Summary of Alkene Chemistry

Reaction		Conditions	Regiochemistry	Stereochemistry	Rearrangements
Dehydration	– H_2O	Strong acid	Zaitsev's Rule		Yes
	– H_2O	$POCl_3$ in pyridine	Zaitsev's Rule		No
Dehydrohalogenation	– HX	Strong base (RO^- or R_2N^-)	Zaitsev's Rule	Anti-coplanar	No
Hydrogenation	H_2	Pt, Pd, Ni, etc.		Syn Addition	No
Hydration	H_2O	Aqueous acid	Markovnikov		Yes
	H_2O	1. $Hg(OAc)_2$ / H_2O 2. $NaBH_4$	Markovnikov		No
	H_2O	1.R_2BH; 2. H_2O_2, OH^-	Anti-Markovnikov	Syn Addition	No
Halogen Addition	Br_2, Cl_2			Anti Addition	No
Halohydrin Addition	HOBr, HOCl	X_2 and H_2O, or NBS or NCS in H_2O	Markovnikov	Anti Addition	No
Hydrogen Halide Addition	HCl, HBr		Markovnikov		Yes
	HBr	air or peroxides	Anti-Markovnikov		No
Epoxidation	"O"	Peroxyacid		Syn Addition	No
Hydroxylation	two –OHs	OsO_4 / H_2O_2 or $KMnO_4$ / NaOH, cold		Syn Addition	No
Ozonolysis	"O_2"	1. O_3; 2. Zn / H_2O or $(CH_3)_2S$	(σ and π bond cleavage to give aldehydes and ketones)		