

Reading: Chapter 8, pages 8-1 through 8-60 (sections 8.1 through 8.9).

Objectives: By the time you have finished your work on this material, you should know the following information:

- 1) The fact that carbon shares four electron pairs in all organic compounds, and the common bonding arrangements for a carbon atom.
- 2) The fact that when carbon makes four single bonds, the bonds form a tetrahedral arrangement.
- 3) The definition of an alkane, and the names and structures of the first ten linear alkanes.
- 4) How to interconvert full structural formulas, condensed structural formulas, and line structures for alkanes.
- 5) The definition of the term isomer.
- 6) How to recognize branched alkanes and cycloalkanes.
- 7) How to name branched alkanes using the IUPAC rules.
- 8) The definition of a functional group, the fact that the chemical properties of organic compounds are determined by their functional groups, and recognize functional groups by the name and in a molecule.
- 9) How to recognize the alkene and alkyne functional groups in a molecule.
- 10) How to name and draw the structures of branched alkenes and alkynes.
- 11) How to name and draw the structures of branched cycloalkenes.
- 12) How to name and draw the structures of the *cis* and *trans* forms of alkenes.
- 13) How to recognize the aromatic ring in a molecule.
- 14) The relationship between the physical properties of hydrocarbons and their size.
- 15) The fact that hydrocarbons are insoluble in water and are less dense than water.
- 16) How to write the balanced equation for the combustion reaction of any hydrocarbon.

Homework Assignment 9 (due October 20):

Page 8-6: problems 8.1 and 8.3

Page 8-15: problems 8.4 through 8.9

Pages 8-23 and 8-24: problems 8.11, 8.12, 8.14, 8.15, 8.16 and 8.17

Page 8-33: problems 8.18 through 8.21

Page 8-36: problem 8.22

Pages 8-44 and 8-45: problems 8.24 through 8.31

Page 8-52: problems 8.32 through 8.35

Pages 8-56 and 8-57: problems 8.37, 8.38, 8.39 and 8.40

Page 8-61: problems 8.41, 8.42, 8.43 and 8.44

Challenge yourself to not look at the answers until you have seriously attempted all problems. (To see the solutions, click on "Textbook Resources" on the class website.)

My website URL: <http://www.ccsf.edu/Departments/Chemistry/pauly/index.htm>

Need help? Come to my office hours or visit the LAC in the library.