COURSE TITLE: Related Anatomy

COURSE PREFIX AND NO. DENT 1120  LEC   2.5  LAB   0    CREDIT HOURS    2.5

COURSE DESCRIPTION:

This course of study presents the basics of body structure and function. Students gain an understanding of patterns that enable the body systems to perform as an integrated whole.

COURSE PREREQUISITE (S):

RATIONALE:

This course was developed to meet the requirements and guidelines of the College and for accreditation with the American Dental Association. The course also meets the needs of the Dental Assisting students.

REQUIRED TEXTBOOK (S) and/or MATERIALS:

Title: Delmar’s Dental Assisting: A Comprehensive Approach
Edition: Current Edition
Author: Phinney/Halstead
Publisher: Delmar
Materials: Supplemental materials will be handed out in class.

Attached course outline written by: Joan Trimpey Date: May, 2008
Reviewed/Revised by: Reviewed by Cindy Cronick - by Joan Trimpey Date: Jan 28, 2013 – Mar 2019
Effective quarter of course outline: Fall 2008 – Spring 2018 Date: Mar 2019
Associate Dean Stacey Ocander Date: Mar 2019

Course Objectives, Topical Unit Outlines, and Unit Objectives must be attached to this form.
TITLE: Related Anatomy
PREFIX/NO: DENT 1120

COURSE OBJECTIVES:

1. Define general terms related to the human body.
2. List the ten (10) principal organ systems.
3. Describe the anatomical position of the human body.
4. List in sequence the levels of biological organization in the human body.
5. Identify the principal regions and cavities of the body.
6. Define, locate, and list the functions of the cells and tissues of the human body.
7. Define and list the functions of the skin.
8. List, describe and locate the skeletal system.
9. Define and list the functions of the muscular system.
10. Describe, identify, and list the functions of the central nervous system.
11. Describe, identify, and list the functions of the peripheral nervous system.
12. Describe, identify, and list the functions of the sense organs.
13. Define, locate, and list the functions of the endocrine control.
14. Identify, describe, and list the functions of the circulatory system.
15. Describe and list the functions of the body’s defense mechanisms.
16. Identify, describe, and list the functions of the respiratory system.
17. Describe, identify, and list the functions of the digestive system.
18. Identify, describe, and list the functions of the urinary system.
19. Describe, identify, and list the functions of the reproductive system.

TOPICAL UNIT OUTLINE/UNIT OBJECTIVES:

UNIT OBJECTIVES:

Unit I Introducing the Human Body

Upon completion of this unit, the dental assisting student will be able to:

1. Define anatomy and physiology.
2. List in sequence the levels of biological organization in the human body, starting with the simplest (the chemical level: atoms and molecules) and ending with the most complex (the organism).
3. Describe the ten (10) principal organ systems.
4. Define metabolism and contrast anabolism.
5. Define homeostasis and describe it as a basic mechanism of human physiology, giving examples.
6. Describe the anatomical position of the human body.
7. Define and use properly the principal orientation terms employed for human anatomy.
8. Recognize sagittal, mid-sagittal, transverse, and frontal sections of the body and of the body structures.
9. Define and locate the principal regions and cavities of the body.
Unit II          Cells and Tissues

Upon completion of this unit, the dental assisting student will be able to:

1. Describe the general characteristics of cells.
2. Describe, locate, and list the functions of the principal organelles and label them.
3. Explain how materials pass through cell membranes, distinguishing among passive and active processes.
4. Predict whether cells will swell or shrink under various osmotic conditions.
5. Describe the stages of a cell’s life cycle, and summarize the significance of mitosis with respect to maintaining a constant chromosome number.
6. Define the term tissue and give the functions of the principal types of tissues.
7. Compare epithelial tissue with connective tissue.
8. Compare the three (3) types of muscle tissues.
9. Compare the connective tissue membranes with epithelial membranes and contrast the types of epithelial membranes.

Unit III         The Integumentary System

Upon completion of this unit, the dental assisting student will be able to:

1. Give the six (6) functions of the skin.
2. Compare the structure and function of the epidermis with that of the dermis.
3. Describe the subcutaneous layer.
4. Give the functions of the sweat glands and sebaceous glands.
5. State the function(s) of hair and nails.
6. Give the parts of a hair.
7. State the function of melanin.

Unit IV         The Skeletal System

Upon completion of this unit, the dental assisting student will be able to:

1. List five (5) functions of the skeletal system.
2. Label a diagram of a long bone, and describe the microscopic structure of a bone.
3. Contrast endochondral with intramembranous bone development, and describe the role of osteoblasts and osteoclasts in bone production.
4. Explain the difference between the axial and the appendicular skeleton.
5. Compare the main types of joints, and describe the structure and functions of a diarthrosis.

Unit V          The Muscular System

Upon completion of this unit, the dental assisting student will be able to:

1. Describe the structure of a skeletal muscle.
2. Relate the structure of a muscle fiber to its function.
3. Define muscle tone and explain why muscle tone is important.
4. Distinguish between isotonic and isometric contraction.
Unit VI  The Central Nervous System

Upon completion of this unit, the dental assisting student will be able to:

1. List the divisions of the nervous system.
2. Define nerve, tract, ganglion and nucleus.
3. Describe the four (4) basic processes on which all neural responses depend.
4. Explain the structure and functions of the main parts of the brain; medulla, pons, midbrain, diencephalan (thalamus and hypothalamus), cerebellum, cerebrum.
5. List two (2) functions of the spinal cord and describe its structure.
6. Describe the structures that protect the brain and spinal cord.

Unit VII  The Peripheral Nervous System

Upon completion of this unit, the dental assisting student will be able to:

1. Contrast the somatic and autonomic divisions of the peripheral nervous system.
2. List the cranial nerves and give the functions of each.
3. name the major plexuses.
4. Compare and contrast the sympathetic with the parasympathetic system.

Unit VIII  The Sense Organs

Upon completion of this unit, the dental assisting student will be able to:

1. List the three (3) layers of tissue of the eyeball and give the function(s) for each.
2. Name the three (3) major parts of the ear and give the function(s) for each.
3. Compare the receptors of taste and smell.
4. Explain how pain sensation is protective, and describe referred pain.
5. Give the locations of proprioceptors in the body and describe their function.

Unit IX  Endocrine Control

Upon completion of this unit, the dental assisting student will be able to:

1. Define the hormone and describe the function(s) of a hormone.
2. Name the principal endocrine glands.
3. Identify the hormones released by the anterior and posterior lobes of the pituitary, give their origin, and describe their actions.
4. Describe how thyroid hormone secretion is regulated.
5. Explain the effects of hyposecretion and hypersecretion of a hormone.
6. Contrast the actions of insulin and glucagon.
7. Describe the role of the adrenal medulla in the body’s responses to stress. Give the actions of the epinephrine and norepinephrine.
8. Name the hormones secreted by the adrenal cortex.
9. Give the actions of glucocorticoids and mineralocorticoids.
Unit X  The Circulatory System: Blood

Upon completion of this unit, the dental assisting student will be able to:

1. List the functions of the circulatory system.
2. Give the composition of blood plasma and the functions of plasma proteins.
3. Describe the structure and function for the red blood cells, white blood cells and platelet.
4. Identify the antigen and antibody associated with each A, B, AB, O blood type.
5. Explain why blood types must be carefully matched in transfusion therapy.
6. Identify the cause and importance of Rh incompatibility.

Unit XI  The Circulatory System: The Heart

Upon completion of this unit, the dental assisting student will be able to:

1. Describe the structure of the wall of the heart.
2. Identify the chambers of the heart and compare their functions.
3. Identify the principal blood vessels that serve the heart wall.
4. Identify the components of the conduction system and trace the path of a muscle impulse through the heart.
5. Describe the events of the cardiac cycle. Define systole and diastole, and correlate normal heart sounds with the events of the cardiac cycle.
6. Define cardiac output and explain how the heart is regulated.

Unit XII  Circulation of Blood and Lymph

Upon completion of this unit, the dental assisting student will be able to:

1. Compare the structure and functions of arteries, capillaries, and veins.
2. Identify the main divisions of the aorta and its principal branches.
3. Give the physiological basis for arterial pulse, and describe how pulse is measured.
4. Define blood pressure and give its relationship to blood flow and resistance.
5. Describe the principal functions of the lymphatic system.

Unit XIII  The Internal Defense: Immune Responses

Upon completion of this unit, the dental assisting student will be able to:

1. Identify several nonspecific defense mechanisms.
2. Define the terms antigen and antibody.
3. Describe cell-mediated immunity, including development of memory cells.
4. Describe antibody-mediated immunity, including effects of antigen-antibody combination upon pathogens both directly and through the complement system.
5. Describe the role of the thymus in immune mechanisms.
6. Contrast active and passive immunity and give examples of each.

Unit XIV  The Respiratory System

Upon completion of this unit, the dental assisting student will be able to:

1. Trace a breath of air through the respiratory system from nose to alveoli.
2. Describe the structure of the lungs.
3. Define ventilation and summarize how breathing takes place.
4. Summarize the process of oxygen and carbon dioxide exchange in the lungs and in the tissues.
5. Outline how oxygen and carbon dioxide exchange in the lungs and in the tissues.
6. Outline how oxygen and carbon dioxide are transported in the blood.
7. Describe how respiration is regulated.

Unit XV The Digestive System

Upon completion of this unit, the dental assisting student will be able to:

1. List in sequence each structure through which a bite of food passes on its way through the digestive tract.
2. Describe in general terms the following steps in processing food: ingestion, digestion, absorption, and elimination.
3. Describe the function of the pharynx and esophagus.
4. Describe the function of the stomach.
5. Identify the three main regions of the small intestine, and give the function of the small intestine.
6. Summarize the functions of the pancreas and liver.
7. Describe the function of the large intestine.

Unit XVI The Urinary System and Fluid Balance

Upon completion of this unit, the dental assisting student will be able to:

1. Identify the principal metabolic waste products and the organs that excrete them.
2. Identify the urinary system and give the function for each.
4. Summarize the regulation of urine volume including the role of ADH.
5. Summarize the functions of the kidney in maintaining homeostasis.
6. Describe the process of urination.
7. Identify the fluid compartments of the body.
8. Define electrolyte balance and identify the functions of five (5) major electrolytes.
9. Describe the mechanisms responsible for sodium and potassium homeostasis.

Unit XVII Reproduction

Upon completion of this unit, the dental assisting student will be able to:

1. Identify the parts of the male reproductive system and describe the functions of each.
2. Describe the actions of the male gonadotropioc hormones and of testosterone.
3. Identify the internal and external female reproductive organs and describe the functions of each.
4. Describe the principal events of the menstrual cycle, and summarize the interactions of hormones that regulate the cycle.
5. Describe the process of fertilization and identify the time of the menstrual cycle at which sexual intercourse is most likely to result in pregnancy.
6. Describe the functions of the amnion and placenta.
7. Identify the three (3) stages of the birth process.
8. List the stages of human development from fertilization to death.

ESO Revised 3-13-01
### COURSE REQUIREMENTS/EVALUATION:

#### COURSE OBJECTIVES/ASSESSMENT MEASURES

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