

Course Chem 345 Lecturer Gellman
Day Monday Date 3/14/2015
Notes Taken By Leslie Total # of Pages 5

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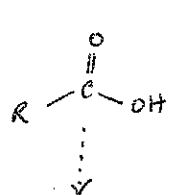
Office hour Today, 5 PM

Renew B371 Tomorrow 4 PM

Exam # 2 Wednesday 17-19, same assigned rooms

Recall: Rxns of carboxylic acids...

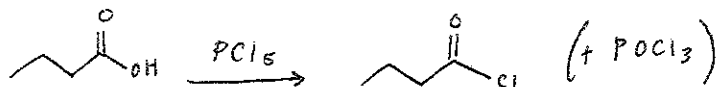
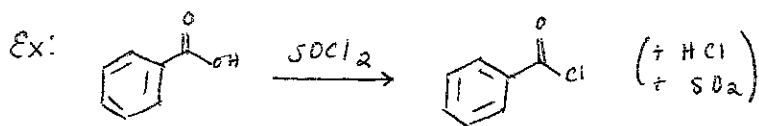
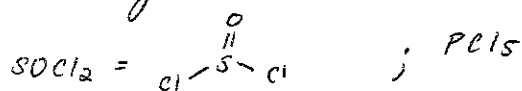
- 1). acid-catalyzed ester formation
- 2). ester formation via S_N2 rxn.
- 3) Formation of acid chlorides



Note:

- 1) "carboxylic acid derivatives"
- 2) acid chlorides - very reactive; used in synthesis

* Two standard reagents for conversion of carboxylic acids to acid chlorides

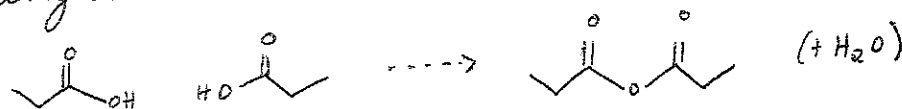


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Rxns of carboxylic acids continued....

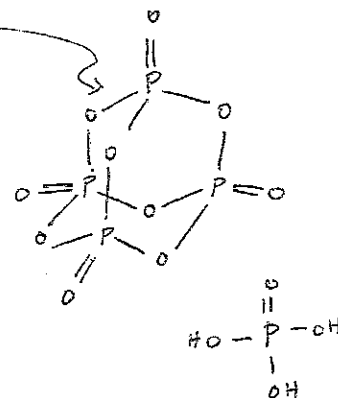
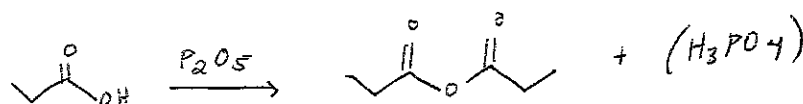
4) Anhydride formation



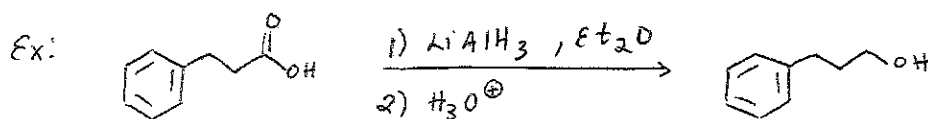
Note:

- 1) Another "carboxylic acid derivative"
- 2) Highly reactive (similar to acid chlorides)

Standard = P_2O_5 (P_4O_{10})



5) Reduction of carboxylic acids to alcohols (1° alcohols)



* NaBH_4 - not sufficiently reactive to reduce carboxylic acids

Note: 2 rounds of reduction in this rxn

Note: Proceeds via aldehyde, but cannot stop there bc aldehydes are more reactive than carboxylic acids

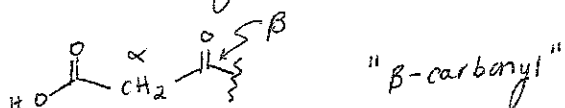
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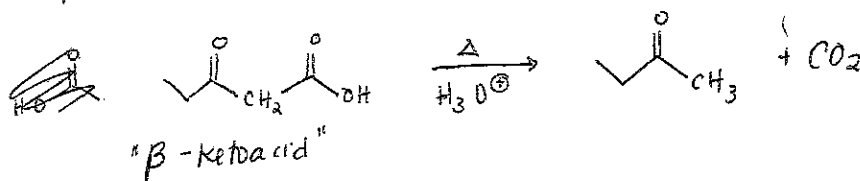
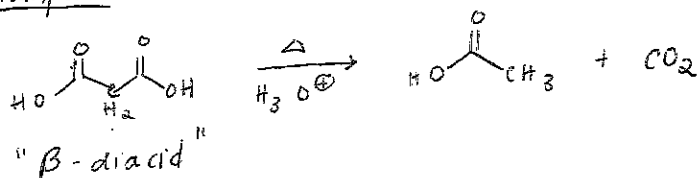
Rxns of carboxylic acids continued....

b) Decarboxylation (loss of CO_2)

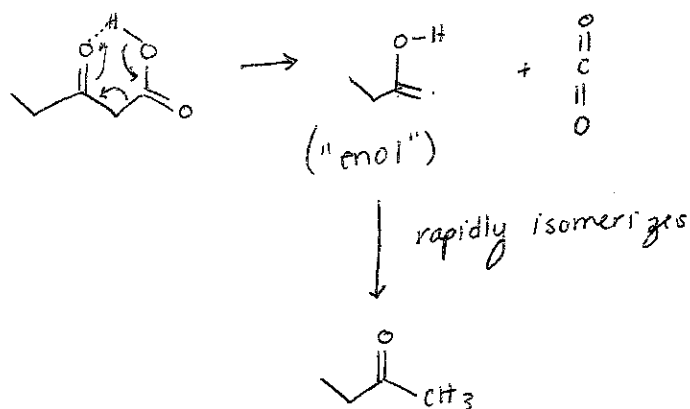
occurs only for special cases - carboxylic acid is at a specific distance from a carbonyl.



Examples:



Mechanism is concerted ("all at once")

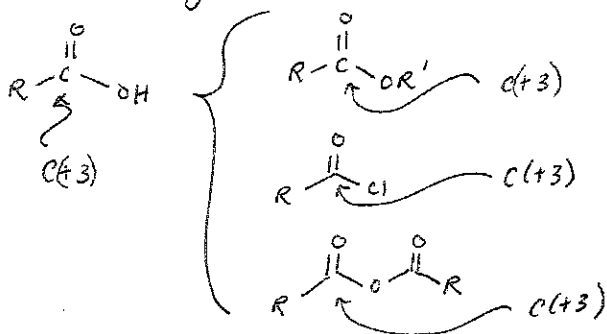


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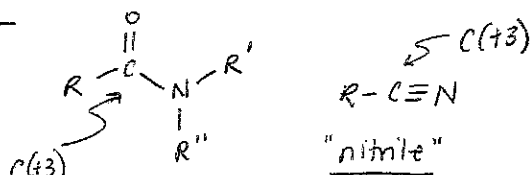
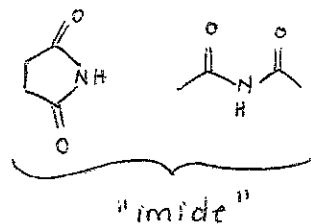
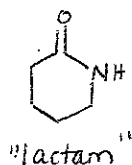
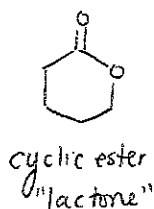
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Chp. 21 - Carboxylic Acid Derivatives

Rec. Problems - 3, 4, 7-34, 36-44, 46-53, 54a-c, f, g, 55-58, 60, 61

Recall: carboxylic acid derivatives ...

Also -

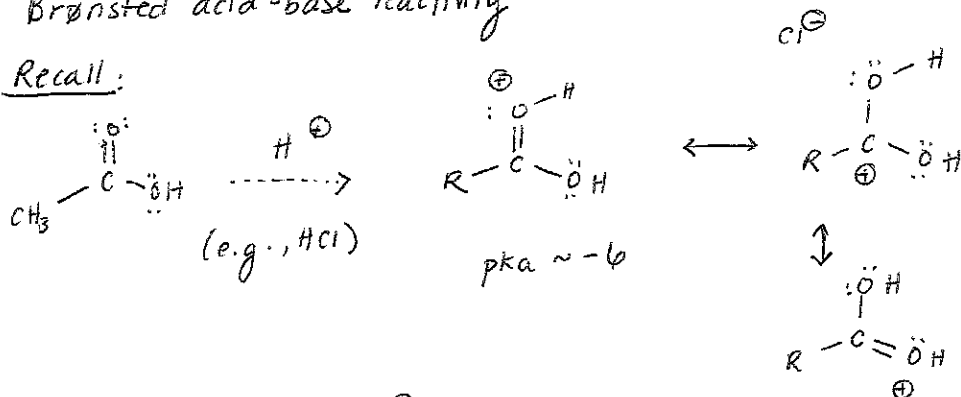
AmidesNote: Cyclic examplesSpectroscopic features: see § 21.4

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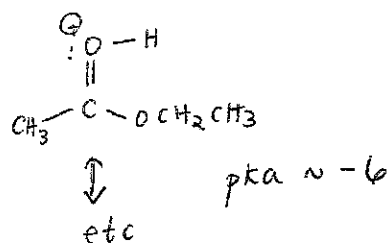
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Brønsted acid-base reactivity

Recall:



Similar for ester:



Amides - more basic

