Pharmacology for Medical Assistants
Course Outcome Summary

Course Information
Organization South Central College
Course Number MA100
Total Credits 3

Description
In this course students will learn topics essential for the Medical Assistant to thoroughly understand drug sources, herbs and supplements, legislation relating to drugs, drug references and drug classifications. Students will also gain knowledge in basic principles for administering different types of medications and the universal precautions and standards related to the role of a Medical Assistant. Prerequisites HC 1001 and 1914 and MDLT 1810

Types of Instruction

<table>
<thead>
<tr>
<th>Instruction Type</th>
<th>Contact Hours</th>
<th>Credits</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lecture</td>
<td>16</td>
<td>1</td>
</tr>
<tr>
<td>Lab</td>
<td>64</td>
<td>2</td>
</tr>
</tbody>
</table>

Prerequisites
HC1001 Advanced Medical Terminology
HC1914 Anatomy and Physiology/Disease Conditions I
MDLT1810 Basic Laboratory Techniques/Orientation

Exit Learning Outcomes
Core Abilities
A. Critical Thinking
B. Technological Literacy
C. Communication

Competencies
1. Apply SCC Pharmacology for Medical Assistants program policies
   Learning Objectives
   a. List Pharmacology for Medical Assistants program policies
   b. Explain the significance of laboratory safety
   c. Locate student laboratory safety equipment
   d. Define confidentiality and HIPAA

2. Learn the different classifications to medications
   Learning Objectives
   a. Define pharmacology, pharmacodynamics, pharmacokinetics, anatomy, physiology, and pathology
   b. Define drug, therapeutic effect, and side effects
   c. List the major sources of drugs and give examples of each
3. **List principles of drug action**

**Learning Objectives**

a. Recall the four basic drug actions and describe the four body processes that affect drug action
b. Identify at least 10 factors influencing drug actions
c. Distinguish between systemic and local drug effects
d. Summarize the difference between the therapeutic effect and side effects
e. Distinguish between synergism, antagonism, and potentiation
f. Explain the difference between psychological and physical drug dependence
g. Identify five commonly abused drugs
h. Describe Medical Assistant's responsibilities with regard to adverse reactions, drug dependence, and drug abuse

4. **Demonstrate knowledge with measurement and dosage calculations**

**Learning Objectives**

a. Solve problems utilizing fractions and decimals
b. Summarize the abbreviations for units of measurement in the metric, apothecary, and household systems
c. Convert grams to milligrams, millimeters to teaspoons, and vice versa
d. Convert Fahrenheit to Celsius and vice versa
e. Calculate the number of tablets or capsules to give when the available dose differs from the ordered dose
f. Calculate doses using a different procedure for converting between different units of measurement
g. Calculate an adult's dose of medication
h. Calculate a child's dose of medication

5. **Demonstrate the administering of parenteral medications**

**Learning Objectives**

a. Describe the major routes of parenteral administration
b. Apply Standard Precautions
c. Identify the parts of a needle and syringe and list appropriate sizes for different types and sites of injection
d. Identify dosage in calibrated syringes
e. Dispose of injection equipment safely
f. Illustrate reconstituting and storing parenteral medications and draw up medications from ampules and vials, using aseptic techniques
g. Identify the most common injection sites for intradermal, subcutaneous, and intramuscular administration and describe and follow proper procedure for carrying out injections
6. **Describe the concept of medication therapy**

**Learning Objectives**

a. Describe the various forms of medication, ranging from liquids to solids
b. Describe the routes for administering medications
c. Define the abbreviations for medication forms, routes, administration times, and general medical terms
d. Identify the parts of a medication order
e. Identify single-dose and multiple-dose packaging of drugs
f. Illustrate the use of the medication administration record to communicate medication orders
g. Demonstrate setting up medications following proper procedure
h. Explain the rules for giving medications
i. Identify the parts of a medication label
j. Demonstrate accurate, complete, and organized charting

7. **Describe vitamins, minerals, and herbs**

**Learning Objectives**

a. Explain the food groupings according to MyPyramid
b. Distinguish between fat-soluble and water-soluble vitamins, macrominerals, and microminerals
c. List the various vitamins and minerals and their functions
d. State the recommended daily allowance of the major vitamins and minerals and recognize deficiency symptoms of each
e. Explain the importance of patient education in the appropriate use of vitamins and minerals
f. Explain the importance of water and electrolytes
g. Describe at least four herbal supplements and their uses
h. Describe the potential danger of at least four herbal remedies
i. Calculate formulas for vitamins, minerals, and herbs

8. **Describe antibiotics and antifungals**

**Learning Objectives**

a. Distinguish between the external and internal immune systems
b. Explain the dangers of infection and state the two main actions of antibiotics and microorganisms
c. Explain why drug resistance, hypersensitivity, and superinfection are important concerns in antibiotic drug therapy
d. Summarize the importance of patient education with each of the various types of antibiotics
e. Describe the antiviral and antifungal drugs and infectious diseases
f. Describe the correct procedure for hand washing before and after giving medications
g. State three main ways a healthcare worker can be exposed to Hepatitis B virus and HIV
h. Explain Standard, airborne, droplet, and contact precautions
i. Calculate formulas for antibiotic and antifungal drugs

9. **Identify drugs for the eye and ear**

**Learning Objectives**

a. Identify the external parts of the eye and ear
b. Describe the major disorders of the eye and ear for which medications are given
c. Describe the actions and give example of drug groups relating to the eye and ear
d. Illustrate administering medications to the eye and ear
e. Calculate formulas for eye and ear medications

10. **Identify drugs for the skin**

Learning Objectives
a. List the layers of skin tissue and describe the structure of each
b. Summarize the main functions of the integumentary system
c. State normal body temperature and explain process of inflammation
d. Define and describe common symptoms of skin disorders and major skin disorders
e. State the actions and give examples of topical medication categories
f. List five ways of increasing absorption of drugs into the skin layers
g. Illustrate administering topical medications to the skin
h. Calculate formulas for drugs to the skin

11. **Identify the classification of drugs for the cardiovascular system**

Learning Objectives
a. Identify parts of the cardiovascular system and state their functions
b. State the names of instruments used to measure blood pressure and record heartbeat, state the average blood pressure and pulse rate
c. List the main components of blood
d. State the functions of the lymphatic system
e. Identify proper medical terms for common symptoms of cardiovascular disorders
f. Explain the major disorders for which cardiovascular medication is given
g. Describe the actions and give examples of the cardiovascular drug groups
h. State the difference between an initial and a maintenance dose
i. Illustrate administering oral and sublingual medications to patients with cardiovascular disorders
j. State special procedures for administering cardiovascular medications
k. Calculate formulas for drugs used for the cardiovascular system

12. **Identify the classification of drugs for the respiratory system**

Learning Objectives
a. Describe the parts of the respiratory system
b. State the normal respiration rate and recognize descriptions of the major respiratory disorders
c. Describe common symptoms of respiratory disorders using correct medical terminology
d. Explain why coughing is important for maintaining a patient's airway
e. Describe nicotine dependency and methods for smoking cessation
f. Understand the principles and how to operate a pulse oximeter
g. Describe the actions and give examples of respiratory disorder medications
h. Administer nose drops, inhalants, and oxygen therapy as ordered
i. Calculate respiratory formulas

13. **Identify the classification of drugs for the gastrointestinal system**

Learning Objectives
a. Describe the five main functions of the gastrointestinal system
b. Identify the major parts of the gastrointestinal system and tell what they do
c. Describe symptoms of gastrointestinal disorders and the major disorders for which
medications are given
d. Describe the actions and give examples of medications for the gastrointestinal system
e. Identify the three important conditions to be aware of when giving medications for the gastrointestinal system
f. Describe and follow proper procedure for administering rectal suppositories
g. Calculate gastrointestinal formulas

14. Identify the classification of drugs for the urinary system and fluid balance
Learning Objectives
a. List correct medical terms to describe major parts, functions, and disorders of the urinary system and describe what they do
b. Describe three functions of the urinary system
c. Describe the actions and give examples of the urinary system drug groups
d. Describe the patient care and education that go with giving diuretics
e. Describe the purpose of a urinary catheter
f. Describe the causes and treatment of dehydration in the pediatric patient
g. Calculate formulas for drugs used to treat the urinary system and fluid imbalances

15. Identify the classification drugs for the reproductive system
Learning Objectives
a. Identify the main parts of the male and female internal and external genitalia
b. Identify the main parts and functions of the reproductive system using correct medical terminology
c. Describe the effects of puberty on the adolescent patient and the need for contraceptive counseling
d. Recall the hormones produced by the male and female gonads and describe their functions
e. Describe major disorders that affect the reproductive system
f. Describe the main uses of reproduction medications, including sex hormones and contraceptives
g. Calculate formulas for drugs of the reproductive system

16. Identify the classification of drugs for the endocrine system
Learning Objectives
a. List the hormones produced by the seven major glands, and state the actions of hormone or hormone like drugs
b. State which hormones are lacking in the conditions of diabetes mellitus, diabetes insipidus, Addison's disease, and hypothyroidism, and give examples of drugs used for replacement in each case
c. State the correct medical terms used for the parts of the endocrine system
d. State what factors affect the insulin needs of a patient with diabetes mellitus, and describe the procedure for administering regular and immediate-acting insulin in one syringe
e. List at least three uses of corticosteroids and five possible side effects of long-term corticosteroid therapy
f. Recognize the symptoms of hyperglycemia and hypoglycemia and explain how they are treated
g. Calculate drugs for the endocrine system

17. Identify the classification of drugs for the skeletal system
Learning Objectives
a. List correct medical terms used to describe major parts, functions, and disorders of the
musculoskeletal system
b. Recognize descriptions of major disorders that affect the musculoskeletal system
c. Describe the actions of drug groups commonly used in treating the musculoskeletal system
d. Describe the side of the various drug categories used in the musculoskeletal system

18. **Define psychotropic drugs**

   **Learning Objectives**
   a. Describe biochemical mechanisms of the central nervous system that affect emotions
   b. Define the correct medical terms for symptoms of mental disorders
   c. Recognize descriptions of the major mental disorders
d. Describe the actions and give examples of the drugs groups associated with mental disorders
e. Identify drugs that are often involved in drug abuse
f. Calculate formulas for psychotropic drugs

19. **Identify the classification of drugs for the nervous and sensory system**

   **Learning Objectives**
   a. List the two main divisions of the nervous system and their parts
   b. State the basic function of the autonomic nervous system
c. Recall the correct medical terms for symptoms of nervous system disorders
d. Recognize descriptions of the major nervous system disorders for which medications are given
e. Describe the actions and give examples of drugs groups associated with the nervous and sensory system
f. Demonstrate administering medications for pain, emergency drugs, stimulants, and effects of caffeine
g. Calculate drugs for the nervous and sensory system

20. **Define neoplastic drugs**

   **Learning Objectives**
   a. Identify cells, tissues, organs, and body systems
   b. Recall the four types of body cells
c. State the three characteristics of cancer
d. Explain how chemotherapy works
e. List common antineoplastic drugs and their effects on the cell cycle
f. List common side effects for patients receiving chemotherapy and identify appropriate care for patients
g. List at least three groups of antineoplastic drugs and give examples
h. Calculate formulas for antineoplastic drugs

21. **Describe the appropriate drugs for the pediatric patient**

   **Learning Objectives**
   a. Define terms pertinent to drugs for the pediatric patient
   b. Describe the physiological alterations in the pediatric patient
c. Identify the safeguards critical to safe administration of pediatric patients
d. Describe the methods of administration for oral, intramuscular, subcutaneous, intradermal, optic, otic, nasal, or rectal medication in the pediatric patient
e. Demonstrate educating parents on how to safely administer medication to their child
f. List medication administration safety practices and the principles that are specific for the pediatric patient
g. Calculate drugs for the pediatric patient

22. Describe the appropriate drugs for the geriatric patient

Learning Objectives
a. Describe the major changes that take place in the various body systems during aging
b. Demonstrate how individualized treatment of older adults must be established according to each person’s needs
c. Explain how medication orders are usually adjusted to account for the pharmacokinetics of older adults and describe the effects of aging on absorption, distribution, metabolism, and excretion
d. Explain why the presence of multiple diseases in older adults makes drug therapy more complicated
e. Explain how older adults are affected by the attitudes and actions of healthcare workers
f. Describe safe medication administration practices and the principles that are specific for the older adult patient
g. List ways that patients can take an active part in their own medication therapy
h. Calculate drugs for the geriatric patient