Department:

Biology

Course Description:

This general education course will examine the plant and animal kingdoms, their fundamental principles and processes of life, and their relationship to everyday life. The course consists of three hours of lecture plus three hours of laboratory work per week.

Course Competencies:

The learning outcomes and competencies detailed in this syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups for this course as approved by the Kansas Board of Regents. (Kansas Regents Shared Number Course and Title: KRSN Course BIO 1010 General Biology for Non Majors & Lab.)

Upon completion of the course, the student should be able to:

1. List the steps associated with the scientific method and apply this approach in the study of organisms.
2. Describe the basic chemistry of life processes.
3. Describe the basic processes of cellular respiration and photosynthesis.
4. Describe the structures of cells, identify types of cells, and explain the transport processes between cells.
5. Describe the basic processes of reproduction and inheritance.
6. Explain the major principles of ecology and evolution.
7. List characteristics and give examples of representatives from the Monera, Protista, Fungi, Plantae, and Animalia kingdoms.

Course Content:

A. Introduction
   1. Definitions
   2. Characteristics of life
   3. The scientific method
B. Cell chemistry, structures, and processes
   1. Chemistry
      a. Structure of an atom
      b. Types of chemical bonds
      c. Acids and bases
      d. Types of carbon compounds
   2. Cell structures
BS 101 College Biology
Prerequisites: ENG090, MAT090, and R090 or assessment
5 Credit Hours (Lecture and Lab)

- Eukaryotic and prokaryotic cells
- Functions of cellular structures

3. Cell processes
   - The transport processes of osmosis and diffusion
   - The processes of cellular respiration and photosynthesis

C. Principles of inheritance
   1. The stages of mitosis
   2. The stages of meiosis
   3. Mendel's theories of dominance, segregation, and independent assortment
   4. Modern genetics and human genetics
   5. The structure of DNA and its relationship to protein synthesis

D. Principles of evolution
   1. Mutation, gene flow, genetic drift, and natural selection and how these processes change populations through time
   2. Definition of the term species
   3. Definitions of taxonomy, classification, and binomial nomenclature
   4. Human evolution

E. Principles of ecology
   1. Ecological terms
   2. Energy use and flow
   3. Nutrient cycles
   4. Biomes and aquatic ecosystems
   5. Population dynamics, human population growth, and human ecology

F. Kingdoms Monera, Protista, Fungi, Plantae, and Animalia
   1. Characteristics of each kingdom
   2. Examples from each kingdom
   3. Types of reproduction in each kingdom

Learning Assessments:

Course competencies will be assessed by the use of lecture tests, subject area tests, lab assignments, quizzes, and Web site activities.

Instructional Materials:

ISBN 9780321602060

Guidelines for Requesting Accommodations Based on Documented Disability or Medical Condition

It is the intention of Highland Community College to work toward full compliance with the Americans with Disabilities Act, to make instructional programs accessible to all people, and to provide reasonable accommodations according to the law.
Students should understand that it is their responsibility to self-identify their need(s) for accommodation and that they must provide current, comprehensive diagnosis of a specific disability or medical condition from a qualified professional in order to receive services. Documentation must include specific recommendations for accommodation(s). Documentation should be provided in a timely manner prior to or early in the semester so that the requested accommodation can be considered and, if warranted, arranged.

In order to begin the process all students **must** complete the “Disabilities Self-Identification Form” at this link: [https://highlandcc.edu/pages/disability-services.](https://highlandcc.edu/pages/disability-services)

This form can also be accessed at the Highland Community College homepage under Students Services/Student Resources/Disability Service or by contacting the Disabilities Coordinator.