*CHEM 342 – Lecture 13 24/03/15*

Overheads: - Today’s Outline

Recap I can’t remember when:

Enolates:

1. Addition to unsaturated carbonyls:

Nu– Reaction favored

R-Li direct

R2CuLi conjugate

R-MgBr conjugate favored (unless sterically hindered)

enolate conjugate (Michael)

or other stabilized C–

CN; CH2CN; CH2NO2 *etc*

1. Aldol:



Mixed Aldol: using two different carbonyls



How to Control?

i) Use one that can’t enolize (no -H)



ii) Pre-make enolate of one compound using LDA



Claisen Condensation: Similar reaction with esters



Examples: intramolecular reactions!





Robinson Annulation: important for making



Another Nu- that adds to C=O:





Advantage of Wittig:

* Unlike E1/E2, double bond location is fixed (between C of C=O and C of ylide)

Synthesis of the Ylide:



Overall Reaction:



Stereochemistry of alkene:

* Complicated!
* Depends on R’s of ylide
* If R = alkyl, usually Z (or cis) major
* Bulky R’s = more Z



Why?

* Controlled by sterics of big R groups on P.
* CH3 groups want to be far away from big groups in transition state

