Bio 210A
Lecture Test Study Guide

Macromolecules
- What is the role of water in synthesis and breakdown of polymers from and into monomers?
- For each of the macromolecules present in living tissues, name of the monomer and the chemical bond that holds the polymeric structure. *When presented with a chemical structure you should be able to recognize the monomer based on its chemical composition and known functional groups it contains.*
- Identify the role or function of monomers and polymers of each group with specific examples:
  - **Carbohydrates:** Recognize common mono-, di-, and polysaccharides (note the structural and functional differences).
  - **Lipids:** Identify and name the three groups of lipids, their structure and function and the reason they are grouped together. Which lipid group is made of subunits and what are they?
  - **Proteins:** Name the generic monomer of proteins and identify the reason each of the 20 monomers provides a protein with structural and functional properties.
    - What are the levels of protein structure? Name the chemical bond(s) involved with maintaining each level.
    - What determines the function of a protein and how can a protein lose its activity? What does denaturation mean?
  - **Nucleic Acids:** Name the generic monomer. What are the components of the monomer? How many alphabets (monomers) does the language of nucleic acids consist of? Which are found in DNA or RNA? Name the bond that binds nucleotides and contrast that with the chemical bond that holds two strands of polynucleotides together. Which chemical bond can be broken by physical means i.e. by heat?