

## COURSE OUTLINE

### **Biology 120 (C-ID Number: BIOL 110B) Human Anatomy (C-ID Title: Human Anatomy with Lab)**

#### **I. Catalog Statement**

Biology 120 covers the systems of the human body including microscopic and gross anatomy of the following systems: integumentary, skeletal, muscular, nervous, circulatory, respiratory, lymphatic and immune, digestive, urinary, male and female reproductive, and endocrine. The effects of disease and aging on these systems are also included in the course. The laboratory includes the study of tissues using the microscope, a study of bones of the human skeleton, and the use of models to illustrate respective systems of the human body. Dissections of a sheep brain, cow heart, and cow eye are made to illustrate comparative parts of human anatomy. Observations are also made of a human cadaver. This course is primarily intended for nursing, kinesiology, and other health related majors.

Total Lecture Units: 3.0

Total Laboratory Units: 2.0

**Total Course Units: 5.0**

Total Lecture Hours: 48.0

Total Laboratory Hours: 96.0

Total Laboratory Hours To Be Arranged: 0.0

**Total Faculty Contact Hours: 144.0**

Recommended preparation: BIOL 115 is strongly recommended for students with a limited background in the biological sciences

#### **II. Course Entry Expectations**

Prior to enrolling in the course, the student should be able to:

- identify the body systems, their organs and functions;
- demonstrate knowledge of the functions of the cell and its organelles;
- recognize the primary tissues that make up the human body.

#### **III. Course Exit Standards**

Upon successful completion of the required coursework, the student will be able to:

- identify major structures in the 11 systems of the human body;
- identify the basic features of cells and their organization as tissues;
- identify the four major tissue types;
- identify subtypes of tissues within each major tissue type (e.g., areolar connective tissue, cardiac muscle, simple vs. stratified epithelium);
- identify the location and function of subtypes of tissues in various organ systems;
- describe the structure-function relationship of each organ system (e.g., the nephron and its role in the kidney);
- demonstrate proper use of a microscope to identify major tissue types in histological slides;
- identify all major bones and bone markings using human bones and models;
- identify all major muscles (including knowledge of origin, insertion, and action) using anatomical models;
- identify all of the major structures of organ systems using models and tissue slides;
- identify major organs and structures in a human cadaver;
- demonstrate proper dissection techniques for organs (e.g., cow eye, sheep brain).

#### IV. Course Content

**Total Faculty Contact Hours = 144**

- A. Cell Structures and Tissues (**6 lecture hours/12 lab hours**)
  1. Levels of organization in the human body
  2. Use of the microscope
  3. Cells and organelles
  4. Four tissue types
  5. Integumentary system
  6. Cell division
  7. Membrane transport
  8. Embryology
- B. The Skeletal System (**7 lecture hours/14 lab hours**)
  1. The axial skeleton
  2. The appendicular skeleton
  3. Joint classification

- C. **The Muscular System (7 lecture hours/ 14 lab hours)**
  - 1. Muscle tissue
  - 2. Internal structure of skeletal muscles
  - 3. Vertebral muscles
  - 4. Muscles of the thorax and abdomen
  - 5. Muscles of the pelvis and perineum
  - 6. Muscles of the shoulder, arm, forearm, and hand
  - 7. Muscles of the hip, thigh, leg and foot
  - 8. Muscles of the back
  - 9. Muscles of the face, head and neck
- D. **The Nervous System (6 lecture hours/ 12 lab hours)**
  - 1. The central nervous system
    - a. The brain
    - b. The spinal cord
  - 2. The peripheral nervous system
    - a. Cranial nerves
    - b. Spinal nerves
    - c. Autonomic nervous system
- E. **Sensory Systems (1.5 lecture hours /3 lab hours)**
  - 1. Vision
  - 2. Olfaction
  - 3. Audition
  - 4. Taste
  - 5. Other senses
- F. **The Circulatory System (3 lecture hours/ 6 lab hours)**
  - 1. The heart
  - 2. Blood vessels
  - 3. Blood
- G. **The Respiratory System (1.5 lecture hours/ 3 lab hours)**
  - 1. Conducting structures
  - 2. Respiratory structures
- H. **The Lymphatic and Immune Systems (1.5 lecture hours/ 3 lab hours)**
  - 1. Lymphatic tissues
  - 2. Lymphatic organs
  - 3. Nonspecific immune system (inflammatory response)
  - 4. Specific immune system
- I. **The Digestive System (4 lecture hours/ 8 lab hours)**
  - 1. Tissues and structures of the alimentary canal
  - 2. Tissues and structures of the accessory digestive organs
    - a. Pancreas
    - b. Liver
    - c. Gall bladder
    - d. Salivary glands
- J. **The Urinary System (4 lecture hours/ 8 lab hours)**
  - 1. Tissues and structures of the urinary tract
  - 2. Tissues and structures of the kidney

- a. Anatomy of the nephron
  - b. Blood supply
- K. The Reproductive System (**5 lecture hours/ 10 lab hours**)
1. Tissues and structures of the male reproductive system
  2. Spermatogenesis
  3. Tissues and structures of the female reproductive system
  4. The menstrual cycle
- L. The Endocrine System (**1.5 lecture hours/ 3 lab hours**)
1. Function of hormones
  2. Anatomy of the hypothalamus
  3. Anatomy of the pituitary gland
  4. Anatomy and location of the major endocrine glands

## V. **Methods of Instruction**

The following methods of instruction may be used in the course:

- lecture;
- multimedia;
- laboratory demonstrations and hands-on activities.

## VI. **Out of Class Assignments**

The following out of class assignments may be used in the course:

- laboratory reports (e.g. a written report that includes the title, purpose, materials, procedures, results, and conclusions for each laboratory exercise);
- laboratory worksheets (e.g. questions that promote an understanding of structure-function relationships in organ systems).

## VII. **Methods of Evaluation**

The following methods of evaluation may be used in the course:

- midterm examinations and final examination, including essay questions;
- laboratory practical exams;
- laboratory quizzes;

laboratory reports

## VIII. **Textbook(s)**

Marieb, Elaine, Jon B. Mallatt, and Patricia B. Wilhelm. *Human Anatomy*. San Francisco: Pearson, 2014. Print.

13<sup>th</sup> Grade Textbook Reading Level. ISBN 13: 978-0-321-82241-3.

## IX. **Student Learning Outcomes**

Upon successful completion of the required coursework, the student will be able to:

- identify and describe the function of the major cellular organelles;
- demonstrate an understanding of the major features of the four tissue types and identify subtypes of these tissues;
- identify and name all the bones and their markings in the human body and demonstrate an understanding of bone development;
- identify and name the actions of all the major muscle groups in the human body and demonstrate an understanding of the structures underlying the contractile mechanism of skeletal muscles;
- identify the major structures of the nervous system and demonstrate an understanding of neuron anatomy and the key functional features underlying impulse conduction;
- demonstrate an understanding of the structure-function relationship of the integumentary, circulatory, respiratory, lymphatic, sensory, digestive, urinary, reproductive, and endocrine systems in the human body.