Anatomy and Physiology

Texas- 130.224

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(C) Knowledge and skills.	33/48
(1) The student demonstrates professional standards/employability skills as required by business and industry. The student is expected to:	
(A) Demonstrate verbal and non-verbal communication in a clear, concise, and effective manner.	**Module:** Communications **Unit 1:** Basic Communication **Unit 2:** Interpersonal Communication **Unit 3:** Communication Barriers **Unit 4:** Communicating with Patients **Reinforce Activity:** Communication Skit **Reinforce Activity:** Culture/Religion Presentation **Reinforce Activity:** Communication Diversity Skit **Module:** Written Communication **Unit 1:** Written Communication **Unit 3**: Types of Written Communication **Module:** Medical Office Assistant **Explore Activity:** Communication Game **Unit 2:** Professional Traits **Unit 4:** Communication Exercise
(B) Exhibit the ability to cooperate, contribute, and collaborate as a member of a team.	**Module:** Personal Qualities **Unit 3:** Health Care Team **Reflect Activity:** Question 3 **Reinforce Activity:** Health Care Problem Solving Scenarios **Reinforce Activity:** Team Invention **Reinforce Activity:** Conflict Resolution Scenarios **Reinforce Activity:** Health Care Team Meeting
(2) The student, for at least 40% of instructional time, conducts field and laboratory investigations using safe, environmentally appropriate, and ethical practices. These investigations must involve actively obtaining and analyzing data with physical equipment but may also involve experimentation in	

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a simulated environment as well as field observations that extend beyond the classroom. The student is expected to:	
(A) Demonstrate safe practices during laboratory and field investigations.	**Not covered**
(B) Demonstrate an understanding of the use and conservation of resources and the proper disposal or recycling of materials.	**Not covered**
(3) The student uses scientific methods and equipment during laboratory and field investigations. The student is expected to:	
(A) Know the definition of science and understand that it has limitations, as specified in subsection (b)(4) of this section. Section (B)(4): Scientific inquiry is the planned and deliberate investigation of the natural world. Scientific methods of investigation are experimental, descriptive, or comparative. The method chosen should be appropriate to the question being asked.	**Not covered**
(B) Know that hypotheses are tentative and testable statements that must be capable of being supported or not supported by observational evidence. Hypotheses of durable explanatory power that have been tested over a wide variety of conditions are incorporated into theories.	**Not covered**
(C) Know that scientific theories are based on natural and physical phenomena and are capable of being tested by multiple independent researchers. Unlike hypotheses, scientific theories are well-established and highly-reliable explanations, but they may be subject to change as new areas of science are created and new technologies emerge.	**Not covered**
(D) Distinguish between scientific hypotheses and scientific theories.	**Not covered**
(E) Plan and implement descriptive, comparative, and experimental investigations, including asking questions, formulating testable hypotheses, and selecting equipment and technology.	**Not covered**

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(F) Collect and organize qualitative and quantitative data and make measurements with accuracy and precision using tools such as calculators, spreadsheet software, data collecting probes, computers, standard laboratory glassware, microscopes, various prepared slides, stereoscopes, metric rulers, electronic balances, gel electrophoresis apparatuses, micropipettors, hand lenses, Celsius thermometers, hot plates, lab notebooks or journals, timing devices, Petri dishes, lab incubators, dissection equipment, meter sticks, and models, diagrams, or samples of biological specimens or structures.	**Module:** Infection Control **Reinforce Activity:** Observing Microorganism Growth
(G) Analyze, evaluate, make inferences, and predict trends from data; and	**Module:** Infection Control **Reinforce Activity:** Observing Microorganism Growth
(H) Communicate valid conclusions supported by the data through methods such as lab reports, labeled drawings, graphic organizers, journals, summaries, oral reports, and technology-based reports.	**Module:** Infection Control **Reinforce Activity:** Observing Microorganism Growth
(4) The student uses critical thinking, scientific reasoning, and problem solving to make informed decisions within and outside the classroom. The student is expected to:	
(A) In all fields of science, analyze, evaluate, and critique scientific explanations by using empirical evidence, logical reasoning, and experimental and observational testing, including examining all sides of scientific evidence of those scientific explanations, so as to encourage critical thinking.	**Not covered**
(B) Communicate and apply scientific information extracted from various sources such as accredited scientific journals, institutions of higher learning, current events, news reports, published journal articles, and marketing materials.	**Module:** All body system modules **Reinforce Activity:** Advanced Treatment Research Activity **Reinforce Activity:** Diseases and Disorders Research
(C) Draw inferences based on data related to promotional materials for products and services.	**Not covered**

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(D) Evaluate the impact of scientific research on society and the environment.	**Module:** Healthcare Systems **Unit 1:** History of Healthcare
(E) Evaluate models according to their limitations in representing biological objects or events.	**Not covered**
(F) Research and describe the history of science and contributions of scientists.	**Module:** Healthcare Systems **Unit 1:** History of Healthcare **Reinforce Activity:** Talk Show **Reinforce Activity:** Healthcare Innovations Debate
(5) The student evaluates the energy needs of the human body and the processes through which these needs are fulfilled. The student is expected to:	
(A) Analyze the chemical reactions that provide energy for the body.	**Module:** Muscular System **Unit 3:** Starting the Muscle Contraction
(B) Evaluate the modes, including the structure and function of the digestive system, by which energy is processed and stored within the body.	**Module:** Digestive System **Unit 1:** Structure and Function
(C) Analyze the effects of energy deficiencies in malabsorption disorders as they relate to body systems such as Crohn's disease and cystic fibrosis.	**Module:** Digestive System **Unit 2:** Diseases and Disorders **Reinforce Activity:** Diseases and Disorders Research
(D) Analyze the effects of energy excess in disorders as they relate to body systems such as cardiovascular, endocrine, muscular, skeletal, and pulmonary.	**Module:** All body system modules **Reinforce Activity:** Diseases and Disorders Research
(6) The student differentiates the responses of the human body to internal and external forces. The student is expected to:	
(A) Explain the coordination of muscles, bones, and joints that allows movement of the body.	**Module:** Skeletal System **Unit 1:** Introduction **Unit 6:** Articulations **Module:** Muscular System

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	Unit 5: Body Motions and Terminology **Unit 6:** Naming of the Skeletal Muscles **Unit 7:** Muscles Groups
(B) Investigate and report the uses of various diagnostic and therapeutic technologies.	**Module:** All A&P modules **Reinforce Activity:** Advanced Treatment Research
(C) Interpret normal and abnormal contractility conditions such as in edema, glaucoma, aneurysms, and hemorrhage.	**Not covered**
(D) Analyze and describe the effects of pressure, movement, torque, tension, and elasticity on the human body	**Module:** Muscular System **Unit 1:** The Muscular System Defined **Unit 2:** Skeletal Muscle **Unit 3:** The Role of the Nervous System **Unit 5:** Body Motions and Terminology
(E) Perform an investigation to determine causes and effects of force variance and communicate findings.	**Not covered**
(7) The student examines the body processes that maintain homeostasis. The student is expected to:	
(A) Investigate and describe the integration of the chemical and physical processes, including equilibrium, temperature, pH balance, chemical reactions, passive transport, active transport, and biofeedback, that contribute to homeostasis.	**Module:** Introduction to A&P **Unit 5:** Chemical Processes that Support Life **Module:** Skeletal System **Unit 1:** Introduction **Module:** Cardiovascular System **Unit 1:** Introduction **Module:** Lymphatic System **Unit 1:** Structure and Function
(B) Determine the consequences of the failure to maintain homeostasis.	**Module:** Introduction to A&P **Unit 5:** Chemical Processes that Support Life **Module:** Skeletal System **Unit 1:** Introduction **Module:** Cardiovascular System **Unit 1:** Introduction

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	Module: Lymphatic System **Unit 1:** Structure and Function **Module:** Client Status **Unit 2:** Temperature **Unit 3:** Pulse **Unit 4:** Respiration **Unit 5:** Blood Pressure
(8) The student examines the electrical conduction processes and interactions. The student is expected to:	
(A) Illustrate conduction systems such as nerve transmission or muscle stimulation.	**Module:** Muscular System **Unit 3:** Starting the Muscle Contraction **Unit 4:** Muscle Movement at the Cellular Level **Module:** Nervous System **Unit 1:** Structure and Function
(B) Investigate the therapeutic uses and effects of external sources of electricity on the body system	**Not covered**
(C) Evaluate the application of advanced technologies such as electroencephalogram, electrocardiogram, bionics, transcutaneous electrical nerve stimulation, and cardioversion.	**Module:** All A&P modules **Reinforce Activity:** Advanced Treatment Research
(9) The student explores the body's transport systems. The student is expected to:	
(A) Analyze the physical, chemical, and biological properties of transport systems, including circulatory, respiratory, and excretory.	**Module:** Cardiovascular System **Unit 2:** Blood Cells and Blood Types **Unit 3:** Cardiac Blood Vessels **Unit 4:** The Cardiac Cycle **Unit 5:** Blood and Its Components **Unit 6:** Blood Cells and Blood Types **Module:** Respiratory System **Unit 1:** Structure and Function **Module:** Urinary System **Unit 1:** Structure and Function

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(B) Determine the factors that alter the normal functions of transport systems.	**Module:** Cardiovascular System **Unit 2:** Blood Cells and Blood Types **Unit 3:** Cardiac Blood Vessels **Unit 4:** The Cardiac Cycle **Unit 5:** Blood and Its Components **Unit 6:** Blood Cells and Blood Types **Module:** Respiratory System **Unit 2:** Diseases and Disorders **Module:** Urinary System **Unit 2:** Diseases and Disorders
(C) Contrast the interactions among the transport systems.	**Not covered**
(10) The student investigates environmental factors that affect the human body. The student is expected to:	
(A) Identify the effects of environmental factors such as climate, pollution, radioactivity, chemicals, electromagnetic fields, pathogens, carcinogens, and drugs on body systems.	**Module:** Respiratory System **Unit 2:** Diseases and Disorders **Module:** Human Growth and Development **Unit 2:** Prenatal and Neonatal **Module:** Diseases and Disorders **Unit 5:** Asthma
(B) Explore measures to minimize harmful environmental factors on body systems.	**Not covered**
(11) The student investigates the structure and function of the human body. The student is expected to:	
(A) Analyze the relationships between the anatomical structures and physiological functions of systems, including the integumentary, nervous, skeletal, muscular, cardiovascular, respiratory, digestive, urinary, immune, endocrine, and reproductive systems.	**Module:** Introduction to A&P **Unit 7:** The Body at Work **Module: I**ntegumentary, Nervous, Endocrine, Lymphatic, Sensory, Respiratory, Digestive, Urinary, and Reproductive systems. **Unit 1:** Structure and Function

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	Module: Skeletal System **Unit 1:** Introduction **Unit 2:** Bones and the Skeletal System **Unit 3:** Bone Anatomy **Unit 4:** Axial Skeleton **Unit 5:** Appendicular Skeleton **Unit 6:** Articulations **Unit 7:** Bone Markings **Module:** Muscular System **Unit 1:** Introduction **Unit 2:** Types of Muscles **Unit 7:** Muscles Groups **Module:** Cardiovascular System **Unit 2:** Blood Cells and Blood Types **Unit 3:** Cardiac Blood Vessels **Unit 7:** The Body at Works
(B) Evaluate the cause and effect of disease, trauma, and congenital defects on the structure and function of cells, tissues, organs, and systems.	**Module:** Introduction to A&P **Unit 7:** The Body at Work **Module:** All A&P modules **Unit:** Disease and Disorders unit **Module:** Disease and Disorders module **Unit:** All units
(C) Research technological advances and limitations in the treatment of system disorders.	**Module:** All A&P modules **Reinforce Activity:** Advanced Treatment Research
(D) Examine characteristics of the aging process on body systems.	**Module:** Human Growth and Development **Unit 2:** Prenatal and Neonatal **Unit 3:** Childhood **Unit 4:** Adolescence and Adulthood **Unit 5:** Aging and Death **Module:** Skeletal System **Unit 8:** Bone Growth and Remodeling **Unit 9:** Diseases and Disorders **Module:** Cardiovascular System **Unit 7:** Development of the Heart **Unit 8:** Diseases and Disorders

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(12) The student describes the process of reproduction and growth and development. The student is expected to:	
(A) Explain embryological development of cells, tissues, organs, and systems.	**Module:** Reproductive System **Unit 1:** Structure and Function
(B) Identify the functions of the male and female reproductive systems.	**Module:** Reproductive System **Unit 1:** Structure and Function
(C) Summarize the human growth and development cycle.	**Module:** Human Growth and Development **Unit 2:** Prenatal and Neonatal **Unit 3:** Childhood **Unit 4:** Adolescence and Adulthood **Unit 5:** Aging and Death
(13) The student recognizes emerging technological advances in science. The student is expected to:	
(A) Recognize advances in stem cell research such as cord blood use.	**Module:** All A&P modules **Reinforce Activity:** Advanced Treatment Research
(B) Recognize advances in bioengineering and transplant technology.	**Module:** All A&P modules **Reinforce Activity:** Advanced Treatment Research

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