

UNIT 20 – CARBONYLS: ALPHA SUBSTITUTION

OCSL: 7.1 – 7.6, 7.9

VTOC: [Reactions at the \$\alpha\$ -Carbon](#)
[Mechanism of Electrophilic \$\alpha\$ -Substitution](#)
[Acidity of \$\alpha\$ C-H](#)

UC Davis: [Section 13.1: Tautomers](#)
[Section 13.2: Isomerization reactions](#)
[Section 13.5: Carboxylation and decarboxylation reactions](#)

UCalgary: [Enols, Enolates, Tautomerism](#)
[Acidity of the \$\alpha\$ -hydrogens](#)
[Overview of enolate reactions](#)
[Halogenation: acidic, or basic](#)
[Haloform reaction](#)
[Alkylation](#)
[Ester enolates](#)
[Common bases used for preparing enolates](#)
[Active methylenes](#)
[pKa of various \$\alpha\$ -hydrogen systems](#)
[Acylation of Ketone enolates with esters](#)
[Reactions of Active methylenes:](#)
 [Alkylation](#)
 [Decarboxylation](#)
[Acetoacetic ester synthesis](#)
[Malonic ester synthesis](#)

Skills:

- 20A. Draw the enol or enolate form of aldehydes and ketones.
- 20B. Predict acid-base properties of carbonyl compounds.
- 20C. Predict products of α -halogenation, α -alkylation and the haloform reaction.
- 20D. Synthesize substituted carboxylic acids and methyl ketones starting with malonic and acetoacetic ester synthesis.
- 20E. Use α -substitution reactions as part of multistep synthesis.