

Course Chem 345 Lecturer Gellman
Day Friday Date 3-11-16
Notes Taken By Lu Lou Total # of Pages 5

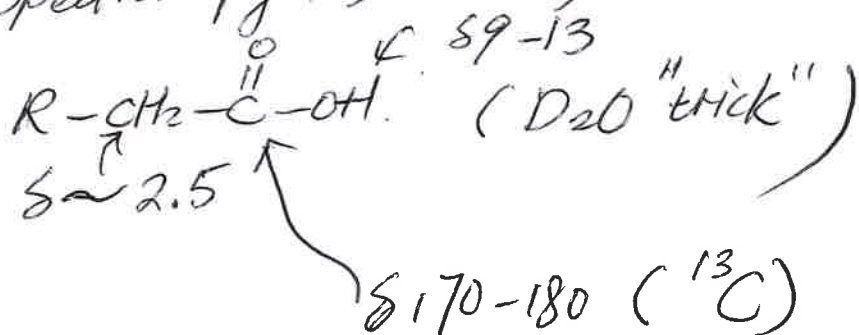
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Review Session (Tentative) 5 pm Tues (B371)
Exam #2 Wed (Same locations)

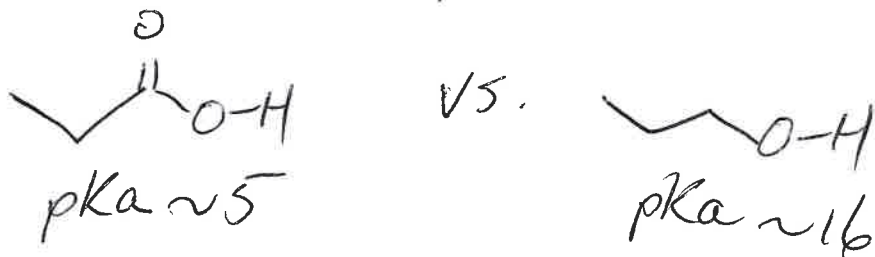
Recall: Chap 20 - Carboxylic acids.

Rec problems - 3-6, 8-15, 16b, 17-24, 27, 28,
31-34, 37-39, 41, 42, 46-53, 57, 59a, b.

Spectroscopy 1) IR 2) NMR ...



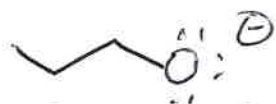
Acid-Base properties.



Consider conj. bases (charged forms):

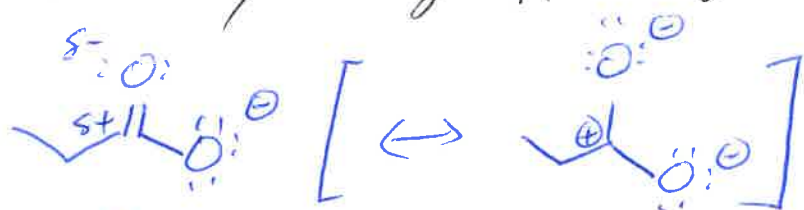


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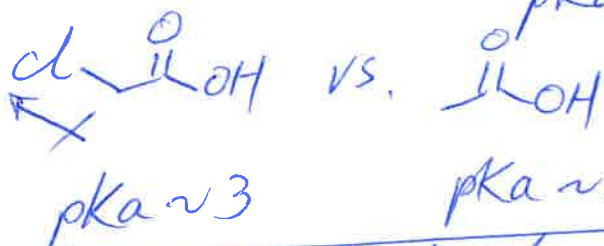


localized charge

2) Electron-withdrawing effect of carbonyl carbon



Substituent effects - qualitative predictions regarding pKa ...

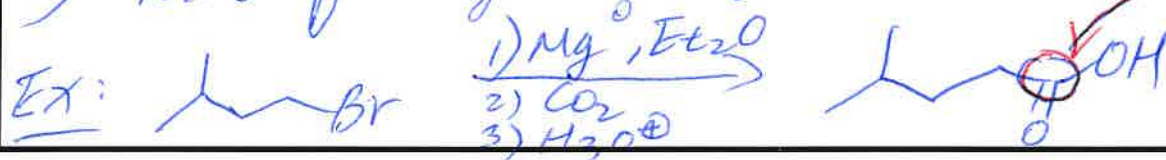


Synthesis of Carboxylic Acids.

- 1) [Recall] Oxidation of 1° alcohol or aldehyde
- 2) Oxidation of alkyl benzene derivatives.

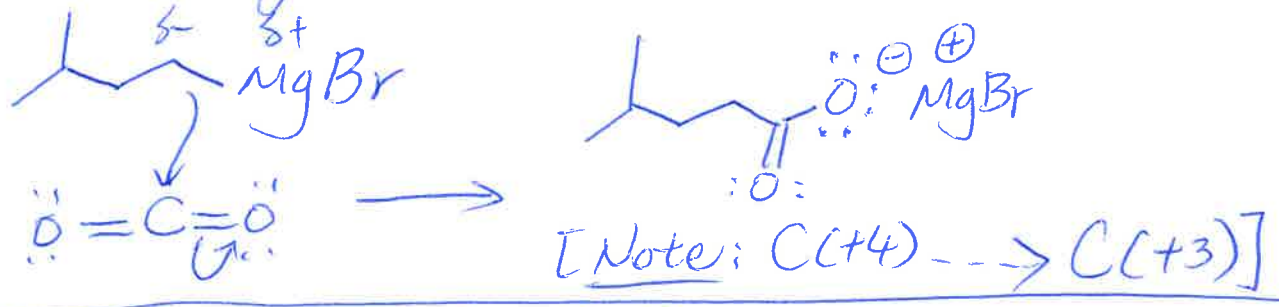
[Recall]

3) Rxn of Grignard reagent w/ CO_2 from CO_2



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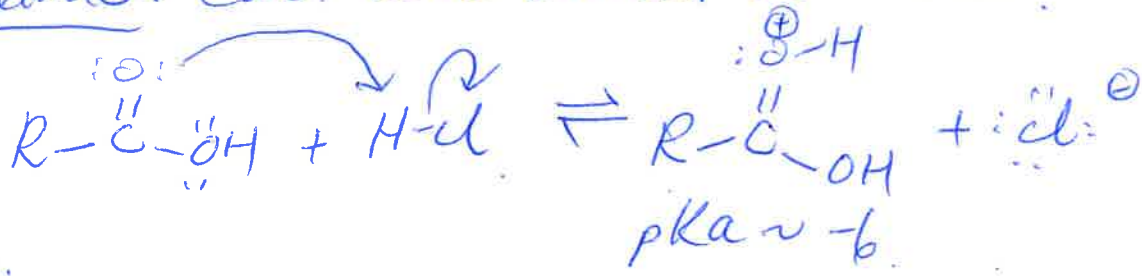
Mech (key step)



Rxns of carboxylic Acids

1) Acid-catalyzed ester formation ("Fisher esterification")

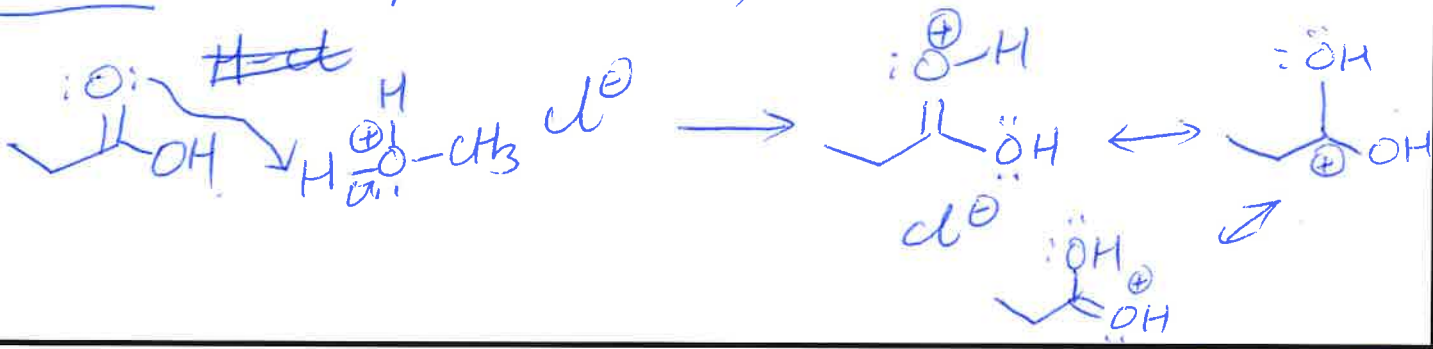
Prelude: "Carb. acid" can act as a base



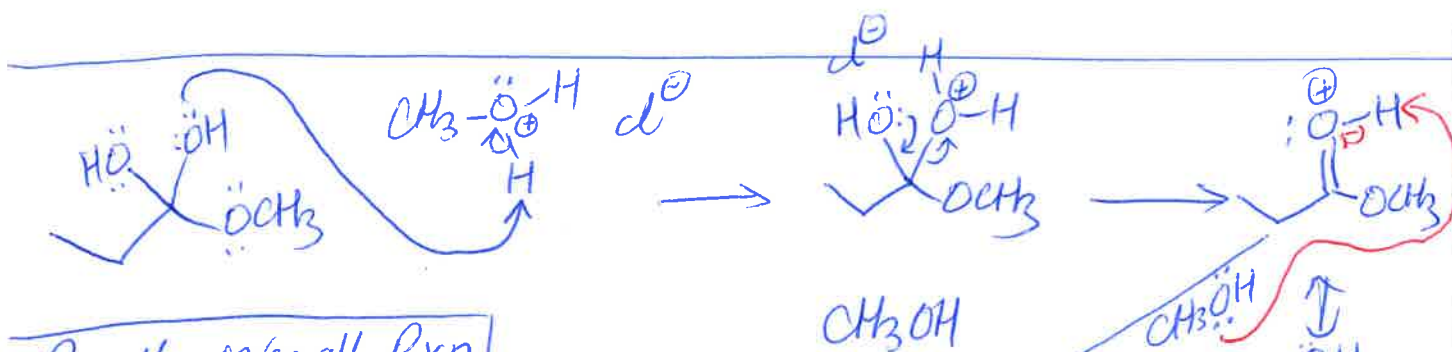
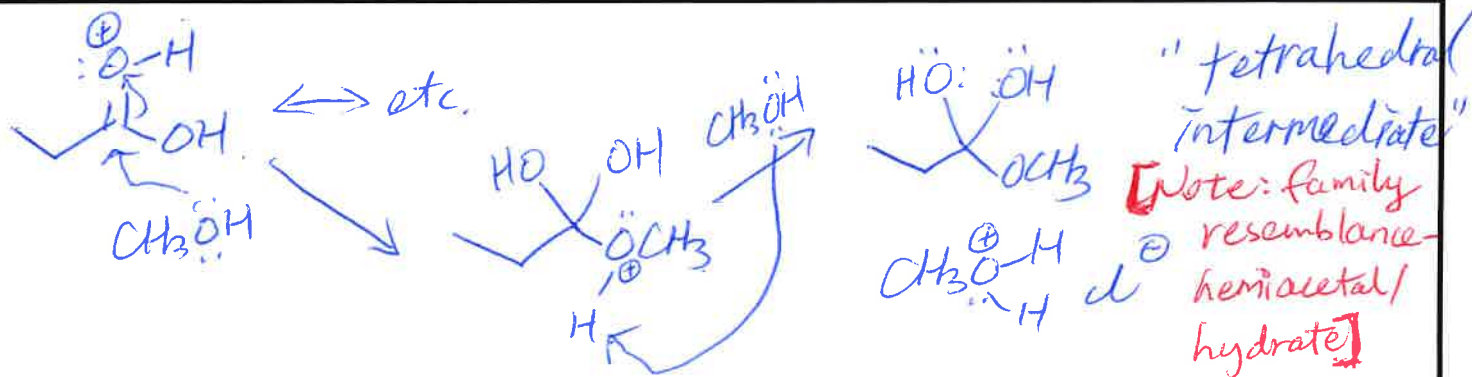
Ex:



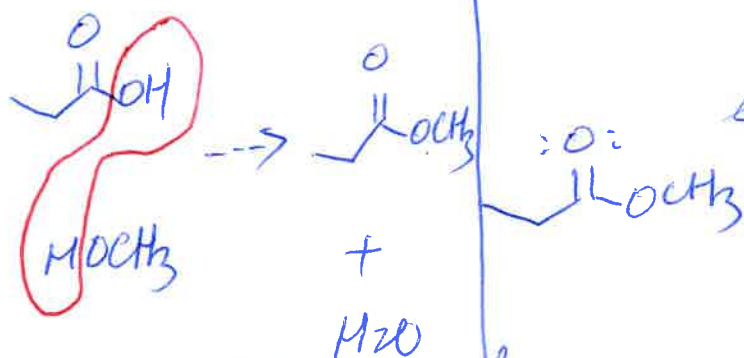
Mech (all steps reversible)



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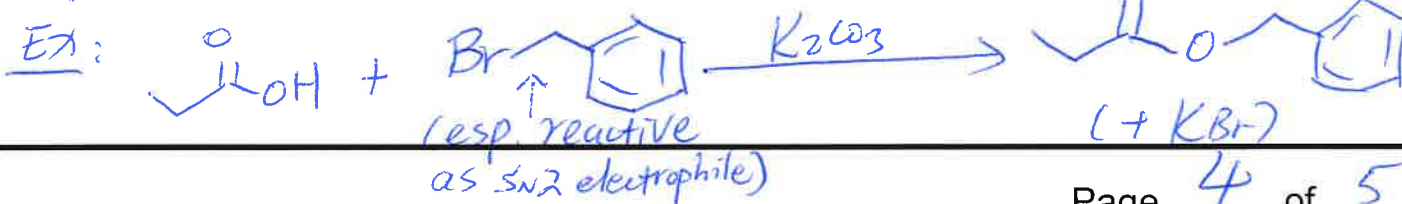


Recall overall Rxn



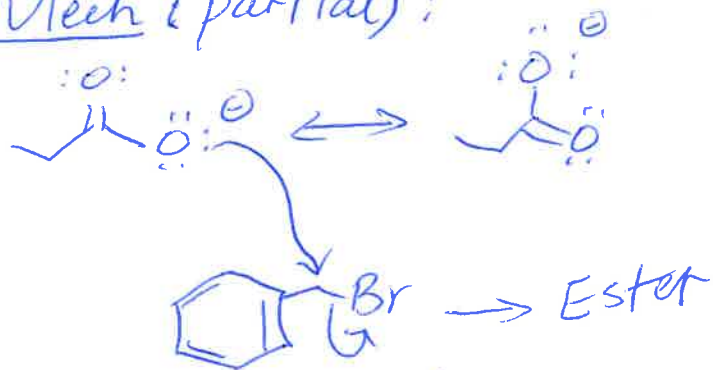
"Substitution" @ Carbonyl
 (???)

2) Ester formation via $\text{S}_{\text{N}}2$ rxn.



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Mech (partial):



Note: Carboxylate is a weak nucleophile - must use very reactive partners: Benzylic / allylic halides or $\text{CH}_3\text{-X}$

