

Big Topics to Know from CH320M:

1. Resonance
2. Acid/Base Chemistry
3. Stereochemistry
 - a. Chirality
 - b. Diastereomers/Enantiomers/Meso/Racemic Mixtures
4. Mechanisms (arrow pushing)
5. Reactions: alcohols, alkenes, and haloalkanes
6. Synthesis

Bonds, Lone Pairs, and Formal Charges

	# of electrons in filled valence shell	Neutral (no charge)		+ 1 Charge		- 1 Charge	
		# Bonds	# lone pairs	# Bonds	# lone pairs	# Bonds	# lone pairs
H	2	1	0	0	0	0	1
C	8	4	0	3	0	3	1
N	8	3	1	4	0	2	2
O	8	2	2	3	1	1	3
X = F, Cl, Br, I	8	1	3	2	2	0	4

The Golden Rules of Organic Chemistry (Find explanations on the website!)

A. Predicting Structure and Bonding

1. In most stable molecules, all the atoms will have filled valence shells.
2. Five- and six-membered rings are the most stable.
3. There are two possible arrangements of four different groups around a tetrahedral atom.

B. Predicting Stability and Properties

4. The most important question in organic chemistry is "Where are the electrons?"
5. Delocalization of charge over a larger area is stabilizing.
6. Delocalization of unpaired electron density over a larger area is stabilizing.
7. Delocalization of pi electron density over a larger area is stabilizing.

C. Predicting Reactions

8. Reactions will occur if the products are more stable than the reactants and the energy barrier is low enough.
9. Functional groups react the same in different molecules.
10. A reaction mechanism describes the sequence of steps occurring during a reaction.
11. Most bond-making steps in reaction mechanisms involve nucleophiles reacting with electrophiles.

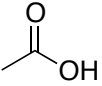
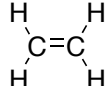
1. Rank the following in order of acidity (1 – Most Acidic, 4 – Least Acidic).

H ₂ O	CH ₄	NH ₃	H ₂ S

2. Rank the following in order of acidity (1 – Most Acidic, 4 – Least Acidic).

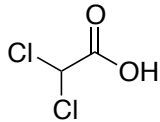
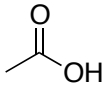
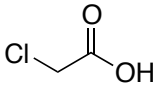
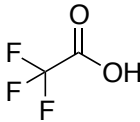
HF	HBr	HCl	HI

3. Rank the following in order of acidity (1 – Most Acidic, 4 – Least Acidic).

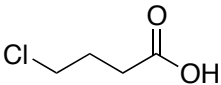
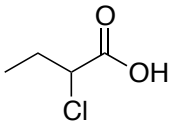
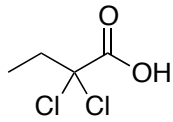
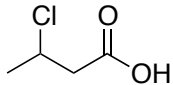
	H-C≡C-H		H ₃ C-CH ₃

01-23-2017 Missed the Wave Recitation
Organic Chemistry 1 Review

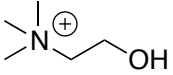
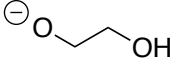
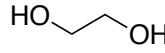
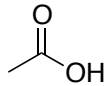
4. Rank the following in order of acidity (1 – Most Acidic, 4 – Least Acidic).


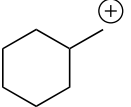
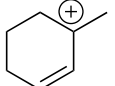
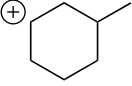
5. Rank the following in order of acidity (1 – Most Acidic, 4 – Least Acidic).

6. Rank the following in order of acidity (1 – Most Acidic, 4 – Least Acidic).

7. Rank the following in order of stability of the carbocation (1 – Most stable, 4 – Least stable).

8. Draw the arrow pushing and the associated resonance contributing structure of the following molecules.

