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).
  o Chapter 2 Inorganic Chemistry
  o Chapter 3 Water and pH
  o Chapter 4 Organic Chem and functional groups
  o Chapter 5 Biomolecules
  o Chapter 6 Cell and organelles
  o Chapter 7 Cell membranes
  o Chapter 8 Enzymes and Metabolism
  o Chapter 9 Cellular Respiration
  o Chapter 12 Cell Cycle and Mitosis
  o Chapter 13 Meiosis
  o Chapter 14 Mendelian Inheritance
  o 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.