

Anatomy and Physiology for Allied Health

Class

VNSG 1320

Study of the structure (anatomy) and function (physiology) of the human body, including the neuroendocrine, integumentary, musculoskeletal, digestive, urinary, reproductive, respiratory, and circulatory systems. CIP Code Description: 51.3901 VNSG 1320 (Licensed Practical/Vocational Nurse Training) 48 Contact hours, 3 Semester Credit Hours.

Course Learning Objectives

Identify the structure of each of the body systems; describe the functions of each body system; and discuss the interrelationship of systems in maintaining homeostasis.

1. Outline the overall general plan, organization, and chemical makeup of the human body. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 1. Define anatomy, physiology, and pathophysiology
 2. Name the levels of organization of the body from simplest to most complex
 3. Define anatomical terms, body parts and areas, and anatomical position
 4. Name body cavities, their membranes, and major organs within each cavity
 5. Identify the major chemical elements found in the human body
2. Communicate the general characteristics of human cells. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 2. Identify the major, selected components of cell structure
 3. Summarize cellular transport mechanisms
 4. List the types of cell division
 5. Discuss the types and effects of cell injury
3. Discuss the general characteristics of tissues and the skin. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 3. Outline the various types, characteristics, functions of epithelial tissue
 4. Outline the various types, characteristics, functions of connective tissue
 5. Outline the various types, characteristics, functions of the muscle tissue
 6. Outline the various parts, structure, and function of nerve tissue
 7. Outline the various types, locations, function of membranes
 8. Discuss the cause and effects of tissue inflammation
 9. Describe the mechanism of wound healing
 10. Identify the various components of the epidermis and dermis
 11. Diagram the structure of the skin and subcutaneous tissue
 12. List the location and function of the various skin glands
 13. Describe the structure and functions of subcutaneous tissue
4. Recognize the interrelationships of the skeletal and muscular systems. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 4. Discuss general skeletal and muscle function
 5. Explain the types and classification of bone and muscle
 6. Describe factors that affect bone growth and maintenance
 7. Differentiate between the various bones of the human body
 8. Give examples of the various types of joints-bone articulation
 9. Give examples of the structure of joints
 10. Outline energy sources required for muscle contraction
 11. Distinguish between the various actions of muscles
 12. Identify selected muscles as they relate to common injection sites and common surgical procedures
5. Explain the overall function of the nervous system. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Describe the functions and divisions of the nervous system
 - Label the components of nerve tissue
 - Distinguish between the three types of neurons
 - Explain the role and structure of the spinal cord and spinal nerves
 - Explain the location and major functions of the major parts of the brain
 - Outline the function of the meninges, cerebrospinal fluid, and cranial nerves

- Describe the divisions and functions of the Autonomic Nervous System
 - Discuss the purpose of sensations, sensory pathways, and characteristics of sensation
 - Distinguish between cutaneous senses, muscle sense, taste sense, smell sense, and hunger and thirst
 - Label the major components of the eye and the ear
6. Summarize the overall function of the endocrine system. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Explain the effects of hormone secretion
 - State the function and location of the major organ components of the endocrine system
 7. Discuss the overall function and components of the cardiovascular system. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Outline the general functions, characteristics, and major components of blood
 - Discuss the location and general functions of the major components of the heart
 - Demonstrate the cardiac conduction pathway
 - Discuss cardiac cycle, heart rate, cardiac output, and heart rate regulation
 - Outline the general purpose and major components of the vascular system
 - Explain the various pathways of circulation
 - Discuss the mechanisms responsible for blood pressure maintenance and regulation
 - Relate the cause and effect of the following on the human organism:
 - ▪ Arteriosclerosis
 - ▪ Aneurysm
 - ▪ Varicose Veins
 - ▪ Hypertension
 - ▪ Myocardial ischemia
 - ▪ Myocardial infarction
 - ▪ Congestive heart failure
 - Discuss the common diagnostic studies utilized in the diagnosis and treatment of cardiovascular disorders
0. Explain the functions of the lymphatic system (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Discuss the function and composition of lymph
 - Describe the major components of the lymphatic system
 - Identify the mechanisms and types of immunity
 1. Explain the overall function of the respiratory system. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Identify the major components of the respiratory system
 - Discuss the mechanism of breathing, gas exchange, blood gas transport, pulmonary volumes, and regulation of respiration
 - Explain the relationship of respiration to acid-base balance
 - Discuss the common diagnostic studies utilized in the diagnosis and treatment of respiratory disorders
 2. Summarize the overall function of the digestive system (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Discuss the types of digestive processes
 - Outline the functions and divisions of the digestive system
 - Distinguish between the functions of the major components of the digestive system
 - Relate the cause and effect of the following on the human organism:
 - Vomiting
 - Constipation
 - Diarrhea
 - Discuss common diagnostic studies utilized for the diagnosis and treatment of digestive disorders
11. Describe the overall function of the urinary system. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Outline the general functions and anatomical divisions of the Urinary system
 - Explain the formation and elimination of urine
 - State the characteristics of normal and abnormal urine
 - Discuss common diagnostic studies utilized in the diagnosis and treatment of urinary disorders
 12. Summarize the overall function of the reproductive system. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
 - Outline the general functions and anatomical structures of the male reproductive system
 - Outline the general functions and anatomical structure of the female reproductive system
 - Discuss common diagnostic procedures utilized in the diagnosis and treatment of reproductive tract disorders

- Explain the following patterns of inheritance: dominant, recessive, multiple Alleles, sex linked traits
 - Explain homologous chromosomes, autosomes, sex chromosomes and genes
 - Define alleles, genotype, phenotype, homozygous, and heterozygous
13. Discuss the regulation of body temperature and metabolism. (DECs II-B,H; SCANs C5, C6, C7, F13, F16)
- Outline the factors that relate to heat production, heat loss, body temperature regulation, and fever
 - Explain the processes of metabolism

Required Textbooks

Herlihy, B. (2022). *The Human Body in Health and Illness. (7th Ed.)*. St. Louis: Elsevier

Evaluation Standards

Cognitive evaluation will include unit exams, quizzes, daily work, homework, scheduled On- Line assignments and a comprehensive final exam. Scheduled homework assignments will be accepted only on the due date/time for full grading consideration. Scheduled homework assignments will only be accepted on the student's first day back on campus (before the first scheduled class of the day) if absent on the date the assignment is due. Fifteen (15) points will be deducted for late assignments. On-line assignments must be completed & submitted during the published open time frame. Failure to submit electronically during the published open time frame will result in a score of "0". All scheduled assignments are due at the beginning of the class period unless otherwise stated and are expected to be original, independent work unless otherwise directed by the instructor. Each scheduled assignment should be neat and legible, with correct spelling and grammar. Sources should be appropriately cited when indicated.

Failure to submit any assignment will result in a zero (0) being recorded for that assignment. However, if absent on the day of an unannounced quiz or an in-class assignment the student will have the opportunity to complete the activity and submit for a reduced grade. (15 points will be deducted). This assignment must be completed and submitted within 48 hours after the student's first return to campus.

There are no provisions for individual make-up work or extra credit in this course.

Exams should be taken as scheduled. No quiz/exam, nor the final, may be taken early. If an exam is missed, the student will be allowed to take a make-up exam on the first day the student returns to campus following the absence. It is the student's responsibility to contact the instructor(s) and arrange a time for the make-up exam outside of class time on the student's first day back on campus. Fifteen (15) points will be deducted for all late exams.

Failure to take any Unit Exam or the Final Exam will result in a grade of zero (0) being recorded. The instructor will provide specific information during this course for exams.

Exam Procedures:

The Weatherford College Vocational Nursing Program exam policy, which can be found in the VNP Student Handbook, will be followed for this course.

Students are encouraged to review the rationale of questions for computerized tests immediately after submitting the exam.

Students that score less than 78% on an exam are encouraged to meet with the instructor to identify strategies for improvement of exam scores. Please see course schedule for exam dates.

Grading:

Evaluation	Percent
Assignments	5%
Quizzes	10%
Unit Exams	75%
Final	10%
Total Evaluation	100%

A= 90 to 100

B = 80 to 90

C = 78 - 79

F = <78

Disabilities

ADA Statement:

Any student with a documented disability (e.g. learning, psychiatric, vision, hearing, etc.) may contact the Office on the Weatherford College Weatherford Campus to request reasonable accommodations. *Phone:* 817-598-6350
Office Location: Office Number 118 in the Student Services Building, upper floor. *Physical Address:* Weatherford College 225 College Park Drive Weatherford, TX.

Academic Integrity

Academic Integrity is fundamental to the educational mission of Weatherford College, and the College expects its students to maintain high standards of personal and scholarly conduct. Academic dishonesty of any kind will not be tolerated. Academic dishonesty includes, but is not limited to, cheating on an examination or other academic work, plagiarism, collusion, and the abuse of resource materials including unauthorized use of Generative AI. Departments may adopt discipline specific guidelines on Generative AI usage approved by the instructional dean. Any student who is demonstrated to have engaged in any of these activities will be subject to immediate disciplinary action in accordance with institutional procedures.

SCANS

Essential Competencies (DECs) & Secretaries Commission of Achieving Necessary Skills Differentiated (SCANS) will be aligned throughout the syllabus. Differentiated Essential Competencies of Graduates of Texas Vocational Nursing Educational programs and SCANS competencies can be accessed from [Texas Board of Nursing](#). SCANS information can be obtained from the document [Identifying and Describing The Skills Required by Work](#) published by The Secretary's Commission on Achieving Necessary Work Skills.

Texas Board of Nursing DECS

I. Member of the Profession

A. Function within the nurse's legal scope of practice and in accordance with regulation and the policies and procedures of the employing health care institution or practice setting.

B. Assume responsibility and accountability for the quality of nursing care provided to patients and their families.

C. Contribute to activities that promote the development and practice of vocational nursing.

D. Demonstrate responsibility for continued competence in nursing practice, and develop insight through reflection, self-analysis, self-care, and lifelong learning.

2. Provider of Patient-Centered Care

2. Use clinical reasoning and knowledge based on the vocational nursing program of study and established evidence-based practice as the basis for decision-making in nursing practice. B. Assist in determining the physical and mental health status, needs, and preferences influenced by culture, spirituality, ethnicity, identity, and social diversity of patients and their families, and in interpreting health-related data based on knowledge derived from the vocational nursing program of study.

1. Report data to assist in the identification of problems and formulation of goals/outcomes and patient-centered plans of care in collaboration with patients, their families, and the interdisciplinary health care team.
 2. Provide safe, compassionate, basic nursing care to assigned patients with predictable health care needs through a supervised, directed scope of practice.
 3. Implement aspects of the plan of care within legal, ethical, and regulatory parameters and in consideration of patient factors.
 4. Identify and report alterations in patient responses to therapeutic interventions in comparison to expected outcomes.
 5. Implement teaching plans for patients and their families with common health problems and well-defined health learning needs.
 6. Assist in the coordination of human, information, and physical resources in providing care for assigned patients and their families.
3. Patient Safety Advocate
1.
 1. Demonstrate knowledge of the Texas Nursing Practice Act and the Texas Board of Nursing Rules that emphasize safety, as well as all federal, state, and local government and accreditation organization safety requirements and standards.
 2. Implement measures to promote quality and a safe environment for patients, self, and others.
 3. Assist in the formulation of goals and outcomes to reduce patient risks.
 4. Obtain instruction, supervision, or training as needed when implementing nursing procedures or practices.
 5. Comply with mandatory reporting requirements of the Texas Nursing Practice Act. F. Accept and make assignments that take into consideration patient safety and organizational policy.
4. Member of the Health Care Team
1. Communicate and collaborate in a timely manner with patients, their families, and the interdisciplinary health care team to assist in the planning, delivery, and coordination of patient-centered care to assigned patients.
 1. Participate as an advocate in activities that focus on improving the health care of patients and their families.
 2. Participate in the identification of patient needs for referral to resources that facilitate continuity of care, and ensure confidentiality.
 3. Communicate patient data using technology to support decision-making to improve patient care.
 4. Assign nursing activities to LVNs or unlicensed personnel based upon an analysis of patient or work place need.
 5. Supervise nursing care by others for whom the nurse is responsible.
 6. Assist health care teams during local or global health emergencies or pandemics to promote health and safety, and prevent disease.