

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 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. Explain the three-domain taxonomic classification system and describe representative organisms and typical characteristics within each.
8. Access and use textbooks and relevant Web site materials.

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
 - a. Eukaryotic and prokaryotic cells
 - b. Functions of cellular structures
 3. Cell processes

- C. The transport processes of osmosis and diffusion
- D. The processes of cellular respiration and photosynthesis
- E. 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
- F. 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
- G. 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
 - 6. Domains Eubacteria, Archaea, and Eukarya
 - a. Kingdom Eubacteria
 - b. Kingdom Archaeobacteria
 - c. Kingdom Fungi
 - d. Kingdom Protista
 - e. Kingdom Plantae
 - f. Kingdom Animalia

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:

Textbook: Simon, E. J., Dickey, J. L., & Reece, J. B. (2018). *Campbell Essential Biology* (7th ed.). Pearson. ISBN-13: 978-0134765037

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" on our [Disability Services website](#).

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.

A Note on Harassment, Discrimination and Sexual Misconduct

Highland Community College seeks to assure all community members learn and work in a welcoming and inclusive environment. Title VII, Title IX, and College policy prohibit harassment, discrimination and sexual misconduct. Highland Community College encourages anyone experiencing harassment, discrimination or sexual misconduct to talk to report to the Vice President for Student Services, the Human Resources Director or complete an [online report](#) about what happened so that they can get the support they need and Highland Community College can respond appropriately.

There are both confidential and non-confidential resources and reporting options available to you. Highland Community College is legally obligated to respond to reports of sexual misconduct, and therefore we cannot guarantee the confidentiality of a report, unless made to a confidential resource. Responses may vary from support services to formal investigations. As a faculty member, I am required to report incidents of sexual misconduct and thus cannot guarantee confidentiality. I must provide our Title IX coordinator with relevant details such as the names of those involved in the incident. For more information about policies and resources or reporting options, please review our [Equity Grievance Policy](#).