HEARTLAND TECHNICAL EDUCATION CENTER
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Adult Education
Medical Assisting
Anatomy & Physiology
Syllabus
2026 – 2027
122 Hours

Instructor
Jamie Krabill BSN, RN krabillj@heartlandtech.org 419-289-3313 (ext. 2239)
- 19+ years nursing experience
- 13+ years nursing / medical education experience

Supplies
Notebook, pens, pencils, highlighters, etc. provided by student

Course Description:
This course introduces students to the structure and function of the human body with an emphasis on applications relevant to medical assisting practice. Students will study the organization of the body, medical terminology, and the anatomy and physiology of major body systems, including the integumentary, skeletal, muscular, nervous, endocrine, cardiovascular, respiratory, digestive, urinary, reproductive, and immune systems. The course emphasizes the relationship between normal body function, disease processes, and clinical procedures commonly performed in ambulatory healthcare settings.

Course Objectives:
Upon successful completion of this course, students will be able to identify major anatomical structures and describe their physiological functions; utilize appropriate medical terminology related to body systems; explain the interrelationships among body systems and their role in maintaining homeostasis; recognize common diseases and disorders affecting each system; apply anatomical and physiological principles to clinical medical assisting procedures; and demonstrate an understanding of how body structure and function support patient assessment, treatment, and healthcare delivery.

Required Textbook
Today's Medical Assistant, 5th Edition by Kathy Bonewit-West and Sue A. Hunt
Today's Medical Assistant Study Guide, 5th Edition by Kathy Bonewit-West and Sue A. Hunt

Program Policies
Chapter reading and written assignments are to be completed *before* class. Class time will be devoted to discussing content, presenting enrichment materials, answering student questions, taking exams, and additional learning activities.

Student Assessment Grading
Students will be graded on the following weight system

50% Exams

25% Assignments/Quizzes/Projects/Midterms

25% Final Exam

Percent Grade	Letter Grade	Point Value
97 to 100	A+	4.0
93 – 96	A	4.0
90 – 92	A-	3.7
87 – 89	B+	3.3
83 – 86	B	3.0
80 – 82	B-	2.7
77 – 79	C+	2.3
73 – 76	C	2.0
70 – 72	C-	1.7
67 – 69	D+	1.3
63 – 66	D	1.0
60 – 62	D-	0.7
0 - 59	F	0

Course Schedule/Outline/Calendar of Events (subject to change)

Date and Material Covered	Content Objectives	Related Learning Experiences & Assessments
Week of September 14, 2026 Chapter 5: Introduction to Anatomy and Physiology	• Explain the relationship between anatomy and physiology • State the six levels of organization within the human body • State the six levels of organization within the human body • List the 11 organ systems of the body and function of each • Describe homeostasis and its importance to the human body • Explain how the body maintains homeostasis through use of a negative feedback system • List the four criteria used to describe the anatomic position • Identify body planes, body regions, and relative positions using anatomic terms • Distinguish between the dorsal body cavity and the ventral body cavity, and list the subdivisions of each cavity • Describe the cell and each of its components • List phases of the cell cycle and describe events that occur in each phase • Explain the differences between mitosis and meiosis • List the four main types of tissue in the human body and explain the characteristics and functions of each • State the two categories of cells in nerve tissue and explain their function	Read • Ch 5 Study Guide Assignment • Ch 5 Assessment • Ch 5 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
Week of September 20, 2026 Chapter 6: Integumentary System	• Describe the structure of the two layers of the skin • State three names for the layer of tissue that anchors the skin to underlying organs, and describe the structure of this layer • List three factors that influence skin color • Describe the structure of hair and nails and their relationship to the skin • Discuss the characteristic and functions of the various glands associated with the skin • List and describe four functions of the integumentary system • Describe ways in which the aging of an individual affects the integumentary system • Identify pathology related to the integumentary system	Read • Ch 6 Study Guide Assignment • Ch 6 Assessment • Ch 6 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
Week of October 5, 2026 Chapter 7: Skeletal System Chapter 8: Muscular System	• List and describe the five functions of the skeletal system • Explain the difference between compact and spongy bone • Classify bones according to size and shape • Identify the general features of a long bone • Explain the process by which long bones grow in length • Explain the difference between the axial and appendicular skeletons • Identify the bones of the skull • Identify the structural features of vertebrae • List and describe the divisions of the vertebral column • Describe the structural features of the sternum and reis	Read • Ch 7 • Ch 8 Study Guide Assignment • Ch 7 • Ch 8

	• Identify parts of the pectoral girdle • Identify the bones of the upper extremities • Identify the parts of the pelvic girdle • Identify the bones of the lower extremities • List and describe the different types of joints • Describe ways in which the aging of an individual affects the skeletal system • Identify pathology related to the skeletal system • State the characteristics and functions of muscle tissue • Describe the structure of a skeletal muscle • List and describe the sequence of events involved in the contraction of a skeletal muscle fiber • Explain how energy is provided for a muscle contraction • Describe oxygen debt • Describe and illustrate the movements accomplished by the contraction of skeletal muscle • Identify and describe the major muscles making up the axial skeleton • Identify and describe the major muscle making up the appendicular skeleton • Describe ways in which the aging of and individual affects the muscular system • Identify pathology related to the muscular system	Assessment • Ch 7 Exam • Ch 8 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
Week of October 12, 2026 Chapter 9: Nervous System	• Describe the organization and functions of the nervous system • Describe the structure and functions of neurons and neuroglia • Explain how an impulse is conducted along the length of a neuron • List and describe the three layers of meninges around the central nervous system • Describe the location, components, and functional areas of the cerebrum, diencephalon, brain stem, and cerebellum • Compare the composition of gray matter and white matter • Explain the function of cerebrospinal fluid • Describe the structure and functions of the spinal cord • Explain the difference in composition of sensory, motor, and mixed nerves • List the 12 cranial nerves and state the function of each • Identify the region of the body that is innervated by each of the following spinal nerve plexuses: cervical, brachial, lumbosacral • Explain the difference between the sympathetic and parasympathetic divisions of the autonomic nervous system • Describe ways in which the aging of an individual affects the nervous system • Identify pathology related to the nervous system	Read • Ch 9 Study Guide Assignment • Ch 9 Assessment • Ch 9 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
Week of October 19, 2026 Chapter 16: Reproductive System	• Distinguish between primary and secondary reproductive organs • Describe the location and structure of each component of the male reproductive system • Explain the process by which spermatids become mature sperm • Trace the pathway of sperm from the testes to the outside of the body	Read • Ch 16 Study Guide Assignment

	• Outline the physiologic events in the male sexual response • Describe the roles of gonadotropin-releasing hormone (GnRH), follicle-stimulating hormone (FSH), Luteinizing hormone (LH), and testosterone in male reproductive functions • Identify each component of the female reproductive system, including the mammary glands • Describe oogenesis • Describe the development of ovarian follicles • Outline the physiologic events in the female sexual response • Describe the roles of gonadotropin-releasing hormone (GnRH), follicle-stimulating hormone (FSH), Luteinizing hormone (LH), estrogen, and progesterone in female reproductive functions • Describe what happens in each phase of the ovarian and uterine cycles, when each phase occurs, and how the cycles interact • Describe the three stages of prenatal development • Distinguish between developmental age and clinical age in prenatal development • Identify five features of fetal circulation that are different from postnatal circulatory pathways • Identify the three stages of labor and describe the events that occur in each stage • Identify the two hormones responsible for lactation and describe the function of each • Name and describe the six periods of postnatal development • Describe ways in which the aging of an individual affects the reproductive system • Identify pathology related to the reproductive system	• Ch 16 Assessment • Ch 16 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
<u>Week of October 26, 2026</u> Chapter 15: Urinary System	• State the six functions of the urinary system • Describe the location and structural features of the kidneys • Label the parts of a nephron • State the two parts of the juxtaglomerular apparatus • Describe the location, structure, and function of the ureters, urinary bladder, and urethra • List and describe the three steps in urine formation • Identify the hormones that affect kidney function, and explain how they do so • Explain the function of renin • Describe ways in which the aging of an individual affects the urinary system • Identify pathology related to the urinary system	Read • Ch 15 Study Guide Assignment • Ch 15 Assessment • Ch 15 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
<u>Week of November 9, 2026</u> Chapter 12: Circulatory System	• Describe the size and location of the heart • Identify the layers of the ehart wall, and state the type of tissue in each layer • Label a diagram of the heart, including the chambers , valves, and associated vessels • Trace the pathway of blood flow through the heart • Describe the components and function of the conduction system of the heart • Summarize the events of a cardiac cycle, and correlate the heart sounds heard	Read • Ch 12 Study Guide Assignment • Ch 12

	with these events ● Describe the physical characteristics and functions of blood ● Describe the life cycle of an erythrocyte ● List and describe the five types of leukocytes ● Explain the blood clotting mechanism of the body ● Explain the basis of blood types ● Describe the structure and functions of arteries ● Describe the structure and function of capillaries ● Describe the structure and function of veins ● State three functions of the lymphatic system ● Describe the origin and circulation of lymph ● Name four groups of lymphatic organs ● Distinguish between first line and second line barriers in nonspecific resistance ● State the two characteristics of specific defense mechanisms, and identify the two principal cells involved in specific resistance ● Briefly describe the mechanism of cell-mediated immunity, and list four subgroups of T cells ● Briefly describe the mechanism of antibody-mediated immunity, and list two subgroups of B cells ● Give examples of active natural immunity, active artificial immunity, passive natural immunity and passive artificial immunity ● Describe ways in which the aging of an individual affects the circulatory system ● Identify pathology related to the circulatory system	Assessment ● Ch 12 Exam Procedure ● Check to find out what blood type you are
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
<u>Week of January 11, 2027</u> Chapter 10: The Senses	● Explain the difference between general senses and special senses, and give examples of each ● List and describe the five groups of sense receptors ● Identify the sense receptors for touch, pressure, proprioception, temperature, and pain ● List and identify the location of the four different taste sensations ● Locate the sense receptors for smell and trace the impulse pathway to the cerebral cortex ● Describe the structure of the eye and explain the function of each structure ● Explain how light is focused on the retina ● Explain the function of the rods and cones, photoreceptor cells in the retina ● Explain how nerve impulses for sight are initiated in response to light ● Describe the structure of the ear and explain the function of each structure ● Explain how nerve impulses for hearing are initiated in response to sound waves ● Explain the difference between static and dynamic equilibrium ● Explain how impulses for static and dynamic equilibrium are initiated ● Identify pathology related to the senses	Read ● Ch 10 Study Guide Assignment ● Ch 10 Assessment ● Ch 10 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
<u>Week of January 25, 2027</u>	● List and describe the structures of the upper respiratory tract ● List and describe the structures of the lower respiratory tract	Read

Chapter 13: Respiratory System	• Explain what occurs during inhalation and exhalation • Explain the difference between external respiration and internal respiration • Explain how respirations is regulated by the brain • Identify factors that influence breathing • Describe ways in which the aging of an individual affects the respiratory system • Identify pathology related to the respiratory system	• Ch 13 Study Guide Assignment • Ch 13 Assessment • Ch 13 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
<u>Week of February 8, 2027</u> Chapter 14: Digestive System	• Identify the components of the digestive tract and the accessory organs • List six functions of the digestive system • Describe the general histology of the four layers in the digestive tract wall • Describe the features and function of the oral cavity, teeth, pharynx, and esophagus • List and describe the location of the three salivary glands • Explain the function of saliva • Describe the structure and features of the stomach and its role in digestion • Describe the structure and features of the small intestine and its role in digestion and absorption • Describe the structure, features, and functions of the large intestine • Describe the structure and function of the liver, gallbladder, and pancreas • Explain how substances are absorbed into the body through the small intestine • Describe ways in which the aging of an individual affects the digestive system Identify pathology related to the digestive system	Read • Ch 14 Study Guide Assignment • Ch 14 Assessment • Ch 14 Exam
Date and Material Covered	**Content Objectives**	**Related Learning Experiences & Assessments**
<u>Week of March 8, 2027</u> Chapter 11: Endocrine System	• Compare the actions of the nervous system and the endocrine system • Compare the major chemical classes of hormones • Discuss the general mechanisms of hormone action • Identify the major endocrine glands – pituitary gland, thyroid gland, parathyroid glands, adrenal glands, pancreas, gonads, pineal gland, thymus – and discuss their hormones and function • Describe ways in which the aging of an individual affects the endocrine system • Identify pathology related to the endocrine system	Read • Ch 11 Study Guide Assignment • Ch 11 Assessment • Ch 11 Exam

All dates are subject to change

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