

Course Syllabus

VNSG 1420 (4:4:0)

ANATOMY & PHYSIOLOGY

Vocational Nursing Program – Plainview Extension

Health Occupations Division

Technical Education Division

Plainview Campus – ONLINE CLASS

SOUTH PLAINS COLLEGE

SUMMER - 2020

ATTENDANCE POLICY: Refer to College Catalog (page 21) and Student Handbook (Plainview) (page 16). This course is a 64 contact hour course – 8 hours of allowable absence (Student Handbook).

CLASS REQUIREMENTS:

1. Read textbook material prior to class and be prepared for class discussion. Although you may not understand all of the text as you read, advance reading will help you to be familiar with the information to be presented in class.
2. The workbook that accompanies your text can be a valuable study guide for you. This is designed to assist you in the integration of the science of body systems into your knowledge base. Many test questions include content and context similar to the questions in your workbook. Tests may require you to make diagram associations - learn to associate body parts with their anatomical names and functional components.

GRADING:

Participation	10%	A	100-90
Final Exam	20%	B	89-80
Unit Exams	70%	C	79-75
			Below 75 -Failure

CLASS SCHEDULE - ASSIGNMENTS:

Week 1: 6/-6/14

Introduction and Class info
Chapter 1- Organization of the Human Body
Chapter 2 – Chemistry, Matter, and Life

Week 2: 6/8-6/14

Chapter 3 – Cells and Their Functions
Chapter 4 – Tissues, Gland, and Membrane
Unit 1 exam

Week 3: 6/15-6/21

Chapter 5 – Disease and Disease-Producing Organisms
Chapter 6 – The Integumentary System
Unit 2 exam

Week 4: 6/22-6/28

Chapter 7 – The Skeleton: Bones and Joints
Chapter 8 – The Muscular System
Unit 3 exam
Chapter 9 – The Nervous System: The Spinal Cord and Spinal Nerves

Week 5: 6/29-7/5

Chapter 10 – The Nervous System: The Brain and Cranial Nerves
Chapter 11 – The Sensory System
Chapter 12 – The Endocrine System: Glands and Hormones
Unit 4 exam

Week 6: 7/6-7/12

Chapter 13 – The Blood/The Heart and Heart Disease
Chapter 14 The Heart and Heart Disease
Chapter 15 Blood Vessels and Blood Circulation
Chapter 16 The Lymphatic System and Lymphoid Tissue

Week 7: 7/13-7/19

Chapter 17 Immunity
Unit 5 exam
Chapter 18 The Respiratory System
Chapter 19 The Digestive System;

Week 8: 7/20-7/26

Chapter 20- Metabolism, Nutrition, and Body Temperature/ Body Fluids
Chapter 21 Body Fluids
Chapter 22 – The Urinary System
Unit 6 exam

Week 9: 7/27-8/2

Chapter 23 – The Male and Female Reproductive Systems
Chapter 24 – Development and Birth;
Chapter 25 – Heredity and Hereditary Diseases
Unit 7 Exam

Week 10: 8/3-8/7

REVIEW Group Meeting
Final Exam Must be posted by NOON

Power points will be posted to Blackboard on Monday of each week for the week.
All tests will be posted to Blackboard on Thursday of the week and must be completed and submitted by Sunday at Midnight via Email to my email address or posted to Blackboard. All tests that are posted after midnight on the date due will be deducted 10 points per day until they are completed.

Please plan to attend each Group meeting so you know of any changes in assignments and tests. This is only a preliminary schedule and will be subject to change. Classes will go all the way through August 7th with the final being completed via a group video at 1100 on August 7th (subject to change) The exams are subject to change. - Please pay attention to the announcement section on Blackboard

Participation will include checking in on the group meetings

COURSE OUTLINE / UNIT OBJECTIVES:

I. INTRODUCTION TO HUMAN BODY

Objectives:

1. Describe the organization of the body from cells to the whole organization
2. Define the terms anatomy / physiology
3. Identify organs which comprise the major body systems and their locations
4. Define metabolism and name two phases of metabolism
5. Differentiate between extracellular and intracellular fluid
6. Explain the role of ATP in the body
7. Define homeostasis and negative feedback
8. List and define the main directional terms and planes of the body
9. Describe the structural cavities of the body and their subdivisions

OUTLINE:

- I. Studies of human body
 - A. Anatomy
 - B. Physiology
- II. Organization
- III. Body directions

II. CHEMISTRY, MATTER & LIFE

Objectives:

1. Differentiate between atoms and molecules
2. Differentiate between elements, compounds, and mixtures
3. Explain why water is so important to the body
4. Differentiate between ionic and covalent bonds
5. Define acid, base, salt; explain relationship and relevance of pH with reference to body systems and fluids
6. Explain how the numbers on the pH scale relate to acidity and alkalinity
7. Define buffer and explain why buffers are important in the body
8. Name the three types of organic compounds and the building blocks of each
9. Define enzyme and describe how they work

Outline:

- I. Basic units of matter
- II. Water
- III. Chemical bonds
- IV. Acids, bases, salts, buffers
- V. Organic compounds

III. CELLS AND THEIR FUNCTIONS

Objectives:

1. Describe the composition and function of cytoplasm
2. Name and describe the main organelles in the cell
3. Give the composition, location, and function of DNA and RNA in the cell
4. Explain briefly the metabolic function of the cell
5. Describe briefly the steps in cell division
6. List four methods by which substances enter and leave the cell

Outline:

- I. Cell structure
- II. Cell functions
 - A. Nuclear - nucleic acids
 - B. Cell division - mitosis
 - C. Movement
 - D. Phagocytosis
 - E. Body solutions related to cell transport

IV. TISSUES, GLANDS, MEMBRANES

Objectives:

1. Name the four main groups of tissues and give the location and general characteristics of each
2. Describe the difference between exocrine and endocrine glands and give examples of each
3. Identify locations of soft, fibrous, hard, and liquid connective tissues in the body
4. Describe three types of epithelial and connective tissue membranes

Outline:

1. Tissue classification
 - A. Epithelial
 - B. Connective
 - C. Nerve
 - D. Muscle
 - E. Membranes
 - F. Membranes and disease

IV. INTEGUMENTARY SYSTEM / THE SKIN

Objectives:

1. Define disease and predisposing causes of disease
2. List four types of organisms studied in microbiology and characteristics of each
3. Identify some diseases caused by each type of organism
4. Describe the three types of bacteria according to shape
5. Identify several disease that may be caused by worms
6. Identify the skin layers and appendages
7. Identify the secretions of the skin and their function
8. Discuss the clinical significance of the skin
9. List the main functions of the skin
10. Identify some common skin disorders

Outline:

- I. Categories of disease
- II. Predisposing causes
- III. Terminology
- IV. Microorganisms
- V. Structure of the skin
- VI. Appendages
- VII. Functions
- VIII. Observation

VII. SKELETAL SYSTEM / BONES & JOINTS

Objectives:

1. Describe the composition of bone tissue
2. Differentiate between compact bone and spongy
3. Explain how bones grow and harden
4. Differentiate between red and yellow bone marrow - location of each
5. Identify types of bones in the body and examples of each
6. List designated bones in the axial and appendicular skeletons, and location of each
7. Identify abnormal curves of the axial skeleton
8. Identify six types of joints based on movement, and give examples of each
9. Describe a synovial joint and give an example
10. Describe six types of fractures
11. Define six types of movement that occur at synovial joints

Outline:

- I. Bone structure
- II. Bone growth and repair
- III. Functions
- IV. Divisions of skeleton
- V. Bone landmarks
- VI. Bone disorders
- VII. Joints

VIII. MUSCULAR SYSTEM

Objectives:

1. Identify the characteristics of skeletal muscle
2. Describe muscle contraction and movement
3. List substances needed in muscle contraction
4. Describe how energy is produced in muscle contraction
5. Differentiate between isotonic and isometric contractions; define principles of body mechanics
6. Describe how muscles work in pairs to produce movement
7. Name and locate common major muscles in each muscle group; describe function of each
8. Discuss how muscles change with age

Outline:

- I. Characteristics
- II. Attachments
- III. Muscle movements
- IV. Muscle groups

IX. NERVOUS SYSTEM / SPINAL CORD & SPINAL NERVES

Objectives:

1. Describe the organization of the nervous system according to structure and function
2. Explain the transmission of a nerve impulse
3. Identify functions of sensory, motor, and connective neurons
4. Define synapse and describe the role of neurotransmitters at the synapse
5. Name three types of nerves and explain how they differ from each other
6. Describe the spinal cord; identify its functions
7. Identify the spinal nerves and three main plexuses
8. Describe the reflex arc
9. Describe the two parts of the autonomic nervous system; compare the systemic effects

Outline:

- I. Nervous system
- II. Nerve cell
- III. Spinal cord
 - A. Location
 - B. Structure
 - C. Functions
 - D. Reflex arc
 - E. Spinal nerves
- IV. Autonomic nervous system
 - A. Sympathetic - adrenergic
 - B. Parasympathetic - cholinergic

X. THE NERVOUS SYSTEM - THE BRAIN & CRANIAL NERVES

Objectives:

1. Identify the location and functions of the four major divisions of the brain
2. Name the three meninges and their functions
3. Describe the function of cerebrospinal fluid; where and how it is formed
4. Identify the names and functions of the twelve cranial nerves
5. Describe the functions of each lobe of the cerebral cortex

Outline:

- I. Brain structure
- II. Divisions of the brain
 - A. Cerebrum / cerebral cortex
 - B. Diencephalon
 - C. Brain stem
 - D. Cerebellum
- III. Cranial nerves

XI. SENSORY SYSTEM

Objectives:

1. Identify the sensory receptors of the body in terms of location and function
2. Identify areas of brain which interpret the sensations from each receptor
3. Identify major structures of ear and state function of each
4. Locate major structures of eye and state function of each
5. Define refraction; identify the refractive media of the eye
6. Differentiate between rods and cones of the eye

7. Define general sense and identify the five general senses of the body

Outline:

- I. Sensory impulse
- II. Eye
 - A. Protection
 - B. Coats
 - C. Refraction
 - D. Muscles
 1. Intrinsic
 2. Extrinsic
 - E. Nerve supply
 - F. Conjunctiva - lacrimal apparatus
- III. Ear
 - A. Divisions
 1. External
 2. Middle
 3. Inner
 - B. External ear
 - C. Middle ear
 - D. Inner ear
 1. Bony labyrinth
 2. Fluid
 3. Nerves
- IV. Special sense organs
- V. General

XII. THE ENDOCRINE SYSTEM - GLANDS & HORMONES

Objectives:

1. Compare the effects of nervous system and endocrine system in controlling the body
2. Describe three methods by which hormones are released and regulated by the body
3. List the hormones produced by each endocrine gland and describe their functions
4. Explain why the anterior pituitary is referred to as the master gland
5. Explain the endocrine response to stress
6. Explain how the endocrine system contributes to homeostasis
7. Describe how the hypothalamus controls the anterior and posterior pituitary

Outline:

- I. Functions of hormones
- II. Endocrine glands
 - A. Pituitary
 - B. Thyroid / Parathyroid
 - C. Adrenal gland
 - D. Pancreas
 - E. Gonads
 - F. Thymus
 - G. Pineal body
 - H. Kidney
 - I. Atrial natriuretic peptides
 - J. Prostaglandins
- III. Hormones and stress

XIII. THE BLOOD

Objectives:

1. List the functions of the blood
2. Identify the components of blood plasma

3. Name the three formed elements in the blood
4. Describe five types of leukocytes
5. Describe the process of blood clotting
6. Define blood type; identify the different blood types and their relationship to blood transfusions
7. Identify the antigens found in the red blood cell
8. Identify tests used to study blood

Outline:

- I. Description of blood
- II. Functions
 - A. Transportation
 - B. Regulation
 - C. Protection
- III. Constituents
 - A. Plasma
 - B. Formed elements
 1. Erythrocytes
 2. Leukocytes
 3. Platelets - thrombocytes
 4. Origin
 5. Homeostasis
- IV. Blood typing
 - A. Four blood types
 - B. Donars / recipients
 - C. Transfusion
- V. Blood studies

XIV. THE HEART

Objectives:

1. Describe the three layers of the heart
2. Name the four chambers of the heart
3. Identify the four valves of the heart; describe the functional adaptation to the flow of blood through the heart
4. Trace the circulation of blood through the heart
5. Name the components of the conduction system; trace an impulse from the SA node through the conduction network
6. Briefly describe the cardiac cycle; discuss its relationship to blood pressure and pulse
7. Describe the action which produces the two main heart sounds
8. Identify components of a normal conduction cycle / EKG

Outline:

- I. Structure
 - A. Layers
 - B. Partition
 - C. Chambers
 - D. Valves
 - E. Blood supply to myocardium
- II. Physiology
- III. Conduction system
- IV. Instruments used to monitor
 - A. Stethoscope
 - B. Sphygmomanometer
 - C. EKG
 - D. Echocardiogram
 - E. Doppler

F. Cardiac catheterization

XIV. BLOOD VESSELS - BLOOD CIRCULATION

Objectives:

1. Differentiate between the three main types of vessels in the body with regard to structure and function
2. Name four sections of the aorta; name main branches
3. Name vessels of venous circulation and arterial circulation; identify location on diagram
4. Describe effects of vasodilation and vasoconstriction on blood distribution
5. Describe the structure and function of the hepatic portal system
6. Explain transport of substances across the capillary wall
7. Describe the relationship of blood circulation to the heart rate; identify body locations where pulse can be palpated
8. Describe factors that regulate blood flow
9. List several factors that affect blood pressure

Outline:

- I. Functional classification
 - A. Arteries
 - B. Veins
 - C. Capillaries
- II. Structure
- III. Arterial / venous vessels
 - A. Aorta > arteries
 - B. Systemic veins
 - C. Hepatic portal system
- IV. Physiology of circulation
- V. Pulse and blood pressure
 - A. Pulse
 - B. Blood pressure

XVI / XVII. LYMPHATIC SYSTEM & IMMUNE SYSTEM

Objectives:

1. List three major functions of lymphatic system
2. Name two main lymphatic ducts and distribution of each
3. List major structure of lymphatic system with respect to location and drainage function
4. Describe the composition and function of the reticuloendothelial system
5. Differentiate between nonspecific and specific body defenses; discuss components of body immune system and functions
6. Define antigen / antibody; what is relationship to immunity
7. Differentiate between types of immunity - inferred, natural, active acquired, passive acquired
8. Compare T cells and B cells with respect to development and type of activity

Outline:

1. Structure
 - A. Lymphatic capillaries
 - B. Lymphatic vessels
 - C. Lymphoid tissue
- II. Reticuloendothelial system
- III. Immune system
 - A. Nonspecific
 - B. Immunity

XVIII. RESPIRATORY SYSTEM

Objectives:

1. Define respiration and describe the three phases of respiration
2. Differentiate between external and internal respiration
3. Name and locate all structures of respiratory system
4. Identify the ways in which oxygen and carbon dioxide are transported in the blood stream
5. State the functions of respiratory and circulatory systems as it applies to the physiology of respiration
6. Explain the mechanism for pulmonary ventilation
7. Explain how carbon dioxide serves to regulate the pH of the blood
8. Identify protective mechanisms located within the nasal structure, pharynx, and larynx
9. Describe ways in which respiration is regulated

Outline:

- I. Respiration
 - A. Pulmonary ventilation
 - B. Cellular respiration
- II. Structure
 - A. Nasal cavities
 - B. Pharynx
 - C. Larynx
 - D. Trachea
 - E. Bronchi
 - F. Lungs
 - G. Diaphragm
- III. Physiology of respiration

XIX. DIGESTION

Objectives:

1. Name two main functions of the digestive system
2. Trace the digestive pathway, describing each organ and accessory organ according to structure, location and digestive function
3. Explain the role of enzymes in digestion; identify enzyme activity in each phase of the digestive process
4. Name the digestion products of fats, proteins, and carbohydrates
5. Define absorption
6. Describe how villi function in absorption
7. Describe how bile functions in digestion
8. Discuss the main functions of the liver
9. Define metabolism and describe factors which affect the metabolic rate
10. Explain the production of heat and role of digestion in this process

Outline:

- I. Digestive tract
 - A. Structure
- II. Accessory structures
- III. Process of digestion
- IV. Metabolism - Chapter 20

XXI / XXII. BODY FLUIDS AND THE URINARY SYSTEM

Objectives:

1. Compare intracellular and extracellular fluid
2. Identify four types of extracellular fluid
3. Name systems involved in water balance
4. Define electrolytes; discuss their importance to homeostasis
5. Describe three methods for regulating the pH of body fluids

6. Identify the systems that eliminate waste products from the body and the substances eliminated by each
7. Describe the parts of the urinary system and functions of each
8. Identify the parts of a nephron; describe the processes involved in urine formation
9. Identify the role of ADH in urine formation
10. Name two hormones produced by the kidneys and describe the function of each
11. Name three normal and six abnormal constituents of urine

Outline:

- I. Fluid compartments
 - A. Intracellular fluid
 - B. Extracellular fluid
- II. Body intake and output of water
- III. Urinary system
 - A. Kidneys
 1. Structure
 2. Nephron
 3. Functions
 4. Renal physiology
 - a. glomerular filtration
 - b. tubular reabsorption / secretion
 - c. concentration of urine
 - B. Ureters
 - C. Urinary bladder
 - D. Urethra
- IV. Urine
 - A. Normal constituents
 - B. Abnormal constituents

XXIII. REPRODUCTIVE SYSTEM

Objectives:

1. Identify and locate internal / external sex organs; describe function of each
2. List accessory organs and functions of each
3. Describe the composition and function of semen
4. Discuss phases and hormonal changes which occur during the female menstrual cycle
5. Explain the physiology of conception
6. Identify secondary sex characteristics for each gender

Outline:

- I. Male
 - A. Testes - scrotum
 1. Epididymus
 2. Vas deferens
 3. Seminal vesicle
 4. Spermatic cord
 5. Ejaculatory duct
 6. Prostate gland
 7. Urethra
 8. Penis
 - B. Physiology
- II. Female
 - A. Ovaries
 1. Graffian follicle - ovum
 2. Corpus luteum
 3. Menstrual cycle
 - B. Uterus / fallopian tubes
 - C. External genitalia / Vagina

D. Mammary glands

4.1.1 Syllabus Statements:

Each syllabus should include the following Diversity Statement and the Disabilities Statement appropriate to the location of the course.

4.1.1.1 Diversity Statement:

In this class, the teacher will establish and support an environment that values and nurtures individual and group differences and encourages engagement and interaction. Understanding and respecting multiple experiences and perspectives will serve to challenge and stimulate all of us to learn about others, about the large world and about ourselves. By promoting diversity and intellectual exchange, we will not only mirror society as it is, but also model society as it can be.

4.1.1.2. Disabilities Statement:

Levelland Campus

Students with disabilities, including physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office early in the semester so that the appropriate arrangements may be made.

In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Special Services Coordinator. For more information, call or visit the Special Services Office in the Student Services building. 894-9611 ext 2529.

Reese Center and Byron Martin Advanced Technology Center

(ATC)

Students with disabilities, including physical, psychiatric, or learning disabilities, who wish to request accommodations in this class should notify the Special Services Office early in the semester so that the appropriate arrangements may be made.

In accordance with federal law, a student requesting accommodations must provide acceptable documentation of his/her disability to the Special Services Coordinator. For more information, call or visit the Special Services Office in room 809 and 811, Reese Center, Building 8, 885-3048 ext 4654