

**Department:**

Biology

**Course Description:**

This course provides a physio-chemical study of the systems forming the human body. The course will focus on the relationships between the systems and the maintenance of a homeostatic condition within the body. Diseases, defects, and abnormalities are covered with each system. The course will consist of three hours of lecture and one and one-half hours of laboratory 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 BIO2020 Anatomy and Physiology.**)

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

1. Define and explain the process of homeostasis.
2. List and explain the general functions of the structures forming each body system.
3. Describe the physiology of the organs, tissues, cells, and chemicals of each body system.
4. Explain the function of each body system in maintaining homeostasis within the body.

**Course Content:**

- A. Introduction to human physiology
  - a. Homeostasis
  - b. Atoms, ions, and chemical bonds
  - c. Organic molecules
  - d. Structure and function of the parts of a cell
- B. Muscular system
  - a. Review of the muscular system and muscle cell
  - b. Neuro-chemical activities of a muscle cell during stimulation, contraction, and relaxation
- C. Nervous system
  - a. Review of the nervous system and nerve cell
  - b. Formation and conduction of a nerve impulse
  - c. Types of reflexes
  - d. Activities of the brain
- D. Endocrine system
  - a. Review of glands and hormones
  - b. Function of individual hormones
  - c. Functions of the endocrine and nervous systems in stress and homeostasis
- E. Cardiovascular and Lymphatic systems
  - a. Review of the cardiovascular system
  - b. Types and functions of the blood cells

- c. Physiological activities of blood vessels
- d. Physiological activities of the heart
- e. Study of the immune system
- F. Respiratory system
  - a. Physiology of cellular, internal, and external respiration
  - b. Nervous control of breathing
  - c. Types and volumes of air inhaled and exhaled
- G. Digestive system
  - a. Review of the digestive system
  - b. Function of glands and enzymes involved in digestion
  - c. Processes of food absorption
  - d. Processing of digestive wastes
  - e. Processing and utilization of digested food
  - f. Cellular metabolism and heat production
  - g. Homeostasis of body temperature
- H. Urinary system
  - a. Review of the urinary system
  - b. Filtration
  - c. Control of water/salt balance of the body fluids
  - d. Control of acid/base balance of the body fluids
  - e. Nervous control of urination
  - f. Physical and chemical changes of normal urine production
- I. Reproductive system
  - a. Review of the male and female reproductive systems
  - b. Physiology of sperm and egg production
  - c. Physiology of erection, emission, ejaculation, fertilization, implantation
  - d. Description of the menstrual cycle
  - e. Function of hormones in sexual development and reproduction

## Learning Assessments:

Competencies may be evaluated by multiple measures, including class and lab assignments, quizzes, and tests.

## Instructional Materials:

eBook: Tortora, G. J. & Derrickson, B. H. (2020). *Principles of Anatomy and Physiology* (16 ed.). John Wiley & Sons. ISBN: 978-1-119-66268-6

### 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](#).