

Biology 106: Principles of Biology I

Instructor: Dr. Michael Franklin

Assigned Reading

Biological Science 2nd Edition, by Scott Freeman (2005)

The following covers information to the first midterm (and includes the first quiz).

Science, Biology (defined); Nature of Science; Scientific Methodology
pp 1-2; pp 4-12 (Background information)

Experimental Design, pp 12-16

Chemical Biology, atoms, Elements, Bonds, and Molecules

pg 20, pp 21 (When Did Chemical Evolution Take Place?) 22

Radioactive Decay and Isotopes, pg 22.

PP 22-23, Background information (How Old Is The Earth)

Major, Minor, and Trace Elements pp 24-25

Bonds (polar and non-polar covalent, ionic and hydrogen) pp 24-27

Molecular shape and Function pp 28-30; Energy defined pp 28-30

Molecular Functional Groups, Table 2.1, pg 38.

Properties of Water, why water has these amazing properties; pp 39-42

MACROMOLECULES

Carbohydrates, Simple to very complex, forms and function; pp 90-100 (Chap 5)

Lipids, Simple to very complex, forms and function; pp 103-125 (Chap 6)

Proteins and Enzymes, Structure and Function; pp 41-71 (Chap 3)

Nucleic Acids, Structure, Form and Function, ATP, RNA, DNA; pp 74-87 (Chap 4)

Phospholipids, Lipid bilayer, and cellular/organelle membranes. Pg 109

Molecular Motion, Osmosis; pp 110, 114-115.

Hypertonic, Hypotonic, and Isotonic; pp 114-115

CELLS

Prokaryotes (Bacteria, etc.) pp 128-131; Eukaryotes (all others) pp 131, and rest of Chapter.

Major Organelles and their functions, pp 132-143 and 149-156

Cell to Cell Communication, pp 163-166, 168-170, 170-174.

(Major organelles and their functions, and cell to cell communication corresponds to your first homework assignment).