# MA-1100: BODY SYSTEMS FOR MEDICAL ASSISTANTS

## Cuyahoga Community College

### Viewing: MA-1100 : Body Systems for Medical Assistants

**Board of Trustees:**
December 2025

**Academic Term:**
Fall 2026

**Subject Code**
MA - Medical Assisting

**Course Number:**
1100

**Title:**
Body Systems for Medical Assistants

**Catalog Description:**
Exploration of the anatomy, physiology and pathophysiology of the human body as it pertains to the scope of practice of the medical assistant.

**Credit Hour(s):**
4

**Lecture Hour(s):**
4

### Requisites

**Prerequisite and Corequisite**
ENG 1010 College Composition I, HTEC 1050 Introductory Medical Terminology or HTEC-1060 Medical Terminology I, and MA-1200 Introduction to Medical Assisting, and eligibility to enroll in a co-requisite pairing of MATH-0930 Essential Skills for Algebraic & Quantitative Reasoning and MATH-1190 Algebraic and Quantitative Reasoning; or qualifying math placement to enroll in MATH-1190 Algebraic and Quantitative Reasoning and departmental approval: admission to Medical Assisting program.

### Outcomes

**Course Outcome(s):**
Apply fundamental knowledge of the human body systems.

**Essential Learning Outcome Mapping:**
Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**
1. List the major organs of all body systems.
2. Describe the shape and structure of the major organs in each body system.
3. Correctly label major organs on anatomical diagrams.
4. Identify anatomical planes, directional terms, and body cavities and relate them to the positions of major organs.
5. Identify surface anatomy landmarks corresponding to the location of major organs.
6. Explain the primary tissue types present in each organ system and discuss how these tissues support normal structure and function.
7. Describe abdominal quadrant and regional terminology and apply it to the location of digestive and urinary organs.

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**Course Outcome(s):**
Explain the normal functioning of the human body.

**Essential Learning Outcome Mapping:**

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**

1. Explain the normal functions of each body system.
2. Relate vital signs and laboratory data to normal physiology.
3. Describe how body systems work together to maintain homeostasis.
4. Identify normal reference ranges for heart rate, blood pressure, respiratory rate, temperature, oxygen saturation, and common serum values.
5. Explain how normal functioning of the human body changes over the lifespan.

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**Course Outcome(s):**

Explain how abnormal changes to structure and/or function of the human body correlates to disease.

**Essential Learning Outcome Mapping:**

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**

1. Identify structural or functional changes that may lead to disease.
2. Compare normal findings with abnormal findings obtained during patient assessment.
3. Summarize how lifestyle and genetics influence disease development.
4. Describe how specific abnormal vital sign patterns reflect underlying disruptions in body physiology.
5. Explain how age#related structural changes in body tissues contribute to disorders commonly seen in older adults.
6. Identify compensatory clinical signs such as tachycardia, diaphoresis, and altered breathing that indicate the body is responding to disease.
7. Relate commonly ordered laboratory and imaging findings to the structural or functional changes they reveal.
8. Recognize postural or structural variations, including scoliosis or joint deformities, that increase disease risk and may require special positioning or technique during office procedures.

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**Course Outcome(s):**

Apply fundamental knowledge of pathophysiology as it relates to disease management.

**Essential Learning Outcome Mapping:**

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**

1. Summarize the etiology, signs, and symptoms of common diseases in each system.
2. Describe diagnostic tests used to confirm diseases.
3. Describe standard treatment options and expected outcomes of common diseases and disorders treated in the medical office.
4. Identify common medications prescribed for common disorders in each body system and list key side effects that must be observed and reported to the provider.
5. Explain lifestyle modifications—such as nutrition, exercise, smoking cessation, and sleep hygiene—that support management of chronic diseases across body systems.
6. Recognize red#flag signs and symptoms that indicate disease progression or complication and state the immediate actions required, including notifying the provider or initiating emergency protocols.
7. Outline routine monitoring parameters (e.g., vital signs, weight checks, blood glucose logs, peak flow readings) used to track disease status and describe how to document and communicate these findings.
8. Describe patient instructions for correct use and maintenance of common home#care devices—such as glucometers, blood pressure cuffs, and nebulizers—to promote effective self#management.

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**Course Outcome(s):**

Describe the medical assistant's role caring for patients in relation to anatomy, physiology, and pathophysiology.

**Essential Learning Outcome Mapping:**

Not Applicable: No Essential Learning Outcomes mapped. This course does not require application-level assignments that demonstrate mastery in any of the Essential Learning Outcomes.

**Objective(s):**

1. Describe the steps involved in assisting with basic diagnostic and therapeutic procedures related to each body system.
2. Describe educational topics that promote health maintenance and disease prevention.
3. List the essential elements required for accurate documentation of patient data and interventions in the electronic health record.
4. List safety measures necessary when caring for patients with infectious diseases.
5. Identify normal ranges for vital signs and describe indicators that require provider notification.
6. Describe correct procedures for collecting, labeling, and processing routine laboratory specimens.
7. Describe the procedure for common point#of#care tests such as capillary glucose and rapid strep and state how to document and communicate results.
8. Identify equipment and supplies needed to prepare examination rooms for system#specific patient visits.
9. Describe the six rights of medication administration and list common routes of administration within the medical assistant scope of practice.
10. Describe the process for arranging follow#up appointments, referrals, and community resources that support chronic disease management and preventive screenings.
11. Describe teach#back techniques used to confirm patient understanding of pre#procedure and post#procedure instructions.
12. Identify early signs of patient distress or adverse reactions during visits and state immediate actions such as notifying the provider.

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**Methods of Evaluation:**

1. Exams
2. Quizzes
3. Case study assessments

**Course Content Outline:**

A. Introduction to the Human Body

1. Levels of organization (cells, tissues, organs, systems, organism)
2. Anatomical position
   a. Body planes
   b. Directional terms
   c. Regions
   d. Cavities

B. Integumentary System

1. Anatomy
   a. Skin layers
   b. Hair, nails, glands
2. Physiology
   a. Protection
   b. Thermoregulation
   c. Sensation
   d. Vitamin D synthesis
3. Common Disorders
   a. Dermatitis, psoriasis, acne
   b. Cellulitis, fungal infections, skin cancer
4. Medical Assistant Role
   a. Wound care support
   b. Lesion documentation
   c. Patient education on infection prevention and sun safety

C. Skeletal System

1. Anatomy
   a. Axial skeleton
   b. Appendicular skeleton
   c. Joints, cartilage, ligaments
2. Physiology
   a. Support and protection
   b. Movement with muscles

c. Mineral storage
d. Hematopoiesis

3. Common Disorders
   a. Fractures, osteoporosis
   b. Arthritis, gout
   c. Scoliosis
4. Medical Assistant Role
   a. Documenting injuries
   b. Assisting with splints/casts
   c. Fall risk education

D. Muscular System

1. Anatomy
   a. Skeletal muscle
   b. Smooth muscle
   c. Cardiac muscle
2. Physiology
   a. Movement and posture
   b. Heat production
3. Common Disorders
   a. Strains, sprains, tendinitis
   b. Fibromyalgia, myasthenia gravis
   c. Muscular dystrophy
4. Medical Assistant Role
   a. Documenting pain/weakness
   b. Teaching safe activity modifications
   c. Assisting with mobility devices

E. Nervous System and Special Senses

1. Anatomy
   a. CNS: brain and spinal cord
   b. PNS: cranial and spinal nerves
   c. ANS: sympathetic and parasympathetic
   d. Eye structures
   e. Ear structures
2. Physiology
   a. Sensory input, integration, motor output
   b. Autonomic control
   c. Vision and hearing pathways
3. Common Disorders
   a. Stroke, epilepsy, Parkinson's, MS
   b. Neuropathy, migraine, Bell palsy
   c. Conjunctivitis, glaucoma, cataracts
   d. Otitis media, hearing loss, vertigo
4. Medical Assistant Role
   a. Intake of neurological symptoms
   b. Safety during seizures or acute events
   c. Vision and hearing screenings
   d. Patient education (stroke recognition, medication adherence)

F. Endocrine System

1. Anatomy
   a. Hypothalamus and pituitary
   b. Thyroid and parathyroid
   c. Adrenals, pancreas, pineal, gonads
2. Physiology
   a. Hormone regulation and feedback
   b. Growth, metabolism, reproduction
3. Common Disorders
   a. Diabetes (Type 1 and 2)
   b. Hypo/hyperthyroidism
   c. Cushing syndrome, Addison's disease
   d. PCOS (Polycystic Ovarian Syndrome)
4. Medical Assistant Role
   a. Glucose/A1c testing with QC
   b. Documenting endocrine symptoms
   c. Lifestyle and medication teaching

G. Cardiovascular System

1. Anatomy
   a. Heart chambers, valves, conduction system
   b. Arteries, veins, capillaries
2. Physiology
   a. Circulation of blood
   b. Blood pressure regulation
3. Common Disorders
   a. Hypertension
   b. Coronary artery disease, MI
   c. Arrhythmias, heart failure
   d. DVT, PAD
4. Medical Assistant Role
   a. Accurate BP measurement
   b. ECG acquisition and documentation
   c. Chest pain triage and SBAR communication

H. Blood

1. Composition
   a. Plasma
   b. RBCs, WBCs, platelets
2. Physiology
   a. Transport
   b. Regulation
   c. Protection and clotting
3. Common Disorders
   a. Anemia, polycythemia
   b. Leukemia, lymphoma
   c. Clotting disorders (hemophilia, DIC)
4. Medical Assistant Role
   a. Venipuncture and capillary puncture
   b. (Clinical Laboratory Improvement Amendments) CLIA-waived hematology tests
   c. Patient education on diet and chronic blood conditions

I. Lymphatic and Immune System

1. Anatomy
   a. Lymph nodes, vessels, ducts
   b. Spleen, thymus, tonsils, MALT
2. Physiology
   a. Fluid return to bloodstream
   b. Fat absorption
   c. Immune defense and lymphocyte production
3. Common Disorders
   a. Lymphedema
   b. Lymphoma, leukemia
   c. Autoimmune diseases
   d. HIV/AIDS, infections (mono, tonsillitis)
4. Medical Assistant Role
   a. Documenting lymph node findings
   b. Specimen collection for labs
   c. Infection prevention and vaccine education

J. Respiratory System

1. Anatomy
   a. Upper tract: nose, pharynx, larynx
   b. Lower tract: trachea, bronchi, alveoli, lungs
   c. Diaphragm and pleura
2. Physiology
   a. Ventilation and gas exchange
   b. Acid–base balance
3. Common Disorders
   a. Asthma, COPD, pneumonia
   b. TB, pulmonary embolism, sleep apnea
4. Medical Assistant Role
   a. Pulse oximetry and peak flow testing

b. Inhaler and spacer teaching
c. Specimen collection (sputum, swabs)

K. Digestive System

1. Anatomy
   a. Oral cavity, esophagus, stomach
   b. Small and large intestines
   c. Liver, gallbladder, pancreas
2. Physiology
   a. Digestion and absorption
   b. Metabolism
   c. Waste elimination
3. Common Disorders
   a. GERD, ulcers, IBD, IBS
   b. Hepatitis, cirrhosis, gallstones
   c. Pancreatitis, colorectal cancer
4. Medical Assistant Role
   a. Stool specimen collection and testing
   b. Patient prep for GI procedures
   c. Education on diet and hydration

L. Urinary System

1. Anatomy
   a. Kidneys, nephrons
   b. Ureters, bladder, urethra
2. Physiology
   a. Filtration and excretion
   b. Fluid and electrolyte balance
   c. Hormonal regulation
3. Common Disorders
   a. UTI, pyelonephritis
   b. Kidney stones, CKD, AKI
   c. BPH, incontinence
4. Medical Assistant Role
   a. Urine specimen collection
   b. CLIA-waived urinalysis and QC
   c. Patient education on UTI prevention and hydration

M. Reproductive System

1. Male Anatomy
   a. Testes, ducts, prostate, penis
2. Female Anatomy
   a. Ovaries, uterus, fallopian tubes, cervix, vagina, breasts
3. Physiology
   a. Gamete production and fertilization
   b. Menstrual cycle and pregnancy
   c. Hormonal regulation
4. Common Disorders
   a. Male: BPH, prostatitis, erectile dysfunction, testicular cancer, STIs
   b. Female: PCOS, endometriosis, fibroids, cervical dysplasia, PID, breast cancer, STIs
5. Medical Assistant Role
   a. Specimen collection (pregnancy, STI testing)
   b. Assisting with pelvic/prostate exams
   c. Patient education on self-exams, contraception, prenatal care

N. Systems Integration and Safety Practices

1. Cross-system interactions
2. Infection control and PPE across all systems
3. Documentation using medical terminology
4. Patient education using health literacy and cultural sensitivity
5. Quality control in laboratory testing

**Religious Accommodation**

Before reviewing the course schedule, students should carefully review the following religious accommodation policy and other required instructional policies:

**Religious Accommodation:**

Students seeking an accommodation for absences permitted under Ohio's Testing Your Faith Act must provide the instructor with written notice of the specific dates for which the student requires an accommodation and must do so not later than fourteen (14) days after the first day of instruction. Please submit requests for accommodations at this link: https://portal2.tri-c.edu/ReligiousAccommodation/ Religious Accommodation Form. Students with questions about their religious accommodations under Ohio's Testing Your Faith Act may contact the College's Office of General Counsel and Legal Services by phone at 216.987.4856 or via email at legal@tri-c.edu.

**Other Required Instructional Policies:**

https://www.tri-c.edu/student-resources/curriculum/documents/syllabus-part-b.pdf

**Weekly Schedule**

| | Topics |
|---|---|
| Week 1 | Body Organization |
| Week 2 | Integumentary System |
| Week 3 | Skeletal System |
| Week 4 | Muscular System |
| Week 5 | Cardiovascular System |
| Week 6 | Blood |
| Week 7 | Respiratory System |
| Week 8 | Nervous System |
| Week 9 | Urinary System |
| Week 10 | Female Reproductive System |
| Week 11 | Male Reproductive System |
| Week 12 | Digestive System |
| Week 13 | Endocrine System |
| Week 14 | Special Senses |
| Week 15 | Lymphatic System |
| Week 16 | Final Exam |

The Course Schedule is subject to change due to pedagogical needs, instructor discretion, parts of term, and unexpected events.

**Required/Recommended Readings**

Booth, K. A., Whicker, L. G., & Wyman, T. D. Medical assisting: Administrative and clinical procedures with anatomy and physiology.

## Resources for the Instructor

Booth, K. A., Whicker, L. G., & Wyman, T. D. (2024) *Medical assisting: Administrative and clinical procedures with anatomy and physiology (8th ed.)*, McGraw Hill.

Niedzwiecki, B., & Pepper, J. (2023) *Kinn's The medical assistant: An applied learning approach (15th ed.)*, Saunders.

Roiger, D., & Bullock, N. (2022) *Anatomy, physiology, & disease: Foundations for the health professions, (3rd ed.).*, McGraw Hill.

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