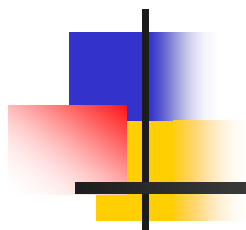


# Organic Chemistry I:

## CHEM 233



*Dr. Xiaodong Michael Shi*

Section 001

MWF, 9:30 am--10:20 am

Clark 112

# Problem set

- 10.34, 10.35, 10.40, 10.41, 10.44, 10.46,  
10.47, 10.49, 10.50, 10.52, 10.53, 10.57,  
10.58, 10.61, 10.63, 10.64



# Chapter X: Alkenes

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- 10.1 Introduction: energy



# Chapter X: Alkenes

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- 10.2 Degree of unsaturation



# Chapter X: Alkenes

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- 10.3 Nomenclature: Z/E isomer



# Chapter X: Alkenes

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- 10.3 Nomenclature: cis/trans; vinyl and allyl



# Chapter X: Alkenes

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- 10.4 Physical properties:  $sp^3$  vs  $sp^2$



# Chapter X: Alkenes

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- 10.7 Preparation of alkenes: elimination



# Chapter X: Alkenes

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- 10.8 Alkene reactions: electrophilic addition





# Chapter X: Alkenes

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- 10.9 Alkene reactions: electrophilic addition with HX





# Chapter X: Alkenes

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- **10.10 Alkene reactions: electrophilic addition with HX, Markovnikov's rule**





# Chapter X: Alkenes

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- **10.11 Stereochemistry of electrophilic addition of HX: no selectivity**





# Chapter X: Alkenes

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- 10.12 Alkene reactions: electrophilic addition with water





# Chapter X: Alkenes

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- 10.13 Alkene reactions: hallogenation  $X_2$





# Chapter X: Alkenes

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- 10.14 Stereochemistry of halogenation: trans!





# Chapter X: Alkenes

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- 10.15 Alkene reactions: halohydrin formation





# Chapter X: Alkenes

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- **10.16 Alkene reactions: Hydroboration-oxidation; selectivity-anti Markovnikov rule**





# Chapter X: Alkenes

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- 10.16 Alkene reactions: Hydroboration-oxidation; oxidation and stereochemistry





# Chapter X: Alkenes

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- 10.16 Alkene reactions: regioselectivity of the hydration





# Chapter X: Alkenes

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- 10.17 and 10.18: organic synthesis





