
CHEMISTRY 161

Spring, 2009

Instructor:
Linda M. Roberts, PhD

Adds and prerequisites

■ Add priority

- ❑ Graduating seniors and post-bacs with acceptances dependent on this class
- ❑ Seniors, graduate students
- ❑ Juniors
- ❑ Repeaters
- ❑ You cannot add if you are enrolled in the other section
- ❑ Those repeating for second time or more may be disenrolled

■ Prerequisites

- ❑ CHEM 20 (C- or better, no exceptions or concurrent enrollment)
- ❑ CHEM 24 AND CHEM 124 – no concurrent enrollment
- ❑ Must provide evidence of organic prerequisite by Friday to remain in the class

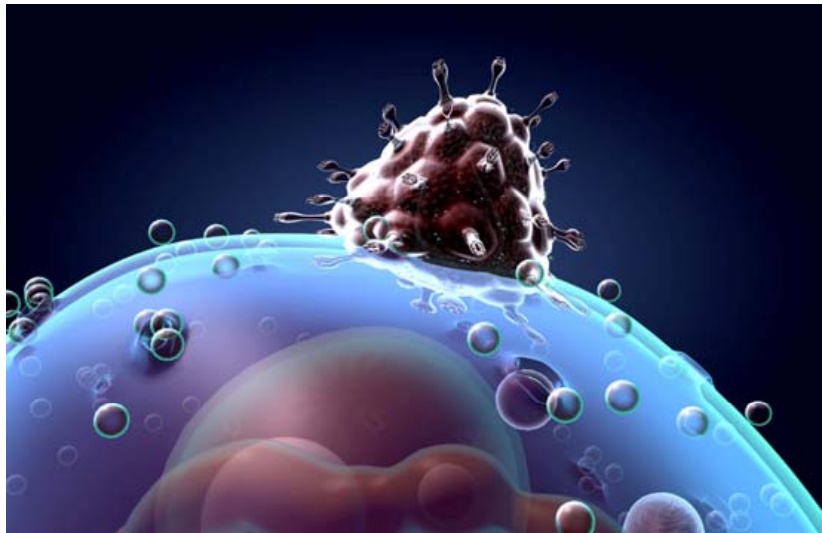
How to study for this class

- Manage your time well
- Spend nine hours a week (minimum) studying
- Review lecture notes frequently
- Work problems until you drop
 - Some exam questions will be assigned HW
- Clear up points of confusion immediately
- Use blank paper vs index card to memorize

Why you need this class

- You tell me!
- It justifies all those previous chem courses
- Biochemistry explains how every single living thing works
 - Example: viral entry into a cell
 - Example: conservation biology

Viral entry into a cell

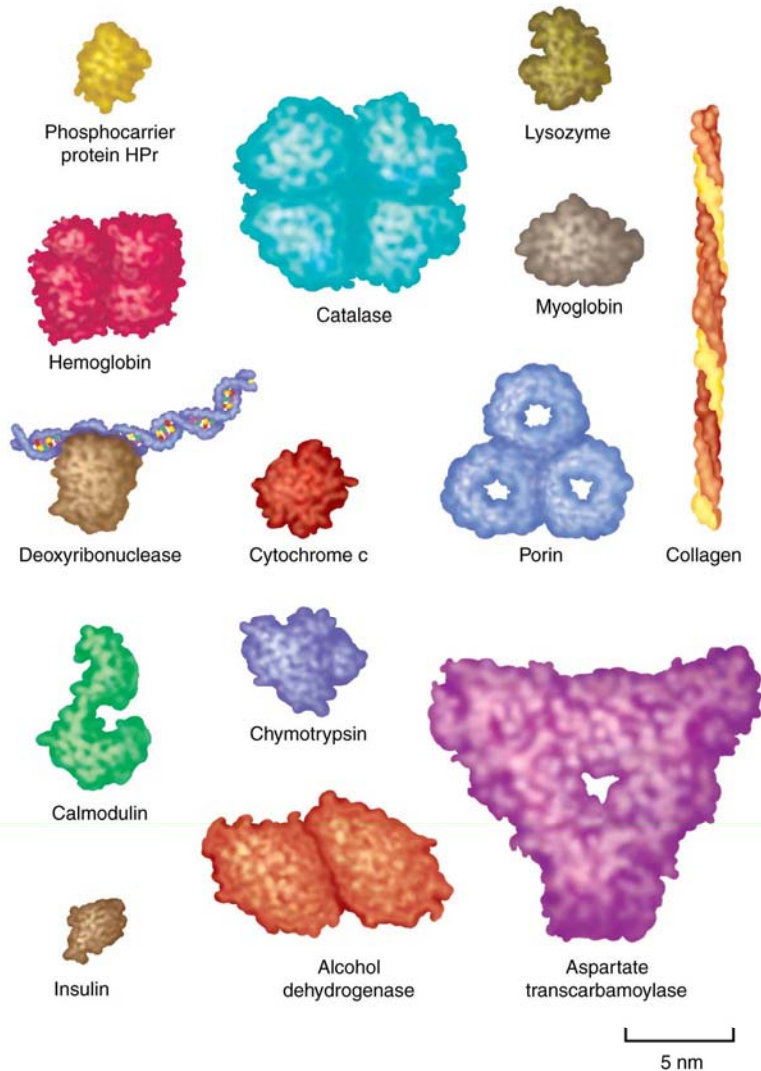


Source: www.vaxxinc.com



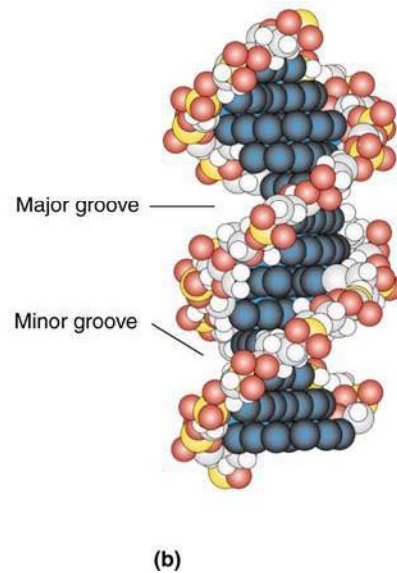
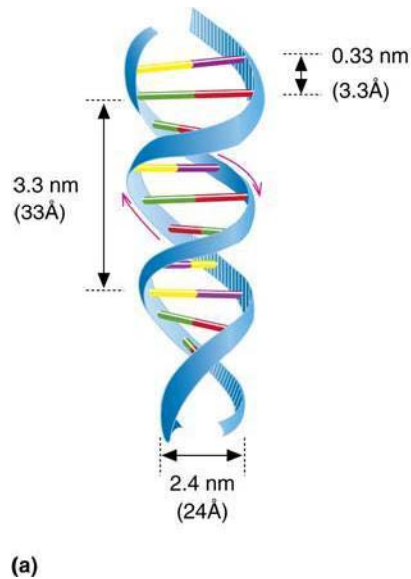
Source: <http://news.uns.purdue.edu>

Macromolecules - Proteins



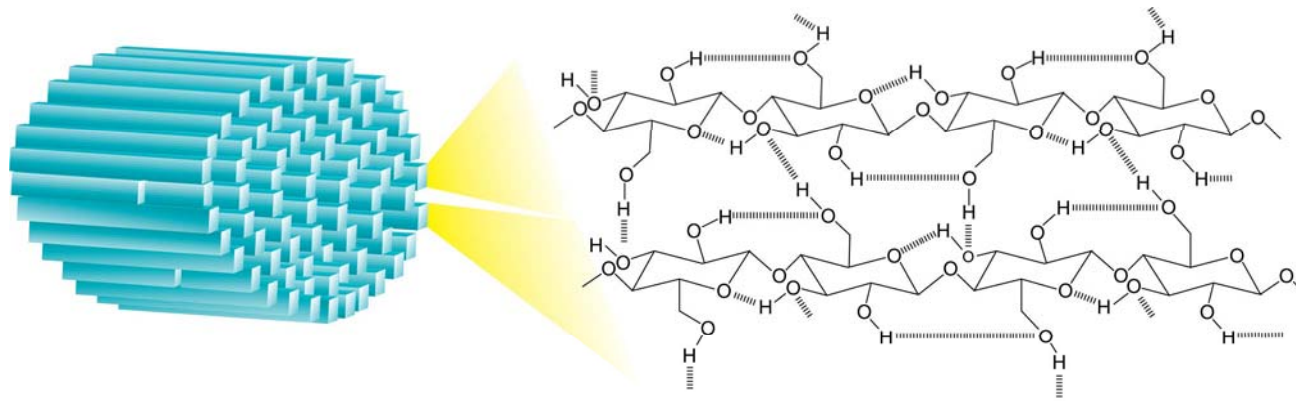
- Encodes information
- Complex
- Diverse
- Higher order structures
- Do the work of cells

Macromolecules - Nucleic acids



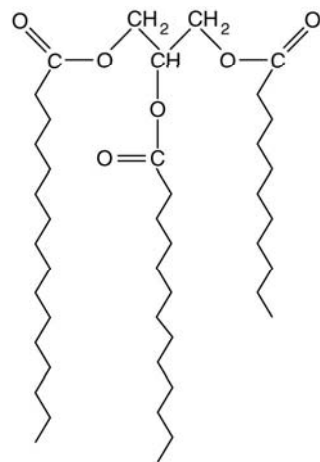
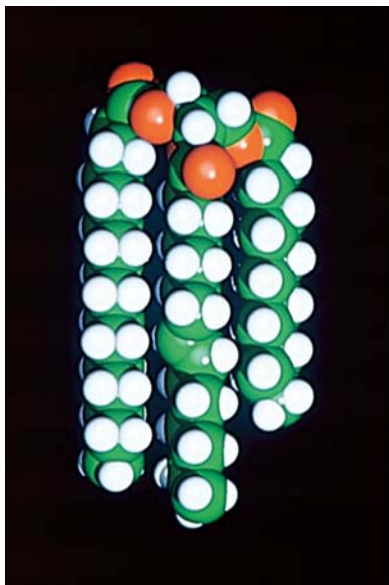
- Carries and stores genetic information
- Composed of nucleotides
- Single vs double-stranded
- Higher order structures
- Not as complex as proteins

Macromolecules - Carbohydrates



- Encode information post-translationally
- Complex
- Diverse structures and functions
- Less understood than proteins and DNA

Macromolecules - Lipids



- Structural and signaling roles
- Characterized by solubility
- Diverse functions and structures

Drawing structures - Practice

- For each molecule, provide:
 - The LDS structure(s) (all possibilities)
 - Bond and molecular dipoles
 - Geometry around central atom and all C's
 - Chiral carbons and whether stereoisomers exist
 - Resonance structures

Nucleophilic substitution

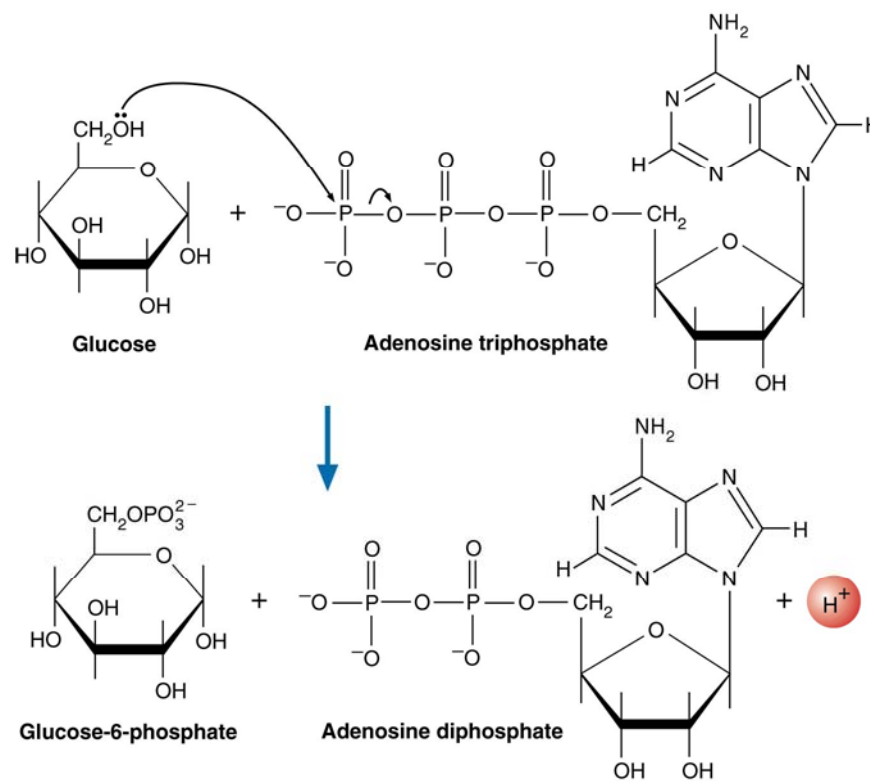


FIGURE 1.15
Example of Nucleophilic Substitution

McKee/McKee

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Nucleophilic substitution

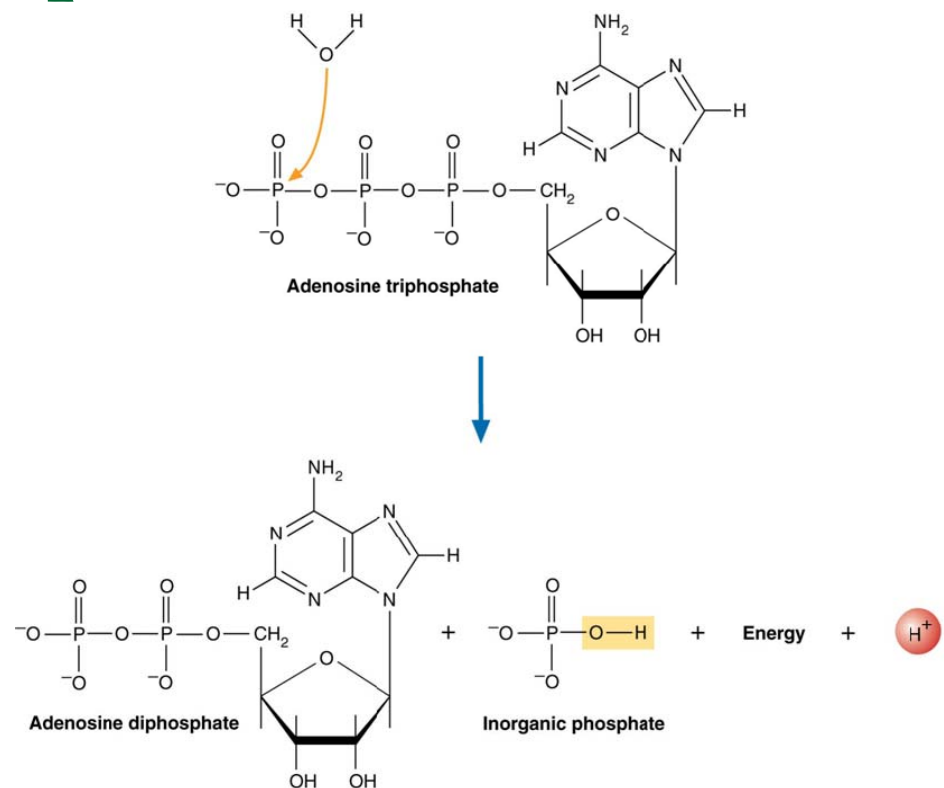


FIGURE 1.16
A Hydrolysis Reaction

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Elimination

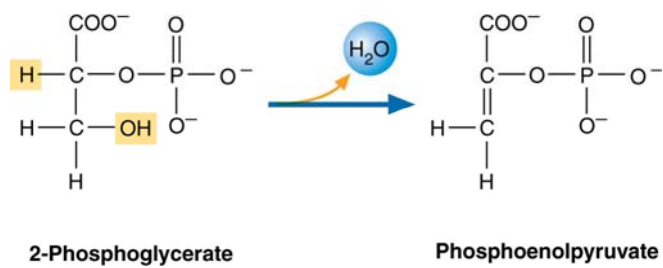


FIGURE 1.17
An Elimination Reaction

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Addition

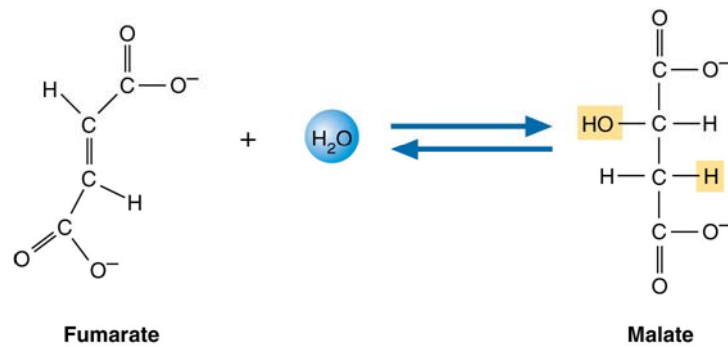


FIGURE 1.18
An Addition Reaction

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Isomerization

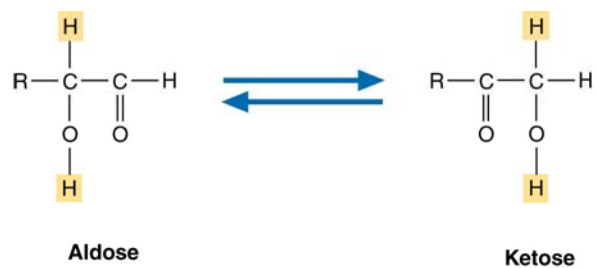


FIGURE 1.19
An Isomerization Reaction

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