

REVIEW TOPICS TO PREPARE FOR THE HEALTH BIOLOGY PROFICIENCY EXAM

A. Basic Chemistry

1. Inorganic

- a. atomic structure
elementary particles (protons, neutrons, electrons), atomic number, atomic mass, isotopes, chemical symbols
- b. atoms and molecules
ionization, anions, cations, bonding: ionic, covalent (polar, non-polar), hydrogen
- c. acids, bases, pH, buffers

2. Organic

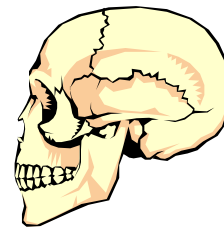
- a. functional groups, example: amino group, carboxyl group, hydroxyl group
- b. biologically important molecules:
carbohydrates, lipids, proteins, nucleic acid

B. Cell Structure and Function

1. structure of the cell membrane
2. movement of molecules: osmosis / diffusion / active transport
3. cell organelles, example: structure and function of mitochondria, nucleolus, lysosome, ribosome, endoplasmic reticulum, vesicle, nucleus, Golgi apparatus, etc.
4. energetics
 - a. synthesis and hydrolysis of ATP
 - b. aerobic metabolism (cell respiration), example: Krebs cycle, electron transport system, etc.)
 - c. anaerobic metabolism (glycolysis)
5. protein synthesis
 - a. role of DNA, RNAs
 - b. genes
6. mitosis / meiosis

C. Chemical Composition of the Body

1. osmolarity
 - a. hyper-, hypo-, isotonic solutions and how they relate to osmosis
2. acids, bases, buffers



BIOL 201 – HUMAN ANATOMY Course Prerequisites

- Reading Level 5, Writing Level 6, and Math Level 4

AND

- CHEM 120 or BIOL 121 or BIOL 127 with a 2.0 minimum, or a passing score on the Health Biology Proficiency Test.
- If you need to take the Health Biology Proficiency Test, you must take it in the Assessment Center BEFORE you register for BIOL 201.
- This test may be taken only ONE time.
- To prepare for the Health Biology Proficiency Test, read and study the review topics as found in Chapters 2-9, 12-14, and 17 of Biology, Campbell & Reece, 8th edition, on reserve in the LCC Library and the LS ARC (A&S 455).
 - Chapter 2 Inorganic Chemistry
 - Chapter 3 Water and pH
 - Chapter 4 Organic Chem and functional groups
 - Chapter 5 Biomolecules
 - Chapter 6 Cell and organelles
 - Chapter 7 Cell membranes
 - Chapter 8 Enzymes and Metabolism
 - Chapter 9 Cellular Respiration
 - Chapter 12 Cell Cycle and Mitosis
 - Chapter 13 Meiosis
 - Chapter 14 Mendelian Inheritance
 - Chapter 17 Transcription and Translation (From Gene to Protein)
- A review of topics sheet is available on the back of this page.

**For more information contact the Science Department at
(517) 483-1092.**