

SAULT COLLEGE OF APPLIED ARTS AND TECHNOLOGY

MEDICAL LABORATORY TECHNOLOGY

Human Physiology

MED - 105-3

SEMESTER I

/f?g-jcf

Margaret Hurtubise

HEALTH SCIENCES

Human Physiology

Course Description

This one semester course is designed to enable the student to become familiar with the basic anatomy and physiology of the human body, according to the C.S.L.T. recommendations. The normal structure and function will be emphasized but the students will be applying this information to their other courses.

Grading

A - consists of 80 - 100%

B - consists of 70 - 79%

C - consists of 60 - 69%

I - any mark below a "C"

Marks Consist of:

Mid-term test	30
Final Test	40
Quizzes	30
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TOTAL;	100 marks

Text

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

Test Regulations

1. If a student is unable to be present for a test, please notify the teacher involved before the test takes place.
2. Failure to notify the teacher will result in a mark of zero (0) on the test.
3. Tests will be rescheduled for those students at the teacher's discretion.
4. It is the responsibility of the student to discuss with the teacher the necessity of rescheduling the test,
5. There will be no make-up period for tests or the Mid-term test but there will be a make-up period for the Final or End-of-term test.

Laboratory Schedule

1. Study of mitosis and meiosis
2. Dissection of the heart
3. Dissection of the brain
4. Dissection of the respiratory system
5. Dissection of the kidney
6. Dissection of the fetal pig

(The above schedule is subject to change)

General Objectives

The student shall gain a basic understanding of the structure and functions of the human body. Upon completion of the course, the student will be able to:

1. List the structures comprising a cell and explain the function for each structure
2. Classify the basic tissue types
3. Locate, name and explain the functions of the structures of the circulatory system
4. Locate, name and explain the functions of the structures of the lymphatic system
5. Locate, name and explain the functions of the main organs of the digestive system.
6. Locate, name and explain the function of the main organs of the nervous system.
7. Locate, name and explain the functions of parts of the respiratory system.
8. Locate, name and explain the functions of the organs of the urinary system
9. Locate, name and state the function of the endocrine glands
10. Locate, name and explain the functions of the organs of the reproductive system.

SPECIFIC OBJECTIVES

LEARNING ACTIVITY

I. THE CELL

After completing this unit, the student will be able to:

1. List the structure and function of the parts of a cell.
2. Label the parts on a diagram of the cell.
3. Briefly describe the cell transport mechanisms:
 - a. diffusion
 - b. osmosis
 - c. filtration
 - d. active transport
 - e. pinocytosis
 - f. phagocytosis
4. Describe cellular reproduction - mitosis and meiosis
5. Describe general arrangement of the human body
6. List general functions for selected systems of the human body.

Read chapter on the cell

Attend lectures
Label diagram

Attend lectures

II. THE TISSUES

After completing this unit, the student will be able to:

1. List the primary tissues
 - a. Epithelial
 - b. Connective
 - c. Muscular
 - d. Nervous
2. Know the function of each primary tissue type.
3. Know the various classifications of each primary tissue type.
4. List examples for each classification and/or primary tissue type.
5. Using the skin as an example of epithelial tissue, know the structure and function of the parts and accessories.
6. Using the bones as an example of connective tissue, know the structure and function of bones.
7. To identify the major bones on a skeleton or diagram

Read chapter

Attend lectures and lab

SPECIFIC OBJECTIVES

LEARNING ACTIVITY

III. THE CIRCULATORY SYSTEM

After completing this unit the student will be able to:

1. List the major constituents of blood
2. List the functions of the constituents of blood
3. Describe the structure and function of the heart.
4. Label a diagram of the heart
5. Describe the structure and function of an artery, capillary and vein.
6. Know the names and order of the major arteries and veins
7. Label a diagram showing the following arteries and veins.

Arteries

- pulmonary
- aorta (ascending, arch, thoracic, abdominal)
- R&L common carotid
- celiac trunk
- renal
- testicular & ovarian
- common iliac
- external & internal iliac
- femoral

Veins

- pulmonary
- jugular
- inferior vena cava
- superior vena cava
- external & internal iliac
- common iliac
- femoral
- great saphenous
- cephalic
- basilic
- median cubital
- renal
- superior mesenteric
- inferior mesenteric
- portal
- splenic

Read chapter

Attend lectures and lab

SPECIFIC OBJECTIVES

LEARNING ACTIVITY

III. THE CIRCULATORY SYSTEM (cont'd)

8. Define terms used in connection with microbiological invasions of the circulatory system.

IV. THE LYMPHATIC SYSTEM

After completing this unit, the students will be able to:

1. Know the composition and function of the lymphatic system (capillaries, vessels, nodes, ducts)
2. Know the location, structure and function of related organs (tonsils, thymus, spleen, reticuloendothelial system)

Read chapter

Attend lectures and lab

V. THE DIGESTIVE SYSTEM

After completing this unit, the student will be able to:

1. Name and locate on a diagram the main organs of the digestive system
 - a. mouth
 - b. pharynx
 - c. esophagus
 - d. stomach
 - e. duodenum
 - f. jejunum
 - g. ileum
 - h. cecum
 - i. appendix
 - j. large intestine (ascending, transverse, descending, sigmoid, rectum, anus)
2. State the function for each of the structures named in 1.
3. Name and locate on a diagram the accessory organs of digestion.
 - a. salivary glands
 - b. pancreas
 - c. liver
 - d. gallbladder
4. Briefly describe digestion, absorption and metabolism of CHO, protein and lipids.

Attend lectures and lab

Read chapter

SPECIFIC OBJECTIVES

LEARNING ACTIVITY

V. THE DIGESTIVE SYSTEM (cont'd)

5. Explain the effect of gastric juices on organisms within the system.
6. List the normal, potentially pathogenic and pathogenic flora of the digestive system.

VI. THE NERVOUS SYSTEM

After completing this unit, the student will be able to:

1. State the general structure and function of the main parts of the nervous system (central, peripheral and autonomic)
2. Locate the main organs of the nervous system on a diagram
3. List the cavities that contribute to the ventricular system
4. State the function, formation and reabsorption of cerebrospinal fluid
5. List organisms commonly causing infections in cerebrospinal fluid
6. State briefly how an impulse is transmitted.

Read chapter

Attend lectures and lab

VII. THE RESPIRATORY SYSTEM

After completing this unit, the student will be able to:

1. Locate and name, on a diagram, the structures comprising the respiratory system.
 - a. Nose
 - b. Pharynx
 - c. Larynx
 - d. Trachea
 - e. Bronchi & bronchioles
 - f. Alveoli
 - g. Lungs
 - h. Pleura
2. State the functions for the structures named in 1.
3. Discuss the importance of the diaphragm and intercostal muscles in respiration.

Read chapter

Attend lectures and lab

SPECIFIC OBJECTIVES

LEARNING ACTIVITY

VII. THE RESPIRATORY SYSTEM (cont'd)

4. Discuss how gas is exchanged
5. List types of specimens obtainable from the respiratory system.

VIII. THE URINARY SYSTEM

After completion of this unit, the student will be able to:

1. Locate and name on a diagram the organs of the urinary system
 - a. kidney
 - b. ureters
 - c. urinary bladder
 - d. urethra
2. State the function for each organ listed.
3. List the parts of the nephron and where they are located.
4. Discuss the function of the nephron.

Read chapter

Attend lectures and lab

IX. THE ENDOCRINE SYSTEM

After completing this unit, the student will be able to:

1. Name and locate on a diagram the following endocrine glands:
 - a. pituitary (hypophysis)
 - b. pineal
 - c. thyroid
 - d. parathyroid
 - e. adrenal
 - f. gonads
 - g. pancreas
2. State the hormone or hormones produced by each of the above glands.
3. State the function of those hormones.

Read chapter

Attend lectures and lab

SPECIFIC OBJECTIVES

X. THE REPRODUCTIVE SYSTEM

After completing this unit, the student will be able to:

1. Name and locate on a diagram the internal and external reproductive organs
2. State the function of the organs of the male and female reproductive systems
3. Describe the menstrual cycle
4. Describe fetal circulation and the changes occurring after birth.

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LEARNING ACTIVITIES

Read chapter

Attend [lectures and lab