BAKER COLLEGE
STUDENT LEARNING OUTCOMES

BIO1221 Anatomy and Physiology II LAB
1 Credit Hour

Student Learning Outcomes and Enabling Objectives

1. Examine the structures and function of blood.
    a. Identify the formed elements of blood.
        i. Red blood cells
        ii. White blood cells
        iii. Platelets
    b. Differentiate the major leukocytes from stained samples of blood.
    c. Observe the structure and major components of plasma.
    d. Interpret results from a blood typing test

2. Examine the characteristics and role of the cardiovascular system.
    a. Identify the major structures of the heart and associated blood vessels.
    b. Trace the flow of blood through:
        I. Heart
        II. Coronary system
        III. Systemic circuit
        IV. Pulmonary circuits
    c. Differentiate between arteries, veins, and capillaries.
    d. Identify major blood vessels of the body.
    e. Identify some of the factors that influence blood pressure and pulse.
    f. Explore the cardiac cycle
        I. Cardiac conduction system
        II. ECG
        III. Cardiac Sounds
        IV. Functional syncytium
    g. Measure blood pressure and pulse.

3. Examine the structures and functions of the lymphatic system.
    a. Identify the major chains of lymph nodes and lymphatic ducts.
    b. Identify the structure of lymphatic vessels and nodes.

c. Describe the formation and flow of lymph.
d. Identify the spleen, thymus, and their major structures.

4. Explore the role of chemical reactions in the body.
    a. Describe the four macromolecules: carbohydrates, lipids, proteins, and nucleic acids.
    b. Outline the role of enzymes as biological catalysts.
    c. Outline the structure of DNA and how it is replicated.
    d. Outline transcription and translation in protein synthesis.

5. Examine the characteristics and role of the digestive system.
    a. Identify the major microscopic and macroscopic structures and functions of the alimentary canal:
        I. Mouth
        II. Esophagus
        III. Stomach
        IV. Small intestine
        V. Large Intestine
    b. Identify the major microscopic and macroscopic structures and functions of accessory organs of the digestive system:
        I. Salivary glands
        II. Liver
        III. Gallbladder
        IV. Pancreas
        V. Appendix
    c. Observe the actions of digestive enzymes.

6. Examine the characteristics and role of the respiratory system.
    a. Identify the microscopic and macroscopic structures associated with the respiratory system:
        I. Nasal cavity
        II. Sinuses
        III. Pharynx
        IV. Larynx
        V. Lungs
        VI. Trachea
        VII. Bronchi
        VIII. Bronchial tree
        IX. Alveoli
        X. Pleura
    b. Identify the diaphragm and intercostal muscles.

c. Measure respiratory volumes and lung capacities
d. Identify the location of the respiratory control centers.
e. Observe changes in breathing patterns during rest and exercise.

7. Examine the characteristics and role of the urinary system.
    a. Identify the microscopic and macroscopic structures associated with the urinary system:
        I. Kidney
        II. Ureter
        III. Bladder
        IV. Urethra
    b. Trace the pathway of blood through the major vessels within a kidney.
    c. Trace the formation of urine through:
        I. Glomerular filtration
        II. Tubular reabsorption
        III. Tubular secretion
    d. Identify the normal composition of urine.
    e. Trace the flow and storage of urine.
    f. Perform a basic urinalysis.

8. Examine the microscopic and macroscopic structures of the reproductive system.
    a. Describe meiosis and the control of gamete production.
    b. Identify structures of the male reproductive system:
        I. Primary and accessory structures
        II. Major microscopic structures
        III. Spermatogenesis
    c. Identify structures of the female reproductive system:
        I. Primary and accessory structures
        II. Major microscopic structures
        III. Oogenesis

9. Examine structural and functional changes during pregnancy, fetal development and parturition.
    a. Describe fertilization and formation of the zygote.
    b. Identify early embryonic stages and implantation.
    c. Identify primary structures of the placenta.
    d. Trace fetal circulation during development and after parturition.

Big Ideas and Essential Questions

Big Ideas

- Blood
- Cardiovascular System
- Lymphatic and Immune System
- Metabolism
- Digestive System
- Respiratory System
- Urinary System
- Reproductive System
- Pregnancy, parturition, and fetal development

Essential Questions

1. What are the structures and functions of blood?
2. What are the structures and functions of the cardiovascular?
3. What are the structures and functions of the lymphatic system?
4. What are the essential chemical processes necessary for homeostasis?
5. What are the structures and functions of the digestive system?
6. What are the structures and functions of the respiratory system?
7. What are the structures and functions of the urinary system?
8. What are the structures and functions of the reproductive system?
9. What are the structural and functional changes during pregnancy and parturition?

These SLOs are not approved for experiential credit.

Effective: Fall 2024