

Chapter 20: More about Oxidation-Reduction Reactions

Learning Objectives:

1. Be able to predict products from reductions.
2. Be able to predict products from oxidation of alcohol, aldehydes, ketones, and alkenes.
3. Be able to predict products from hydroxylation of alkenes along with the associated stereochemistry.
4. Be able to predict products from oxidative cleavage of 1,2-diols, alkenes, and alkynes.
5. Be able to write the general electron-pushing (arrow-pushing) mechanisms of ozonolysis and Baeyer-Villiger reaction.
6. Be able to employ the reactions taught in Chem2310 and Chem2320 for multiple step synthesis and functional group interconversion.

Sections to be covered (in the order of delivery):

- 20.1 Reduction Reactions*
- 20.2 Oxidation of Alcohols*
- 20.3 Oxidation of Aldehydes and Ketones*
- 20.4 Oxidation of Alkenes with Peroxyacids*
- 20.6 Hydroxylation of Alkenes*
- 20.7 Oxidative Cleavage of 1,2-Diols*
- 20.8 Oxidative Cleavage of Alkenes*
- 20.9 Oxidative Cleavage of Alkynes
- 20.10 Designing a Synthesis VII: Functional Group Interconversion*

* Sections that will be focused

Recommended additional problems

20.34 – 20.42, 20.44 – 20.53, 20.60 – 20.65