

Chemistry 218
Study Guide, Exam 1

Ch. 14: NMR:

¹³C NMR (Table will be provided)

Ch. 13: Mass Spectroscopy

Interpretation of a spectrum
assignment of simple fragments

Ch. 10/11: Alkenes and Alkynes

For each reaction below, you should know the mechanism, the regioselectivity (if appropriate), and the stereoselectivity (if appropriate).

Acid catalyzed additions

HX

H₃O⁺

Hydroboration / Oxidation

Addition of X₂

Addition of X₂ in presence of another nucleophile

Terpenes

Ch. 12

Hydrogenation

H₂, Pd/C

H₂, Lindlar

Li/NH₃

Epoxidation of alkenes

Dihydroxylations

OsO₄

Oxidative cleavage

O₃

Ch. 16: Conjugated systems

allylic systems (radicals, cations, anions): resonance, molecular orbital description

reactivity of allylic position (ease of formation of radical, cation, anion)

conjugated systems: M.O. description

1,4-additions

kinetic vs. thermodynamic control

Diels-Alder (starting materials, products, stereochemistry, regiochemistry, reactivity dependent on HOMO/LUMO gap)