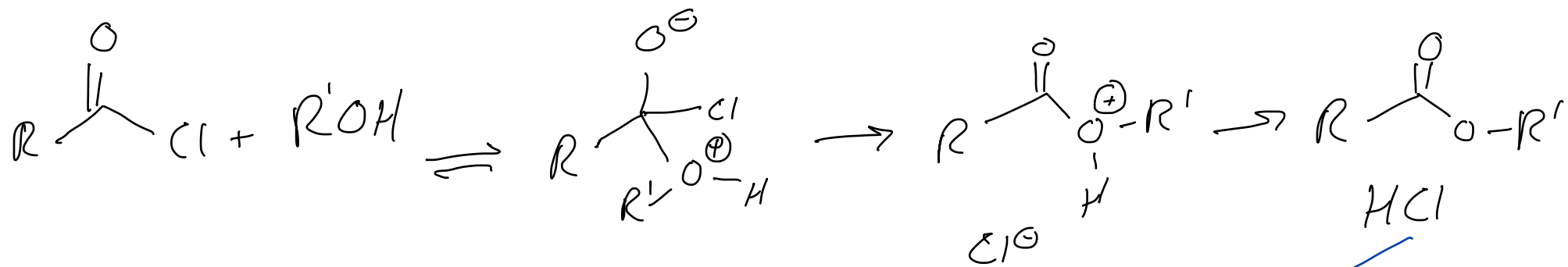
Reworked test one due one week from today.

Everyone was granted full credit for the Ha/Hb question. The handful of people who answered correctly received a 2 point bonus.

*problems with the av system prevented us from getting to the ester reactions we reviewed acid chloride reactions*



**basic** mechanism - all nucleophilic acyl substitution reactions follow the general path: carboxylic acid or derivative to tetrahedral intermediate to carboxylic acid or derivative. The **specifics** of the intermediate(s), whether the reaction is reversible, or whether it can be catalyzed **depend on** the **Z** & the **Y**.



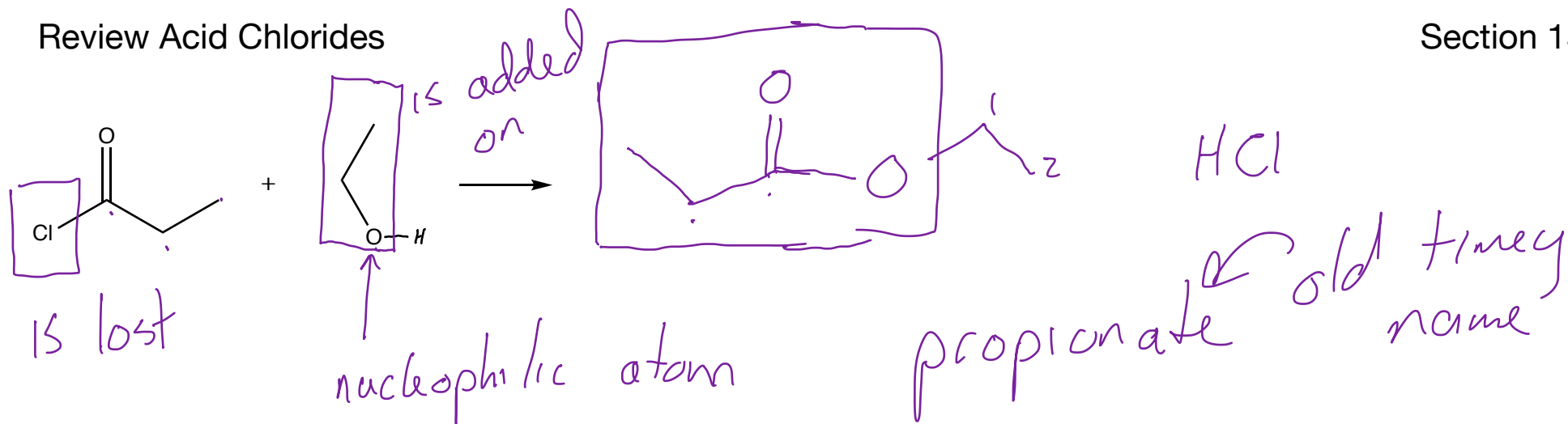
acid chloride + alcohol  $\rightarrow$  ester + HCl  
 $\text{R}' \neq \text{H}$

$\text{Cl}^-$  is not nucleophilic enough in a protic solvent to get the reaction to run backwards

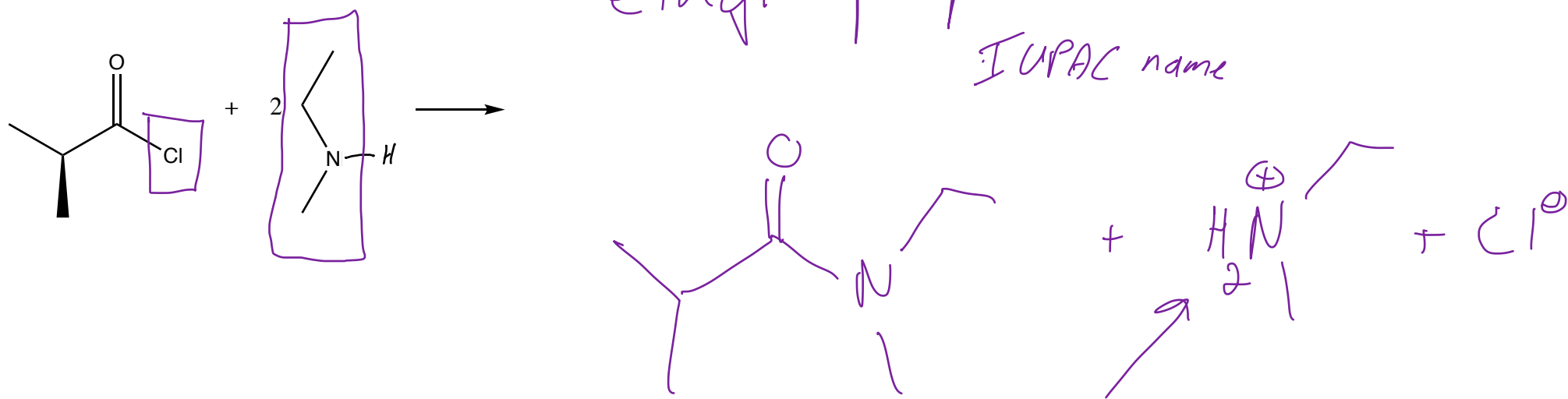
acid chlorides are very reactive, so these reactions occur quickly. There is no need for a catalyst

Review Acid Chlorides

Section 15.6



ethyl propanoate  
IUPAC name



the N is basic enough to grab an  $H^+$  from the tetrahedral intermediate  
 so 2 equivalents of the  $\text{CH}_3\text{CH}_2\text{NH}_2$  are needed

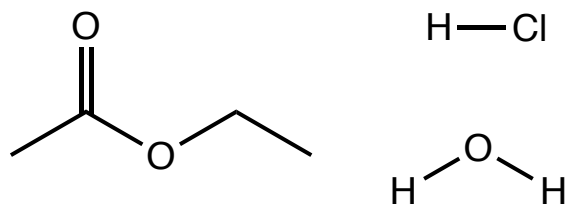
Hydrolysis

Transesterification

Aminolysis

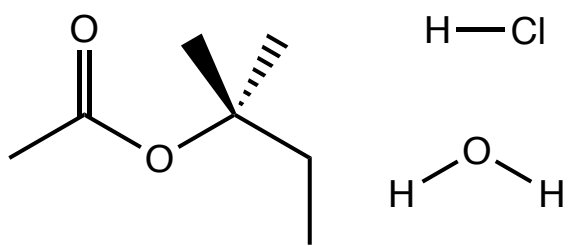
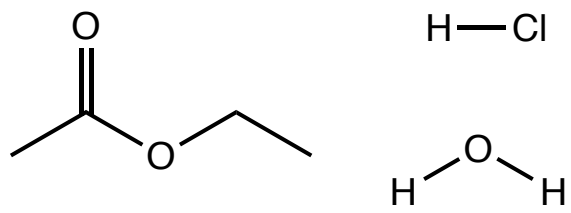
Hydrolysis - **Acid** Catalyzed or Base Promoted

Section 15.8



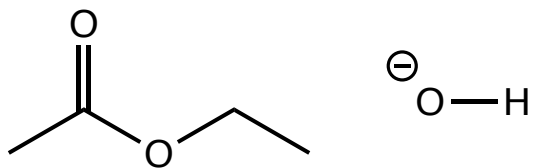
# Hydrolysis - Acid Catalyzed Mechanism a closer look

## Section 15.8



Hydrolysis - Acid Catalyzed or **Base** Promoted

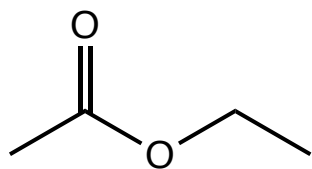
Section 15.9





# Aminolysis

# Section 15.9



# Practice

