

LABETTE COMMUNITY COLLEGE BRIEF SYLLABUS

SPECIAL NOTE:

This brief syllabus is not intended to be a legal contract. A full syllabus will be distributed to students at the first class session.

TEXT AND SUPPLEMENTARY MATERIALS USED IN THE COURSE (if any):

Please check with the LCC bookstore, <http://www.labette.edu/bookstore>, for the required texts for this class.

<u>COURSE NUMBER:</u>	BIOL 130, BIOL 131
<u>COURSE TITLE:</u>	ANATOMY AND PHYSIOLOGY, lecture and lab
<u>SEMESTER CREDIT HOUR:</u>	5
<u>DEPARTMENT:</u>	Biology
<u>DIVISION:</u>	General Education
<u>PREREQUISITE:</u>	Recommended High School Biology with an A or B, BIOL 101 or BIOL 120
<u>PLACEMENT TEST LEVEL:</u>	General Education Course
<u>REVISION DATE:</u>	December 5, 2017

COURSE DESCRIPTION:

This course is designed for one semester and is a comprehensive discipline of Biology. Anatomy and Physiology (A&P) involves both lecture and laboratory study of the human body. The course covers the competencies for anatomy and physiology at the college level as set forth by the State of Kansas Core Competency Committee. The course will integrate the structure and function of the human body.

This course meets the requirements for those interested in nursing, respiratory therapy, radiography, physical education, biology majors, minors, and for other health sciences. Lectures and labs are presented in a logical sequence by body systems.

Gross human cadaver pictures, as well as other animal and human gross anatomy pictures are used in lecture and lab to enhance learning.

While some may object to these pictures for various reasons, they are used here strictly for educational purposes.

Cat dissection is a part of the anatomy and physiology lab. **Viewing of human gross anatomy will also occur (cadaver pictures)** as well as of gross cat and sheep or cow anatomy (heart, eyes, and brain). These visual aides are used to lead labs and assist in learning the lecture material.

COURSE OUTCOMES AND COMPETENCIES:

The learning outcomes and competencies detailed in this course outline or syllabus meet or exceed the learning outcomes and competencies specified by the Kansas Core Outcomes Groups project for this course as approved by the Kansas Board of Regents.

Kansas Regents Shared Number Course BIO 2020

Students who successfully complete this course will be able to:

1. Demonstrate measurable understanding of the concept of homeostasis and the relationship of cell physiology to gross anatomy and physiology and how it applies to the health care field

- Describe cellular structures and functions of cellular components
- Demonstrate understanding of the concept of homeostasis and the consequences of homeostatic imbalances in the human body
- Describe the relationship of basic chemistry to cellular structures and homeostasis of all body systems.
- Comprehend the levels of organization of the human body from atoms to organism.
- Use the correct anatomical terms and language when discussing human anatomy and physiology.
- Identify the body planes, cavities, and sections commonly used.
- Describe the primary tissues of the body and their function
- Read and understand nursing and allied health journals.

(KRSN Core Outcomes A, B, C, D)

2. Demonstrate measurable understanding of the major gross and microscopic anatomical components of the musculoskeletal system and explain their functional roles in body movement, maintenance of posture, repair, and heat production.

- Describe the general structure and function of the skeletal system, including bony features and joints
- Describe the growth, development and aging of the musculoskeletal system.
- Discuss the interrelationship with the other organ systems of the body.
- Compare and contrast the types of bone and muscle tissue
- Identify the major skeletal muscles
- Describe the physiology of muscle contraction
- Describe the structure and function of articulations
- Predict the consequences of homeostatic imbalances associated with this system

(KRSN Core Outcomes F, G)

3. Demonstrate measurable understanding of the major gross and microscopic anatomical components of the neuroendocrine and integumentary systems and explain their functional roles in communication and homeostasis

- Describe the structure & functions of the skin and the membranes of the body.
- Discuss prevention of skin diseases and the clinical value of observing the state of the skin.

- Explain the general organization and functions of the nervous and endocrine systems.
- Identify the major organs of the nervous and endocrine systems
- Explain the neurophysiology, including mechanism of resting membrane potential, production of action potentials, and impulse transmission
- Explain the interrelationship of the nervous and endocrine systems, including the neuroendocrine response to stress.
- Describe the gross & microscopic anatomy of the special sense organs.
- Discuss the interrelationship of the Integumentary and neuroendocrine systems, as well as their interaction with the remaining organ systems.
- Discuss the role of the endocrine system in regulation and integration of body organ systems
- Predict the consequences of homeostatic imbalances in the neuroendocrine and integumentary systems

(KRSN Core Outcomes E, H, I, J)

4. Demonstrate measurable understanding of the major gross and microscopic anatomical components of the cardiorespiratory systems and their function

- Discuss the general functions of the cardiovascular and respiratory systems.
- Explain the mechanisms of gas exchange in lungs & tissues.
- Describe the mechanisms of pulmonary ventilation including air volumes and capacities
- Describe the mechanisms of gas transport in the blood
- Explain the physiology of blood flow
- Describe the cardiac cycle
- Trace the movement of air as it flows into and out of the respiratory system
- Trace blood movement as it completes the entire closed circulatory system of the body.
- Discuss the interrelationship of the cardiovascular and respiratory systems.
- Explain the formation and composition of blood, including the identification and function of the blood cells.
- Discuss the concept of hemostasis and blood grouping, including the clinical implications in blood transfusion
- Predict the consequences of homeostatic imbalances in the cardiorespiratory systems

(KRSN Core Outcomes K, M)

5. Demonstrate measurable understanding of the major gross and microscopic anatomical components of the lymphatic system and explain their functional roles in fluid dynamics and immunity.

- Describe the general functions of the lymphatic system.
- Identify the gross and microscopic anatomy of the lymphatic system, including the pattern of lymph circulation.
- Define non-specific resistance to disease & describe the inflammatory response.
- Describe antibody-mediated (humoral) and cell-mediated immune response.
- Discuss the homeostatic imbalances associated with autoimmune disease, hypersensitivity and immunodeficiency.

(KRSN Core Outcome L)

6. Demonstrate a measurable understanding of the major gross and microscopic anatomical components of the digestive system, explain their functional roles in digestion, absorption, excretion and elimination, and the functional relationship among cellular, tissue and organ-level metabolic processes

- Describe the general functions of the digestive system.
- Describe the gross & microscopic anatomy of the GI tract & the accessory organs of digestion.
- Describe the mechanical & chemical processes of digestion & absorption.
- Explain the processes of excretion & elimination.
- Explain the hormonal & neural regulation of digestive processes.
- Describe the homeostatic integration with other systems.
- Describe cellular respiration and the metabolism of carbohydrates, lipids and proteins
- Discuss the role of nutrition in metabolism
- Describe the mechanisms by which metabolic rate is regulated in the body
- Predict the consequences of homeostatic imbalances in the digestive system and metabolism

(KRSN Core Outcomes N, O)

7. Demonstrate measurable understanding of the major gross and microscopic anatomical components of the urinary system and explain their functional roles in controlling fluid/electrolyte balance and acid/base balance.

- Identify general functions of the urinary system.
- Describe gross & microscopic anatomy of the urinary tract, including detailed histology of the nephron.
- Explain the functional processes of urine formation, including filtration, reabsorption, secretion, and excretion, as well as innervation & control of the urinary bladder
- Explain factors regulating & altering urine volume & composition, including the rennin-angiotensin system and the roles of aldosterone & antidiuretic hormone
- Describe endocrine activities of the kidneys
- Describe the major fluid compartments and the movements between the major fluid compartments, causal forces, volumes, and electrolyte balance
- Discuss the chemical and physiological buffering systems and the maintenance of acid/base balance.
- Predict the consequences of imbalances in the homeostasis of fluids, electrolytes, acid/base and the urinary system

(KRSN Outcomes P, Q)

8. Demonstrate measurable understanding of the major gross and microscopic anatomical components of the reproductive system and explain their functional roles in reproduction and inheritance.

- Identify the general functions and anatomy of the male and female reproductive systems

- Describe the regulation of reproductive functions, including puberty, the female reproductive cycle and spermatogenesis.
- Describe the mammary gland anatomy and physiology.
- Discuss the development of the embryo/fetus & the hormonal changes during pregnancy, parturition & labor.
- Discuss introductory concepts of human genetics, including patterns of inheritance.

(KRSN Outcome R)