



**COWLEY COLLEGE
& Area Vocational Technical School**

COURSE PROCEDURE FOR

**ALLIED HEALTHCARE PROVIDER ANATOMY AND PHYSIOLOGY
ALH5235 4 Credit Hours**

Student Level:

This course is open to students on the college level in either the freshman or sophomore year.

Catalog Description:

ALH5235 - ALLIED HEALTHCARE PROVIDER ANATOMY AND PHYSIOLOGY (4 hrs)

This course is designed to provide an overview of anatomy, physiology, and basic pathology for students who wish to know more about the human body and disease. It would be very useful for students who are currently functioning in healthcare or those who plan to enter the allied health workforce (e.g. medical transcription, medical coding, nursing assistant, etc.). It is not intended to replace the five credit hour anatomy and physiology course for those who intend to enter professional training in the health sciences (e.g. nursing, medicine, etc.).

Prerequisite:

None, though completion of Biology Review (BIO 4110) would be helpful.

Controlling Purpose:

This course is designed to provide an overview of anatomy, physiology and basic pathology for students who wish to know more about the human body and disease.

Learner Outcomes:

Upon completion of the course, the student will have a basic understanding of human anatomy, physiology and pathology that will be immediately useful in the allied health workplace.

Units Outcomes and Clock Hours of Instruction for Core Curriculum:

The following outline defines the minimum core content not including the final examination period. Instructors may add other material as time allows.

Evaluation Key:

- A = All major and minor goals have been achieved and the achievement level is considerably above the minimum required for doing more advanced work in the same field.
- B = All major goals have been achieved, but the student has failed to achieve some of the less important goals. However, the student has progressed to the point where the goals of work at the next level can be easily achieved.
- C = All major goals have been achieved, but many of the minor goals have not been achieved. In this grade range, the minimum level of proficiency represents a person

who has achieved the major goals to the minimum amount of preparation necessary for taking more advanced work in the same field, but without any major handicap of inadequacy in his background.

- D = A few of the major goals have been achieved, but the student's achievement is so limited that he is not well prepared to work at a more advanced level in the same field.
- F = Failing, will be computed in GPA and hours attempted.
- N = No instruction or training in this area.

UNIT 1: GENERAL STRUCTURE AND FUNCTION OF THE BODY						
Outcomes: The student will gain an understanding of general structure and function of the human body.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						Define the following terms: anatomy, physiology, and pathology.
						List and discuss in order of increasing complexity the levels of organization of the body.
						Define the term anatomical position.
						List and define the principal directional terms and sections (planes) used in describing the body and the relationship of body parts to one another.
						List the nine abdominopelvic regions and the abdominopelvic quadrants.
						List the major cavities of the body and the subdivisions of each.
						Discuss and contrast the axial and the appendicular subdivisions of the body. Identify a number of specific anatomical regions in each area.
						Explain the meaning of the term homeostasis and give an example of a typical homeostatic mechanism.

UNIT 2: CHEMISTRY OF LIFE						
Outcomes: The student will learn basic chemistry as it relates to the human body.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						Define the terms atom, element, molecule, and compound.
						Describe the structure of an atom.
						Compare and contrast ionic and covalent types of chemical bonding.
						Distinguish between organic and inorganic chemical compounds.
						Discuss the chemical characteristics of water.
						Explain the concept of pH.
						Discuss the structure and function of the following types of organic molecules: carbohydrate, lipid, protein, and nucleic acid.

UNIT 3: CELLS AND TISSUES						
Outcomes: The student will gain an understanding of cells and tissues found in the human body.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						Identify and discuss the basic structure and function of the three major components of a cell.
						List and briefly discuss the functions of the primary cellular organelles.
						Compare the major passive and active transport processes that act to move substances through cell membranes.
						Compare and discuss DNA and RNA and their function in protein synthesis.
						Discuss the stages of mitosis and explain the importance of cellular reproduction.
						Explain how epithelial tissue is grouped according to shape and arrangement of cells.
						List and briefly discuss the major types of connective and muscle tissue.
						List the three structural components of a neuron.

UNIT 4: ORGAN SYSTEMS OF THE BODY						
Outcomes: The student will learn the major organ systems in the human body.						
A	B	C	D	F	N	Specific Competencies:
						The student will demonstrate the ability to:
						Define and contrast the term organ and organ system.
						List the 11 major organ systems of the body.
						Identify and locate the major organs of each major organ system.
						Briefly describe the major functions of each major organ system.
						Identify and discuss the major subdivisions of the reproductive system.
						Describe current approaches to organ replacement.

UNIT 5: MECHANISMS OF DISEASE						
Outcomes: The student will gain an understanding of various diseases.						
A	B	C	D	F	N	Specific Competencies:
						The student will demonstrate the ability to:
						Define the terms health and disease.
						List and describe the basic mechanisms of disease and risk factors associated with disease.

UNIT 5: MECHANISMS OF DISEASE						
Outcomes: The student will gain an understanding of various diseases.						
A	B	C	D	F	N	Specific Competencies: The student will demonstrate the ability to:
						List and describe five categories of pathogenic organisms and explain how they cause disease.
						Distinguish between the terms benign and malignant as they apply to tumors.
						Describe the pathogenesis of cancer.
						Outline the events of the inflammatory response and explain its role in disease.

UNIT 6: THE INTEGUMENTARY SYSTEM AND BODY MEMBRANES						
Outcomes: The student will gain an understanding of the skin and body membranes.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Classify, compare the structure of, and give examples of each type of body membrane.
						Describe the structure and function of the epidermis and dermis.
						List and briefly describe each accessory organ of the skin.
						List and discuss the three primary functions of the integumentary system.
						List and describe major skin disorders and infections.
						Classify burns and describe how to estimate the extent of a burn injury.

UNIT 7: THE SKELETAL SYSTEM						
Outcomes: The student will gain an understanding of the skeletal system to include appendicular, axial and joints.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						List and discuss the generalized functions of the skeletal system.
						Identify the major anatomical structures found in a typical long bone.
						Discuss the microscopic structure of a bone and cartilage, including the identification of specific cell types and structural features.
						Explain how bones are formed, how they grow, and how they are remodeled.
						Identify the two major subdivisions of the skeleton and list the bones found in each area.
						List and compare the major types of joints in the body and give an

UNIT 7: THE SKELETAL SYSTEM						
Outcomes: The student will gain an understanding of the skeletal system to include appendicular, axial and joints.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						example of each.
						Name and describe major disorders of bones and joints.

UNIT 8: THE MUSCULAR SYSTEM						
Outcomes: The student will gain an understanding of the basic muscle function and the major muscle groups.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						List, locate in the body, and compare the structure and function of the three major types of muscle tissue.
						Discuss the microscopic structure of a skeletal muscle sarcomere and motor unit.
						Discuss how a muscle is simulated and compare the major types of skeletal muscle contractions.
						Name, identify on a model or diagram, and give the function of the major muscles of the body discussed in this chapter.
						List and explain the most common types of movement produced by skeletal muscles.
						Name and describe the major disorders of skeletal muscles.

UNIT 9: THE NERVOUS SYSTEM						
Outcomes: The student will gain an understanding of the nervous system.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						List the organs and divisions of the nervous system and describe the generalized functions of the system as a whole.
						Identify the major types of cells in the nervous system and discuss the function of each.
						Compare and contrast the propagation of a nerve impulse along a nerve fiber and across a synaptic cleft.
						Identify the anatomical and functional components of a three-neuron reflex arc.
						Identify the major anatomical components of the brain and spinal cord and briefly comment on the function of each.
						Identify and discuss the coverings and fluid spaces of the brain and spinal cord.

UNIT 9: THE NERVOUS SYSTEM						
Outcomes: The student will gain an understanding of the nervous system.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Compare and contrast spinal and cranial nerves.
						Discuss the structure and function of the two divisions of the autonomic nervous system.
						Describe major nervous system disorders.

UNIT 10: THE SENSES						
Outcomes: The student will gain knowledge about the special senses and how each function.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Classify sense organs as special or general and explain the basic differences between the two groups.
						Discuss how a stimulus is converted into a sensation.
						Discuss the general sense organs and their functions.
						List the major senses.
						Describe the structure of the eye and the functions of its components.
						Name and describe the major visual disorders.
						Discuss the anatomy of the ear and its sensory function in hearing and equilibrium.
						Name and describe the major forms of hearing impairment.
						Discuss the chemical receptors and their functions.

UNIT 11: THE ENDOCRINE SYSTEM						
Outcomes: The student will gain an understanding of the endocrine system and major diseases.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Distinguish between endocrine and exocrine glands and define the terms hormone and prostaglandin.
						Identify and locate the primary endocrine glands and list the major hormones produced by each gland.
						Describe the mechanisms of steroid and nonsteroid hormone action.
						Explain how negative and positive feedback mechanisms regulate the secretion of endocrine hormones.
						Explain the primary mechanisms of endocrine disorders.

UNIT 11: THE ENDOCRINE SYSTEM						
Outcomes: The student will gain an understanding of the endocrine system and major diseases.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Identify the principal functions of each major endocrine hormone and describe the conditions that may result from hyposecretion or hypersecretion.
						Define diabetes insipidus, diabetes mellitus, gigantism, goiter cretinism, and glycosuria.

UNIT 12: BLOOD						
Outcomes: The student will gain a general understanding of the blood.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Describe the primary functions of the blood.
						Describe the characteristics of blood plasma.
						List the formed elements of blood and identify the most important function each.
						Discuss anemia in terms of red blood cell numbers and hemoglobin content.
						Explain the steps involved in blood clotting.
						Describe ABO and Rh blood typing.
						Define common medical terms associated with blood.
						Name two common disorders associated with each type of blood cell.

UNIT 13: THE HEART AND HEART DISEASE						
Outcomes: The student will gain an understanding of the cardiovascular system and diseases.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Discuss the location, size, and position of the heart in the thoracic cavity and identify the heart chambers, sounds, and valves.
						Describe the major types of cardiac valve disorders.
						Trace the blood through the heart and compare the functions of the heart chambers on the right and left sides.
						Explain how a myocardial infarction might occur.
						List the anatomical components of the heart conduction system and discuss the features of the normal electrocardiogram.
						Describe the major types of cardiac dysrhythmias.

UNIT 13: THE HEART AND HEART DISEASE

Outcomes: The student will gain an understanding of the cardiovascular system and diseases.

A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						List and describe the possible causes of heart failure.

UNIT 14: THE CIRCULATION OF THE BLOOD

Outcomes: The student will gain an understanding of circulation physiology.

A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						Describe the structure and function of each major type of blood vessel: artery, vein, and capillary.
						List the major disorders of blood vessels and explain how they develop.
						Trace the path of blood through the systemic, pulmonary, portal, and fetal circulations.
						Identify and discuss the factors involved in the generation of blood pressure and how they relate to each other.
						Define pulse and locate the major pulse points on the body.
						Explain what is meant by the term circulatory shock and describe the major types.

UNIT 15: THE LYMPHATIC SYSTEM AND IMMUNITY

Outcomes: The student will gain an understanding of the lymphatic system and diseases.

A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						Describe general functions of the lymphatic system and list the main lymphatic structures.
						Compare nonspecific and specific, inherited and acquired, and active and passive immunity.
						Name the major disorders associated with the lymphatic system.
						Discuss the major types of immune system molecules and indicate how antibodies and complement proteins function.
						Discuss and contrast the development and functions of B and T cells.
						Compare and contrast humoral and cell-mediated immunity.
						Describe the mechanisms of allergy, autoimmunity, and isoimmunity.
						List the major types of immune deficiencies and explain their causes.

UNIT 16: THE RESPIRATORY SYSTEM						
Outcomes: The student will gain an understanding of the respiratory system and diseases.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Discuss the generalized functions of the respiratory system.
						List the major organs of the respiratory system and describe the function of each.
						Compare, contrast, and explain the mechanism responsible for the exchange of gases that occurs during internal and external respiration.
						List and discuss the volumes of air exchanged during pulmonary ventilation.
						Identify and discuss the mechanisms that regulate respiration.
						Identify and describe the major disorders of the upper respiratory tract.
						Identify and describe the major disorders of the lower respiratory tract.

UNIT 17: THE DIGESTIVE SYSTEM						
Outcomes: The student will gain an understanding of the digestive system.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						List in sequence each of the component parts or segments of the alimentary canal from the mouth to the anus and identify the accessory organs of digestion.
						List and describe the four layers of the wall of the alimentary canal. Compare the lining layer of the esophagus, stomach, small intestine, and large intestine.
						List and describe the major disorders of the digestive organs.
						Discuss the basics of protein, fat, and carbohydrate digestion and give the end-products of each process.
						Define and contrast mechanical and chemical digestion.
						Define peristalsis, bolus, chyme, jaundice, ulcer, and diarrhea.

UNIT 18: NUTRITION AND METABOLISM						
Outcomes: The student will gain an understanding of metabolism and nutritional needs.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Define and contrast catabolism and anabolism.

UNIT 18: NUTRITION AND METABOLISM						
Outcomes: The student will gain an understanding of metabolism and nutritional needs.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Describe the metabolic roles of carbohydrates, fats, proteins, vitamins, and minerals.
						Define basal metabolic rate and list some factors that affect it.
						Describe three disorders associated with eating or metabolism.
						Discuss the physiological mechanisms that regulate body temperature.

UNIT 19: THE URINARY SYSTEM						
Outcomes: The student will gain an understanding of the urinary system and diseases.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Identify the major organs of the urinary system and give the generalized function of each.
						Name the parts of a nephron and describe the role each component plays in the formation of urine.
						Explain the importance of filtration, tubular reabsorption, and tubular secretion in urine formation.
						Discuss the mechanisms that control urine volume.
						Explain how kidneys act as vital organs in maintaining homeostasis.
						List the major renal and urinary disorders and explain the mechanism of each.

UNIT 20: FLUID AND ELECTROLYTE BALANCE						
Outcomes: The student will gain an understanding of the importance of proper fluid and electrolyte balance in the human body.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						List, describe, and compare the body fluid compartments and their subdivisions.
						Discuss avenues by which water enters and leaves the body and the mechanisms that maintain fluid balance.
						Discuss the nature and importance of electrolytes in body fluids and explain the aldosterone mechanism of extracellular fluid volume control.
						Explain the interaction between capillary blood pressure and blood proteins.
						Give examples of common fluid imbalances.

UNIT 21: ACID-BACE BALANCE						
Outcomes: The student will gain an understanding of the importance of acid-base balance in the human body.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Discuss the concept of pH and define the term acid-base balance.
						Define the terms buffer and buffer pair and contrast strong and weak acids and bases.
						Contrast the respiratory and urinary mechanisms of pH control.
						Discuss compensatory mechanisms that may help return blood pH to near-normal levels in cases of pH imbalances.
						Compare and contrast metabolic and respiratory types of pH imbalances.

UNIT 22: THE REPRODUCTIVE SYSTEMS						
Outcomes: The student will gain an understanding of the reproductive system and diseases.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						List the essential and accessory organs of the male female reproductive systems and give the generalized function of each.
						Describe the gross and microscopic structure of the glands in both sexes and explain the development steps in spermatogenesis and oogenesis.
						Discuss the primary functions of the sex hormones and identify the cell type of structure responsible for their secretion.
						Identify and discuss the phases of the endometrial or menstrual cycle and correlate each phase with its occurrence in a typical 28-day cycle.
						List the major disorders of the male female reproductive systems and briefly describe each.
						Define the term sexually transmitted disease and describe the major types.

UNIT 23: GROWTH AND DEVELOPMENT						
Outcomes: The student will understand the human aspects of growth and development.						
A	B	C	D	F	N	Specific Competencies The student will demonstrate the ability to:
						Discuss the type of development as a biological process characterized by continuous modification and change.

UNIT 23: GROWTH AND DEVELOPMENT						
Outcomes: The student will understand the human aspects of growth and development.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						Discuss the major development changes characteristic of the prenatal stage of life from fertilization to birth.
						Discuss the three stages of labor that characterize a normal vaginal birth.
						Identify the three primary germ layers and several derivatives in the adult body that develop from each layer.
						Identify and describe the major disorders associated with pregnancy.
						List and discuss the major developmental changes characteristic of the four postnatal periods of life.
						Discuss the effects of aging on the major body organ systems.

UNIT 24: GENETICS AND GENETIC DISEASES						
Outcomes: The student will gain a basic understanding of the genetics and common genetic abnormalities.						
A	B	C	D	F	N	Specific Competencies
						The student will demonstrate the ability to:
						Explain how genes can cause disease.
						Distinguish between dominant and recessive genetic traits.
						Describe sex-linked inheritance.
						List some important inherited diseases.
						Describe how nondisjunction can result in trisomy or monosomy and list some disorders that result from it.
						List some tools used in genetic counseling and how they are used to help clients.
						Describe how genetic disorders can be treated.

Projects Required:

None

Textbook:

Contact Bookstore for current textbook.

Materials/Equipment Required:

Computer and online connection.

Attendance Policy:

Students should adhere to the attendance policy outlined by the instructor in the course syllabus.

Grading Policy:

The grading policy will be outlined by the instructor in the course syllabus.

Maximum class size:

Based on classroom occupancy

Course Timeframe:

The U.S. Department of Education, Higher Learning Commission and the Kansas Board of Regents define credit hour and have specific regulations that the college must follow when developing, teaching and assessing the educational aspects of the college. A credit hour is an amount of work represented in intended learning outcomes and verified by evidence of student achievement that is an institutionally-established equivalency that reasonably approximates not less than one hour of classroom or direct faculty instruction and a minimum of two hours of out-of-class student work for approximately fifteen weeks for one semester hour of credit or an equivalent amount of work over a different amount of time. The number of semester hours of credit allowed for each distance education or blended hybrid courses shall be assigned by the college based on the amount of time needed to achieve the same course outcomes in a purely face-to-face format.

Refer to the following policies:

[402.00 Academic Code of Conduct](#)

[263.00 Student Appeal of Course Grades](#)

[403.00 Student Code of Conduct](#)

Disability Services Program:

Cowley College, in recognition of state and federal laws, will accommodate a student with a documented disability. If a student has a disability which may impact work in this class and which requires accommodations, contact the Disability Services Coordinator.