

Learning Module 3

Learning Outcomes for Chapter 4 & 5 - Organic Chemistry

1. Be able to recognize and distinguish between the structures and the functions of carbohydrates, lipids, proteins and nucleic acids.
2. Draw and describe the 7 functional groups.
3. Identify the monomers and polymers of carbohydrates, lipids, proteins and nucleic acids.

Learning Tasks

- 1) Read Chapter 4 & 5 in your textbook.
- 2) **Figure 4.10** diagrams and describes important functional groups that help make up organic molecules. Be able to recognize all of these functional groups.
- 3) Really look at the figures of molecules in chapter 4 &5, and be sure that you understand how the molecules are put together. Examine **figure 5.13** and describe the parts of this phospholipid. Do the same with figures **5.7, 5.11, 5.18 and 5.27**.
- 4) Identify, draw, describe, and compare polysaccharides (carbohydrates), triglycerides (lipids), polypeptide chain (proteins), and nucleic acids. View the following website animation/tutorials to help review the structure and function of these all important biological molecules
 - A. Carbohydrates >http://www.wisc-online.com/objects/index_tj.asp?objID=AP13104<
 - B. Lipids >http://www.wisc-online.com/objects/index_tj.asp?objID=AP13204<
 - C. Proteins >http://www.wisc-online.com/objects/index_tj.asp?objID=AP13304<
 - D. DNA ><http://www.dnafb.org/dnafb/19/concept/index.html>< select the animation button on the bottom and review the history and structure of DNA. DNA is a nucleic acid.
- 5) Explain what can happen to the function of a protein if one amino acid is switched for another. Give an example.
- 6) Define the following, important biological terms.
 - E. organic compounds, hydrocarbons, functional groups
 - F. monomers, polymers
 - G. hydroxyl, methyl, carbonyl, carboxyl, amino, phosphate, sulfhydryl
 - H. condensation reaction, hydrolysis
 - I. monosaccharides, polysaccharides
 - J. lipids, fatty acids, glycerol, phospholipid
 - K. amino acids, peptide bond, polypeptide chain, denaturation
 - L. nucleotide, nucleic acid
- 6) Complete the quizzes that are posted in our General Biology course on <http://www.masteringbio.com/site>. Although points will accumulate, these will generally not be counted towards your grade. Although, I might take them into consideration, if you're borderline. These activities offer a good review of the concepts.
- 7) The first **TAKE-HOME EXAM will be handed out on Thursday, Feb 5th**. Some questions may come from chapter 4, depending on where we leave off on Thursday. Most of this material will be assessed on the second Take home Exam. **Critical Thinking Question (CTQ) 3 will be due on Tuesday, Feb 10th**.