

CAMBRIAN COLLEGE OF APPLIED ARTS & TECHNOLOGY

MEDICAL LABORATORY TECHNOLOGY

ANATOMY & PHYSIOLOGY I

BIO 1021-4

SEMESTER I - 4 Hours/Week

September - 1977

INSTRUCTOR: R. Broderick

CHAIRMAN: A.J. Quaiattini

OBJECTIVES

The student will have a knowledge of the form and functions of the basic body, systems of the body, according to the C.S.L.T. recommendations, and will be able to:

1. list and describe the cell.
2. classify the basic tissue types.
3. name, locate and describe the circulatory system.
4. define composition & function of lymphatic system.
5. name, locate and state function of main organs of digestive system.
6. list the areas which comprise respiratory system.
7. describe the structure & function of urinary system.
8. locate and state function of endocrine glands.
9. locate and describe reproductive system.

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CONTENT:

1. The cell - The student shall be able to:
 - a) list the form & function of all the parts of a cell
 - b) label the parts as shown in a diagrammatic representation of the cell
 - c) describe cell transport mechanisms;
 1. permeability
 2. filtration
 3. diffusion
 4. osmosis
 5. active transport
 - pinocytosis
 - phagocytosis
 - d) describe cell division
 - mitosis & meiosis
2. General arrangement of organs in body cavities - Student shall do a complete dissection of a mammal (eg. rat, cat or pig). The student shall know the following classifications:
3. Primary Tissues
 - a) Epithelium
 - b) Connective
 - c) Muscular
 - d) Nervous
 - a) Epithelium - function
 - Classified 1. - no. of layers
 - simple, stratified
 - pseudostratified
 - transitional
 - 2. - Shape of cells
 - cuboidal, squamous, columnar
 - 3. Surface structure
 - microvilli, cilia, stereocilia

4. Function (specialized)
 - a) mucous membranes
 - b) glandular epithelium
 - c) endothelium
 - d) mesothelium
5. Skin
 - a) function
 - b) structure
 - c) accessories
6. List the areas of the body having epithelium tissue.

b) **Connective Tissue**

- Classified
1. connective tissue proper
 2. bone
 3. cartilage
 4. blood

1. Connective tissue proper

- a) cells and function
- fibroblast
 - macrophage
 - mast cell
 - plasma cell
 - lymphocyte

- b) types
1. dense
 - tendons, ligaments
 2. loose
 - areolar, adipose

2. Bone

- a) structure - organic, inorganic parts
 - compact & cancellous bone
 - haversian system
 - types of growth
- b) function - protection
 - support
 - hemopoiesis - red marrow
 - yellow marrow
 - storage
- c) identification - all major bones in AP & PA view

3. Cartilage

- a) types - hyaline
 - elastic
 - fibro
- b) function & location of types
- c) Muscular Tissue
 - smooth
 - striated
 - cardiac
 - basic morphological & functional differences
 - to include action of constriction
- d) Nervous Tissue
 - name the cells in gray and white matter of the brain
 - neuroglia (glial cells) and neurons
 - function

Circulatory System

The student shall be able to:

- a) Blood - function & differentiate between
 - RBC
 - WBC
 - platelets
 - serum
 - plasma
 - body water
 - hematocrit

- b) Describe the structure & function of the
 - a) heart and electrical circuit
 - b) artery
 - c) capillary
 - d) vein

- c) Label a diagram showing the major parts of the circulatory system.
 1. pulmonary
 - pulmonary artery
 - vein
 - a) major arteries
 2. systemic - aorta
 - R & L common carotid
 - R & L subclavian
 - thoracic aorta
 - abdominal aorta
 - celiac axis
 - renal
 - ovarian & testicular
 - femoral
 - b) major veins - abdominal vena cava
 - femoral
 - renal
 - jugular
 - cephalic & basilic
 - median cubital
 3. Portal - Sup & Inf. mesenteric
 - portal & splenic veins

Lymphatic System

Lymph - definition, composition & function

- Lymphatic vessels

- general description
- location
- function of:

1. duct system & lymph nodes

2. related organs

- spleen
- tonsils & adenoids
- thymus
- reticulo-endothelial system

Digestive System

The student shall be able to:

a) name & locate on a diagrammatic representation, the main organs of the digestive system.

1. mouth
 2. esophagus
 3. stomach
 4. duodenum
 5. jejunum
 6. ileum
 7. caecum and appendix
 8. large bowel
 - ascending
 - transverse
 - descending
 - rectum
 - anus
- Function of each of these
- Salivary glands - name & function

b) accessory organs of digestion

- pancreas - form & function
- liver - form & function
- gall bladder - form & function

Nervous System

The student shall:

- general structure of the brain
 - 1. forebrain
 - 2. midbrain
 - 3. hindbrain
- cavities that contribute to ventricular system
- general structure of the spinal cord
- formation, function, and reabsorption of spinal fluid

Respiratory System

- list the areas of the body which comprise system
 - lungs
 - pleura
 - diaphragm
 - intercostal muscles
 - bronchi
 - trachea
 - larynx
 - alveoli
 - fine structure of alveolus

Urinary System

- describe the structure & function of the
 - kidney
 - nephron
 - ureters
 - bladder
 - urethra

Endocrine

- location, structure & function of these glands - general terms
 - pituitary
 - thyroid
 - parathyroid
 - adrenals
 - pancreas
 - gonads - **testis & ovaries**
 - placenta
- define hormone

Reproductive

- ♀ & ♂ → systems - form & function
- ♀ vagina, uterus, ovarian tubes, ovaries, breasts
- ♂ → penis, testis, epididymus, vasdeferens, seminiferous tubules, prostate

Method of Evaluation

Tests	-	October 15th	-	30%
		December 10th	-	40%
Quizzes	-		-	30%
Total				100%

Method of Testing

- objective questions
- identification of diagrams
- quizzes in classroom - announced & unannounced
- subjective short questions
- lab work

Laboratory Schedule

1. Dissection of pig
2. Microscopic study of mitosis & meiosis
3. Dissection of heart
4. Dissection of respiratory system
5. Dissection of brain
6. videotapes

Required Text

Jacob & Francone, Elements of Anatomy & Physiology,
W.B. Saunders, Toronto, 1976

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American Elsevier, New York, 1976
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