



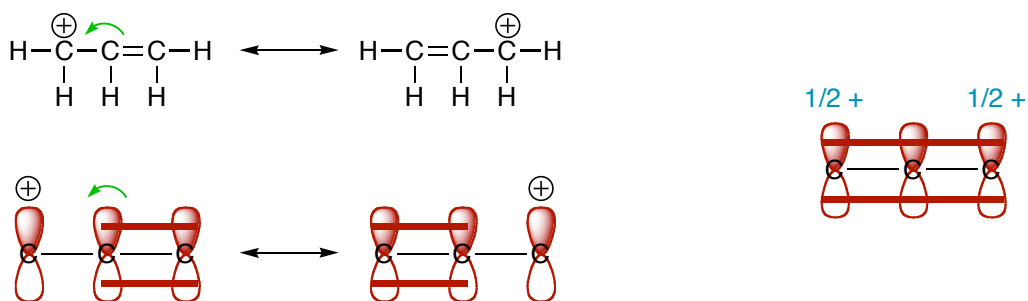
# Chem 341 • Organic Chemistry I

Lecture Summary 05 • August 31, 2007

## Chapter 2 - Polar Covalent Bonds; Acids and Bases

### Resonance

Both plus charges (empty orbitals) and negative charges (filled orbitals, lone pairs) can be spread out when adjacent to pi-bonds.



### Brønsted-Lowry Acids and Bases

Acid base reactions are fundamental processes that are required for the initiation of many organic reactions. Recall some of the definitions from general chemistry.

**Brønsted-Lowry Acid** - a substance that donates a proton ( $H^+$ ).

**Brønsted-Lowry Base** - A substance that accepts a proton.

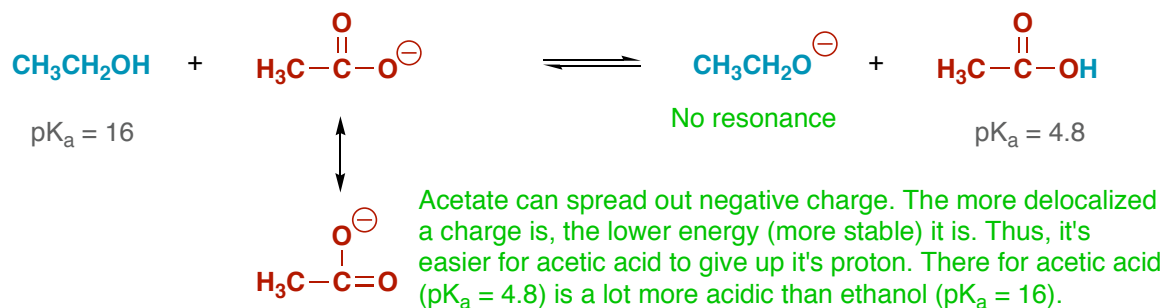
**Acidity Constant ( $K_a$ )** - the equilibrium described by a given acid base reaction.



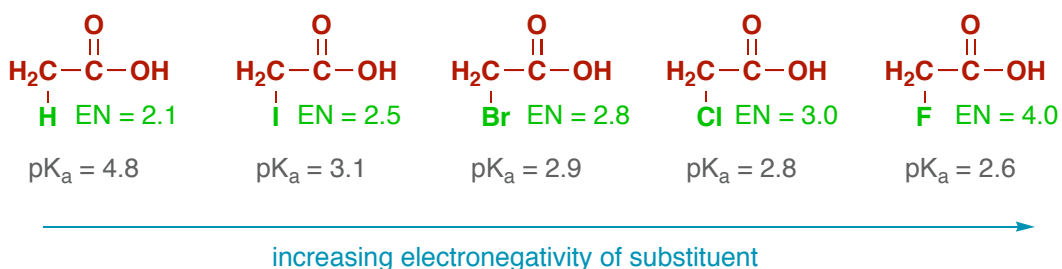
The higher the  $K_a$ , the higher the acidity. This is exactly opposite for the  $\text{p}K_a$  value.

An acid base equilibrium will lie on the side of the weaker acid.

Resonance effects have a large impact on acidity.



Electron negative groups have a small influence on the acidity.

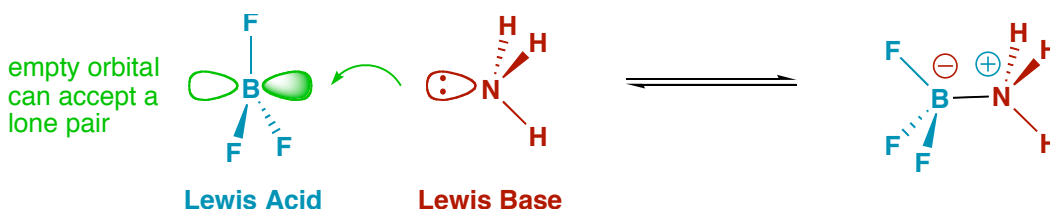


## Lewis Acids and Bases



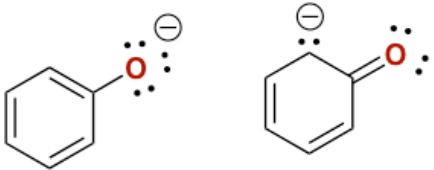
Some acid base interactions cannot be described by proton transfers. Other substances besides proton are electron deficient and can interact with a lone pair of electrons.

**Lewis Acid** - a substance that accepts a pair of electrons (forms a covalent bond).

**Lewis Base** - a substance that donates a pair of electrons.



Quiz of the day

<b>Q:</b> Which of the following pairs of molecules would represent a valid set of resonance structures?	<input type="checkbox"/> 1:	
	<input type="checkbox"/> 2:	
	<input checked="" type="checkbox"/> 3:	
	<input type="checkbox"/> 4:	