

HUMAN ANATOMY AND PHYSIOLOGY

PART 1

I. COURSE OBJECTIVES

A. General Objectives:

1. To develop greater understanding of the structures and functions of the human body.
2. To increase awareness and understanding of the components and works of different body systems.
3. To develop skills for handling laboratory equipments.
4. To increase students ability to follow procedures and specific instructions.

B. Specific Objectives:

After completing the course students will be able to:

1. define the terms Anatomy and Physiology.
2. list and discuss in order of increasing complexity the levels of organization of the body.
3. identify the classical "characteristics of life."
4. list and briefly discuss the major body origin systems and function of each.
5. define the anatomical position.
6. discuss and contrast the axial and appendicular subdivisions of the body by identifying the specific anatomical regions in each area.
7. list the nine abdominal regions and the four abdominal quadrants.
8. list and define principal directional terms and sections (planes) employed in describing the body and the relationships of its parts.

9. define the term atom and list the primary subatomic particles.
10. explain the relationship between an element's atomic number and the number of protons in its nucleus.
11. discuss the size, shape, and generalized structure of a "typical" cell.
12. identify by name the membranous and non-membranous organelles of the cell and their functions.
13. compare and contrast the processes of diffusion, dialysis, facilitated diffusion, osmosis and filtration.
14. list the four major categories of tissues and discuss the basic function of each.
15. discuss some important generalization of each kind of tissue.
16. define the terms integument and integumentary system.
17. discuss the generalized functions of the skin as an organ system.
18. list and discuss the generalized functions of the skeletal system.
19. list the four types of bones and give examples of each and discuss bone growth, resorption, and responses of bone to stress.
20. identify the two main subdivisions of the skeleton.
21. define the terms articulation and arthrology and compare the classification of joints according to structure and range of movement.
22. List and discuss the three generalized functions of skeletal muscle tissue.
23. list and explain the major terms used to designate or group muscles according to function.
24. identify major muscles, their points of attachment and their functions.
25. discuss the role of calcium in muscle contraction and relaxation.
26. discuss how nerve impulse travels between a motor neuron and the muscle cells supplied by its axon branches.

27. list the primary divisions of the nervous system.
28. identify and locate the layers of the meninges.
29. discuss the formation, circulation, and functions of cerebrospinal fluid.
30. list and give one primary function of the major ascending and descending tracts of the spinal cord.
31. identify cranial nerves by name and give the generalized function of each.
32. compare and contrast somatic sensory and somatic motor pathways.
33. discuss the synthesis, storage, release, activation, and inactivation of neurotransmitters.
34. identify the two major subdivisions of the autonomic nervous system.
35. identify the three major types of visceral effector tissues in the body.
- 3.6. compare and contrast the conduction pathway from the central nervous system to visceral and somatic effectors.
37. discuss the structure of the sympathetic or thoraco---lumbar division of the autonomic nervous system.
38. discuss the structure of the parasympathetic or craniosacral division of the autonomic nervous system.
39. compare the function of general and special sense organs.
40. list the general sense organs, give their generalized location, and cite examples.
41. classify receptors according to structure and stimuli required to stimulate them.
42. describe and discuss the anatomy and functions of the eye.

43. describe and discuss the anatomy and function of the ear.
44. discuss the structure and function of the olfactory and gustatory sense organs.
45. compare and contrast the general functions and mechanisms of action of the endocrine system and the nervous system.
46. distinguish between the endocrine glands and exocrine glands.
47. list and give the location of the primary endocrine glands in the body.
48. discuss the chemical nature, classification, and mechanisms of action of hormones.
49. briefly describe the proposed mechanism of hormone action at the cellular level.
50. list and discuss anterior and posterior pituitary hormones and their specific target organs.
51. describe how hormone secretions are regulated by negative feedback control mechanisms.

II. CONTENT

A. Body as a whole

1. Organization
2. Chemical composition
3. Cell and tissue structures.

B. Systems of the body

1. integumentary system

a. structures and functions *of* different parts of the integumentary system.

2. Skeletal system

a. parts and functions of the parts

b. causes and kind skeletal system disorders

c. articulations and kinds *of* movements.

d. disorders and causes of disorders.

3. Muscular system

a. macroscopic and microscopic structures

b. muscle contraction mechanisms

c. conduction of muscle-nerve impulses

d. disorders and causes of disorders

e. kinds and locations of different kinds of muscles

4. Communication, Control, and Integration

a. nervous system

1. structure of nerves

2. functions of nerves

3. parts of the brain and their functions.

4. separation of nervous system depending on the types of organs they innervate.

5. separation of nervous system depending on the location of tissues.

6. innervation of cranial nerves

7. structures and functions of the sense organs

8. special senses
9. disorders of the nervous system
10. causes of disorders of nervous system

b. Endocrine system

1. organs of the endocrine system
2. functions of the organs
3. hormones and their points of release and synthesis.
4. disorders and causes of disorders of endocrine system.,

III. TEXTBOOKS

1. Marieb, Elaine and Katz Hoen. Human Anatomy and Physiology. 7th (or current) Ed.
NY: Pearson, 2007. ISBN: 0805359095.
2. Wittrup, Robert C. Human Anatomy and Physiology Manual.
With Cat Dissections. Burgess Publishing Co. Minn. 1981.

IV. REQUIRED COURSE MATERIALS

Cell module

Torso model (skeletal and muscular)

Life cat dissections

Osmosis and diffusion kit

Charts of all the system's structures

Microscopic slides of all organ tissues

Films and videos and overheads of body structures

V. REFERENCE

1. Hole, John W., Jr. Human Anatomy and Physiology
4th edition, WCBrown publishing co. 1987.
2. Hollinshead, W. Henry, and Rosse, Cornelius. Textbook of Anatomy. 4th ed. Pennsylvania, Philadelphia, Harper and Row, 1985.
3. Silverstein, Alvin. Human Anatomy and Physiology. New York, John Wiley and Sons Inc., 1980
4. Van Degraaf, K. M. and Fox, S. I. Concepts of Human Anatomy and Physiology. Dubuque, Iowa. Wm. C. Brown 1986.

VI. INSTITUTIONAL COST

Textbooks	\$2,000.00
Equipments	\$2,000.00
Audio-visual	\$1,000.00
Total	\$5,000.00

VII. METHODS OF INSTRUCTION

- Lecture and Discussion
- Classroom demonstrations and Laboratory investigations
- Reading assignments
- Use of overheads
- Students area location contest

VII. EVALUATION

- A. Lab reports.....10%
- B. Assignments.....10%

- C. Quizzes15%
- D. Exams50%
- E. Final exam15%

IX. ATTENDANCE POLICY

Any student who is absent more than seven (7) times in a M-W-F class or five (5) times in a T-Th class is automatically dropped from the course. These include both excused and unexcused absences. (The only exception to this attendance policy is the granting of incomplete contract.)