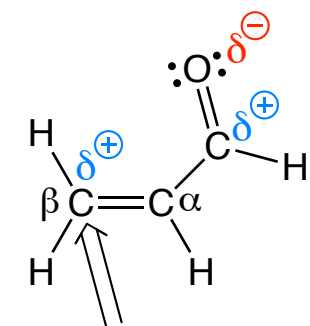
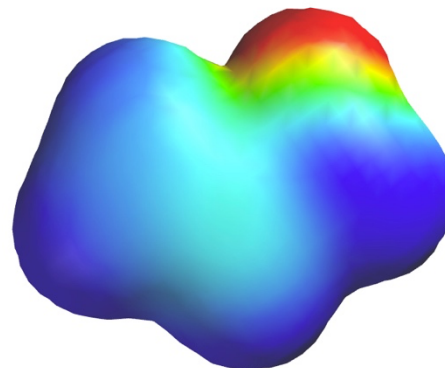
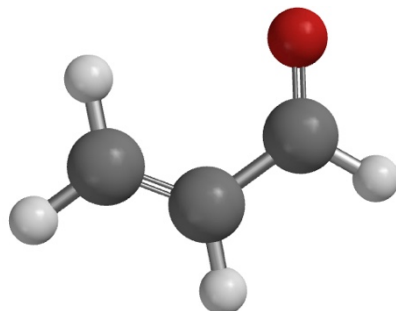


# Conjugate Addition



Nucleophiles react here via conjugate addition



A) Alkenes adjacent to a carbonyl are conjugated and are therefore electrophilic.

B) These species are called  $\alpha,\beta$  unsaturated carbonyl compounds.

C)  $\alpha,\beta$  unsaturated carbonyl compounds are conjugated, in that the pi electrons of the C=C and C=O bonds can delocalize over all four atoms. This lends some degree of extra stabilization to these species, because [pi electrons prefer to delocalize](#).

D) Nucleophiles can, however, react at the  $\beta$  carbon atom in a process called conjugate addition.

E) Conjugate addition is favorable because the intermediate formed is a resonance stabilized enolate, thus relatively low energy.

