**Course Objectives:** BIOL 2010 is a study of basic biological chemistry, cellular structure and function, (including cellular respiration, protein synthesis and cell division), histology, and integumentary, skeletal and nervous systems.

**Learning Outcomes:** Upon successful completion of this course, the student should be able to:

1. Use correct terminology to describe the organization of the human body in terms of regions, cavities, sectional planes, and relative positions of major organs and body parts.
2. Explain the steps involved in the scientific method, and demonstrate its use in the laboratory setting.
3. Demonstrate the proper use of the compound light microscope in the observation of human cells and tissues.
4. Explain homeostasis and its significance to normal body function, and describe the components of a feedback mechanism.
5. Describe the chemical constituents of the human body, including structural and functional properties of water, electrolytes, gases, and major organic molecules found in cells and tissues.
6. Describe the structures and functions of the human cell, including receptor-ligand interactions, transport mechanisms, the somatic cell cycle, transcription, translation, and protein processing.
7. Describe the structural features and specializations of tissues.
8. Describe cellular metabolism, including: types of chemical reactions; the structure and function of enzymes; and the major biochemical pathways of energy production.
9. Describe the major gross and microscopic anatomical features of the integumentary system, skeletal system, and nervous system.
10. Explain the major physiological processes that occur in these systems including: bone growth and remodeling; generation and propagation of action potentials; and synaptic communication along sensory and motor pathways.
11. Explain the roles of cells and the above systems in the maintenance of homeostasis, especially concerning: cell growth and reproduction; energy production and storage; body temperature homeostasis; endocrine regulation of calcium levels and blood glucose; and the distinct regulations provided by the somatic and autonomic nervous systems.