

**BIO 2401 LAB OBJECTIVES
FOR PRACTICAL 1 (DAYS 1-5, WEEKS 1-4)**

Day 1: Exercise 1: The Language of Anatomy (pp. 1-9)

- 1.1 Define **anatomical position**.
- 1.2 Define and be able to use the following terms of body orientation and position:
 - a. superior/inferior
 - b. anterior/posterior
 - c. medial/lateral
 - d. dorsal/ventral
 - e. proximal/distal
 - f. superficial/deep
- 1.3 Define and be able to use the following terms of body surface anatomy:
 - a. oral
 - b. orbital
 - c. buccal
 - d. cervical
 - e. thoracic
 - f. axillary
 - g. brachial
 - h. antecubital
 - i. umbilical
 - j. abdominal
 - k. inguinal
 - l. femoral
 - m. pubic
 - n. patellar
 - o. digital
 - p. occipital
 - q. scapular
 - r. lumbar
 - s. gluteal
 - t. popliteal
 - u. calcaneal
- 1.4 Define and be able to identify the body planes and sections:
 - a. median or midsagittal
 - b. sagittal or parasagittal
 - c. frontal or coronal
 - d. transverse or horizontal

- 1.5 Define and be able to identify these body cavities. Also, be able to name the organs in each cavity.
- a. dorsal cavity
 1. cranial cavity
 2. spinal cavity
 - b. ventral cavity
 1. thoracic cavity
 2. abdominopelvic cavity
 - aa. abdominal cavity
 - bb. pelvic cavity
- 1.6 Define and be able to identify and name the organs in the mediastinum.
- 1.7 Define and be able to identify the serous membranes of the body cavities:
- a. pericardium
 1. visceral pericardium
 2. parietal pericardium
 - b. pleura
 1. visceral pleura
 2. parietal pleura
 - c. peritoneum
 1. visceral peritoneum
 2. parietal peritoneum

Exercise 2: Organ Systems Overview (p. 19: Examining the Human Torso Model)

- 2.1 Identify the body cavities listed in the exercise on a human torso model
- 2.2 Identify the organs found in each body cavity
- 2.3 Identify the organs found in each abdominopelvic regions

Day 1 Review: Review Sheets 1 and 2 in lab manual (pages 479-484).

Day 2: Exercise 3: The Microscope (pp. 22-25)

- 3.1 Identify the parts of a microscope labeled on the diagram on page 22 of your lab manual.
- 3.2 Carry out steps 1-8 of the activity "Viewing Objects Through the Microscope" on pages 24-25 of your lab manual.
- 3.3 Using slides provided by the instructor, make drawings of the same slide at 4x, 10x and 40 or 43x. (Make three circles of the same size to represent your field of view at each magnification. Start by drawing the slide at the lowest magnification first, then proceed to the higher magnifications.) Have your instructor check your drawings before leaving lab.
Try to identify the following on your slide:
 - plasma membrane
 - nucleus
 - cytosol

Exercise 4: The Cell (pp. 30-39)

- 4.1 Using models and the diagram on page 34, identify these cell components:
 - a. plasma membrane
 - b. cytosol
 - c. nucleus
 - d. nuclear envelope
 - e. nucleolus
 - f. chromatin
 - g. centriole
 - h. mitochondrion
 - i. ribosome
 - j. smooth endoplasmic reticulum
 - k. rough endoplasmic reticulum
 - l. Golgi apparatus
 - m. lysosome

Day 2 Review: Review Sheets 3 and 4 in lab manual (pages 485-492).

Days 3 & 4: Exercise 6: Classification of Tissues (pp. 49-66)

- 6.1 Be able to identify these types of epithelial tissue and any specific cells or other structures that are noted below. Use the objectives noted in the parentheses..
- a. simple squamous epithelium (4x, 10x 40x).
 - b. simple cuboidal epithelium (4x, 10x, 40x)
 - c. simple columnar epithelium (4x, 10x, 40x)
 - d. pseudostratified ciliated columnar epithelium (10x, 40x); slide labeled goblet cell epithelium
 1. goblet cells
 2. cilia
 - e. stratified squamous epithelium (4x, 10x, 40x); use slide labeled scalp
- 6.2 Be able to identify these types of connective tissue and any specific cells or other structures that are noted below. Use the objectives noted in the parentheses.
- a. adipose tissue (4x, 10x, 40x)
 - b. areolar (loose) connective tissue (4x, 10x, 40x)
 1. fibroblasts
 2. fibers
 - c. reticular connective tissue (4x, 10x, 40x)
 1. reticular fibers
 2. reticular cells
 - d. hyaline cartilage (4x, 10x, 40x)
 1. chondrocyte
 2. lacunae
 3. extracellular matrix
 - e. fibrocartilage (4x, 10x, 40x)
 1. chondrocyte
 2. lacunae
 3. extracellular matrix
 4. fibers
 - f. compact bone (4x, 10x, 40x) [See Exercise 9, page 86]
(Use slide labeled bone, human ground, cross-section)
 - a. osteon (Haversian system)
 - b. Haversian (central) canal
 - c. lamellae
 - d. osteocytes
 - e. lacunae
 - f. canaliculi
 - g. Volkmann's (perforating) canal

- g. blood (40x); slide labeled human blood, Wright stain
 - 1. red blood cells
 - 2. white blood cells
 - 3. platelets

6.3 Be able to identify these types of muscle tissue and any specific cells or other structures that are noted below. Use the objectives noted in the parentheses.

- a. skeletal muscle tissue (4x, 10x, 40x) (Use slide labeled muscle, 3 types)
 - 1. nuclei
 - 2. striations
- b. smooth muscle tissue (4x, 10x, 40x) (Use slide labeled muscle, 3 types)
 - 1. spindle-shaped cells
- c. cardiac muscle tissue(4x, 10x, 40x) (Use **slide labeled heart, intercalated discs**)
 - 1. intercalated discs

6.4 Be able to identify nervous tissue and the specific cells and structures noted below. Use the objectives noted in the parentheses.

- a. neurons (4x, 10x, 40x) (slide labeled neuron, motor)
 - 1. neurons with cell processes

Days 3 & 4 Review: Review Sheet 6 in lab manual (pages 497-504).

Day 5: Exercise 7: The Integumentary System (pp. 68-75)

- 7.1 Locate and be able to identify these structures on the skin models:
- a. epidermis
 1. stratum basale
 2. stratum spinosum
 3. stratum granulosum
 4. stratum lucidum
 5. stratum corneum
 - b. dermis
 1. papillary layer
 2. reticular layer
 - c. hypodermis (also known as subcutaneous layer)
 - d. sebaceous glands
 - e. sudoriferous glands
 1. pores
 2. be able to distinguish between apocrine glands and eccrine sweat glands
 - f. hair
 1. hair root
 2. hair shaft
 - g. hair follicle
 - h. blood vessels
 - i. arrector pili
 - j. Meissner's corpuscles
 - k. Pacinian corpuscles
 - l. hair root plexus
- 7.2 Identify these structures on a microscope slide of human skin:
- a. epidermis
 - b. dermis
 - c. hair follicle
 - d. sebaceous gland

Exercise 8: Classification of Body Membranes (pp. 77-80)

- 8.1 Read this section of the lab manual and be able to define these terms. Then be able to find and identify these types of membranes on models and diagrams.
- a. cutaneous membrane
 - b. mucous membranes
 - c. serous membranes
 - d. synovial membranes

Day 5 Review: Review Sheets 7 and 8 in lab manual (pages 505-510).