Addition Reactions to $\alpha,\beta$-Unsaturated Carbonyl Compounds

1,2-addition
nucleophiles and reaction conditions

strong electron donors
low temperature
organolithium reagents
Grignard reagents
NaBH$_4$
LiAlH$_4$

1,4-addition
nucleophiles and reaction conditions

weak electron donors
room temperature
lithium dialkylcuprates
KCN, R-NH$_2$, R-$S^-$, N$_3^-$
enolates
enamines

Nu$^-$

racemic

Nu

Nu$^-$

(end product)