

Course Chem 345 Lecturer Gellman
Day Wednesday Date 3-9-16
Notes Taken By Su Lin Total # of Pages 5

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Office hour after class today. (not Friday)

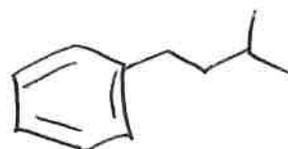
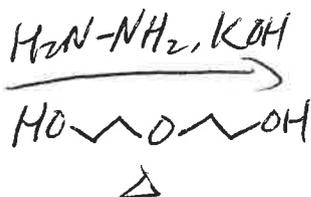
Review Session 5pm Today.

Review Session 5pm Tuesday B371 (Tentative)

Recall: Reduction of aldehyde or Ketone $C=O$
to CH_2 .

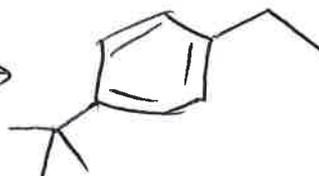
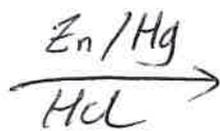
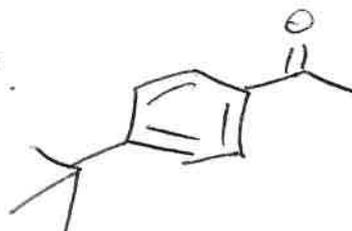
1) Wolff-Kishner ~~Red~~ Reduction

Ex:



2) Clemmensen Reduction

Ex.



Mechanism unclear.
 $\text{Zn/Hg} \equiv$ "zinc amalgam".
(Zn is the reducing agent)

Note: Solution to a synthetic problem, introduction of a single alkyl group on an aromatic ring.

Recall: FC alkylation leads to multiple additions. However,

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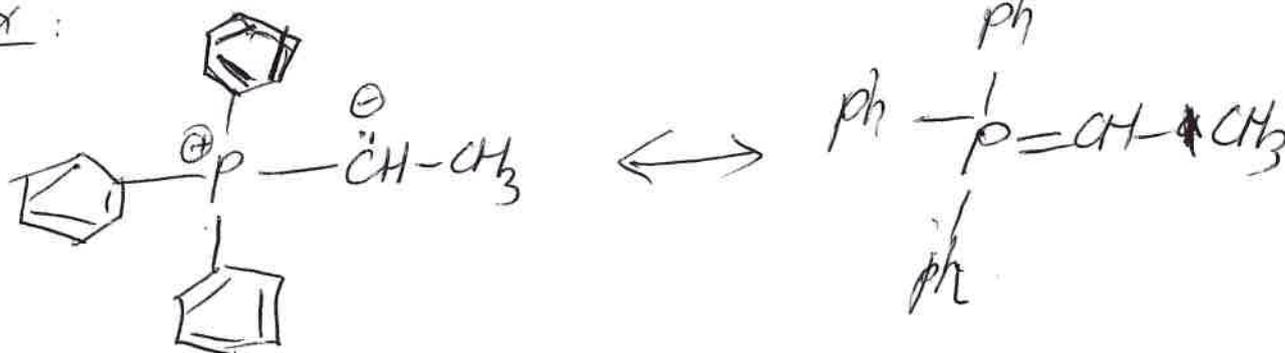
FC acylation followed by wk or elem redn accomplishes goal.

Syntheses of alkenes from aldehydes or ketones ("Wittig Rxns")

Key reagent \equiv "phosphorous ylid"

ylid = adjacent atoms, each w/ full octet, with \oplus/\ominus .

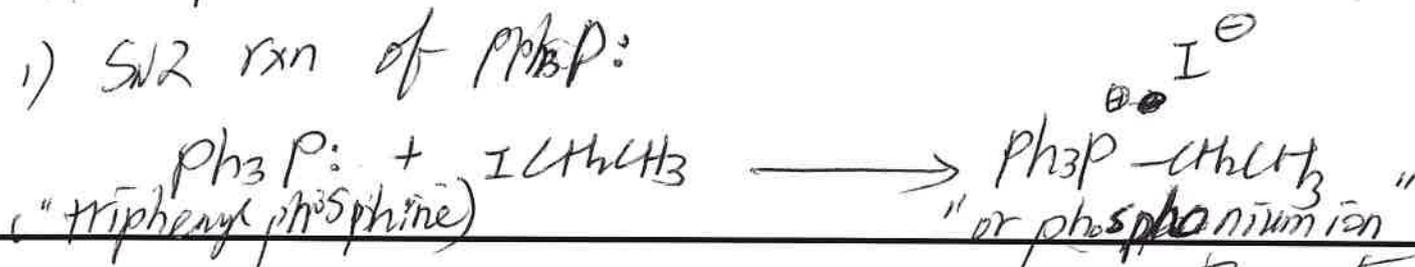
Ex:



ylid format:

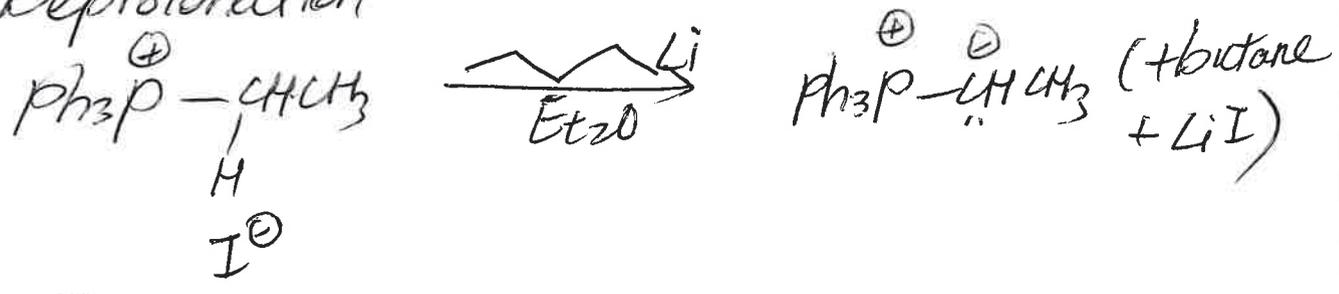
2 steps:

1) S_N2 rxn of PPh_3 :

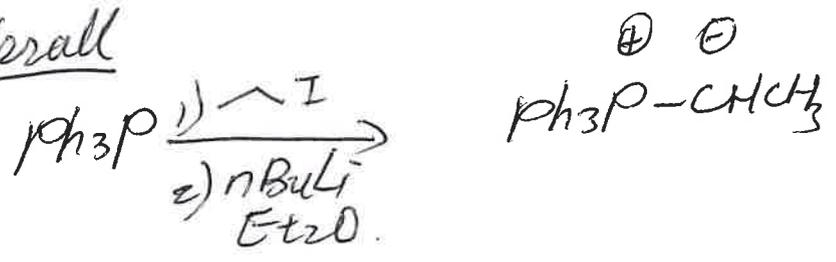


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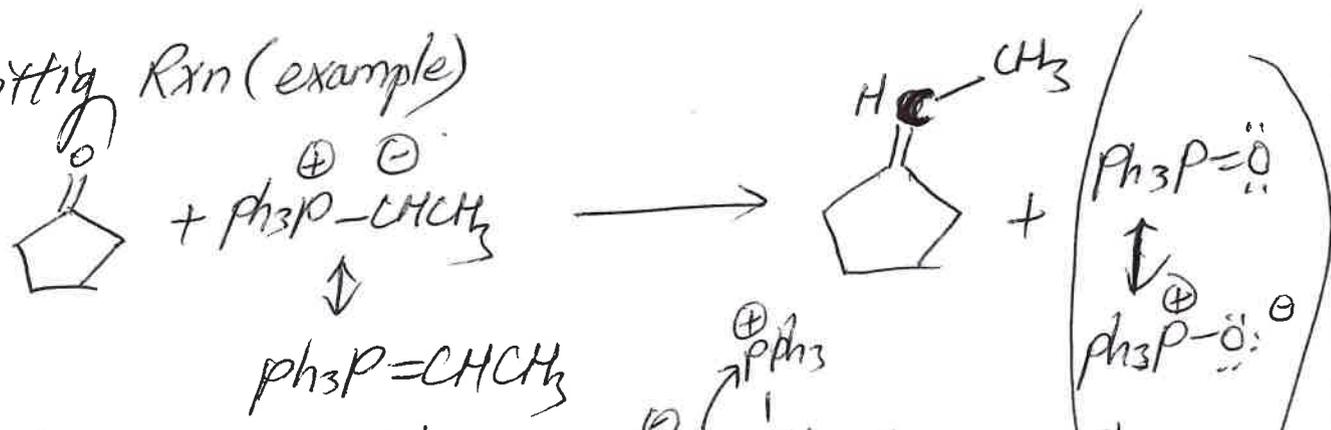
2) Deprotonation



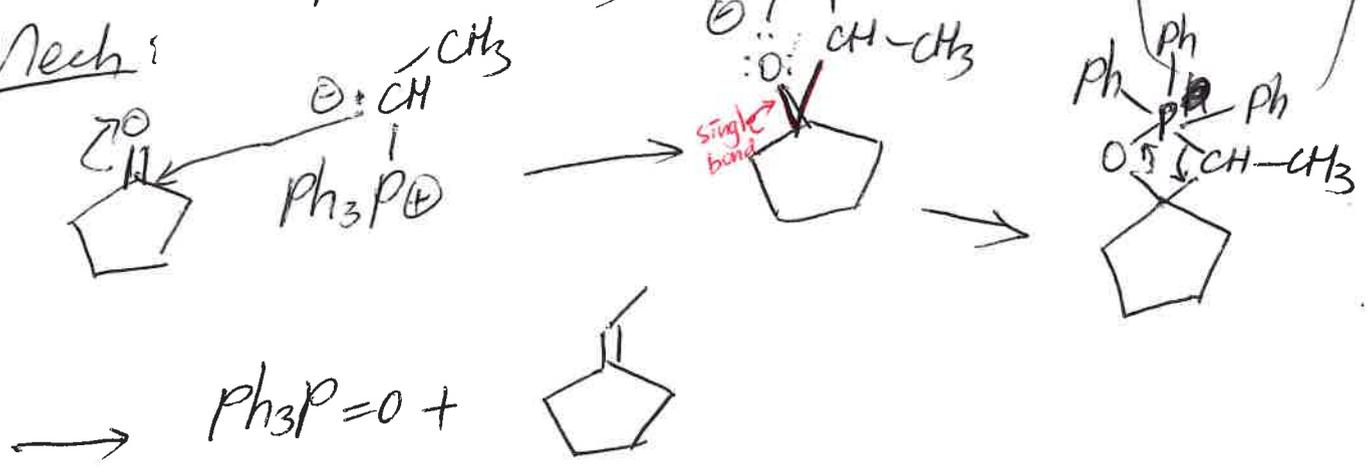
Overall



Wittig Rxn (example)



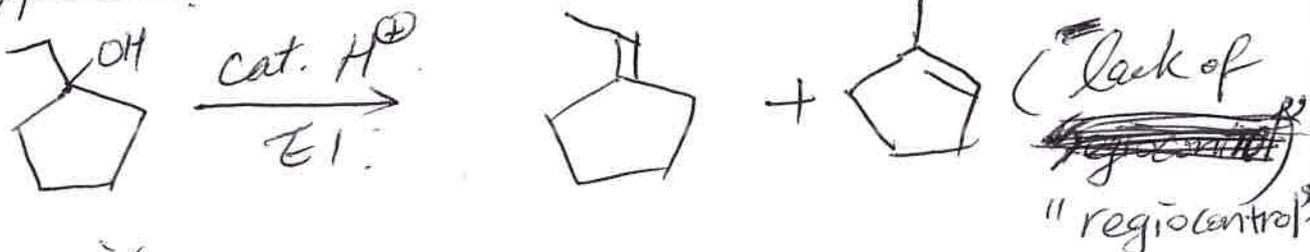
Mech:



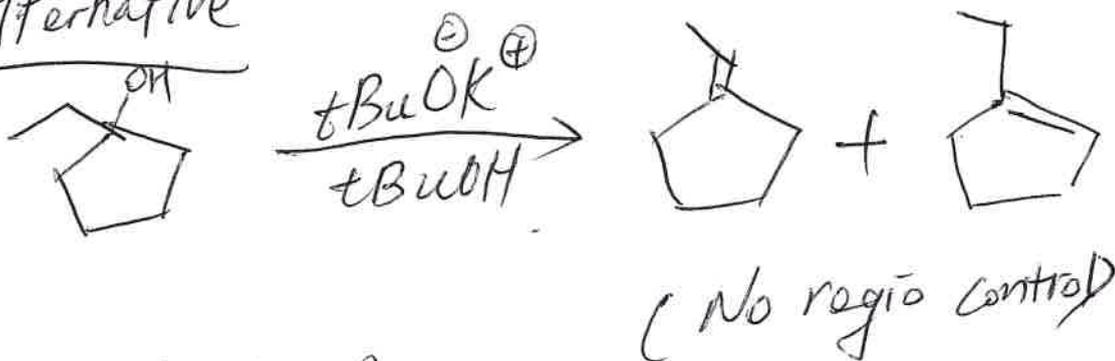
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Value of Wittig rxn - control position of new double bond - ("Regioselectivity")

Compare:



Alternative

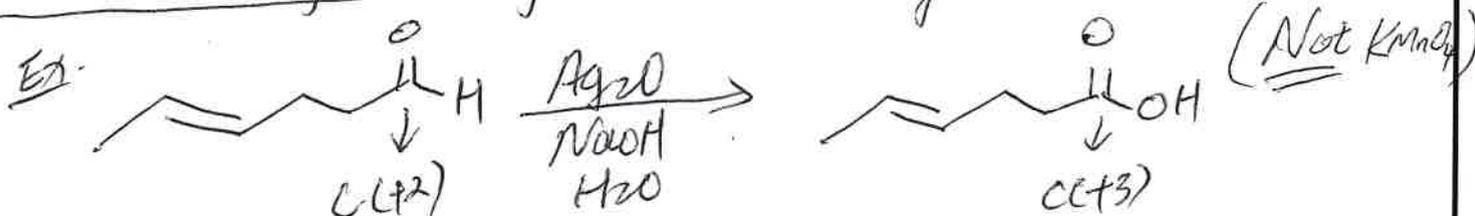


Lots of phosphines...

E.g.

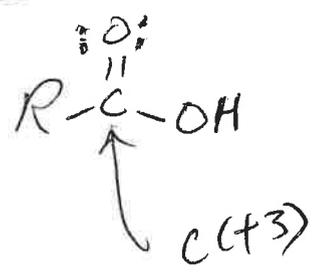


Oxidation of aldehydes to Carboxylic acids



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Chap 20 - carboxylic Acids



Spectroscopy

IR - C=O $\sim 1710 \text{ cm}^{-1}$
O-H - very strong, broad signal, $2400-3600 \text{ cm}^{-1}$