Course Syllabus

MDCA 1448 – Pharmacology & Administration of Medications

Catalog Description: Instruction in concepts and application of pharmacological principles. Focuses on drug classifications, principles and procedures of medication administration, mathematical systems and conversions, calculation of drug problems, and medico-legal responsibilities of the medical assistant.

Lecture hours = 4, Lab hours = 1

Prerequisites: Medical Assistant one-year Certificate

Semester Credit Hours: 4
Lecture Hours per Week: 4
Lab Hours per Week: 1
Contact Hours per Semester: 80

State Approval Code: CIP 51.0801

Instructional Goals and Purposes: The purpose of this course is to prepare students for the pharmacological portion of their certification exam.

Learning Outcomes:
After studying all materials and resources presented in the course, the student will be able to:

1. Prepare, administer, and document oral and percutaneous medications; calculate drug dosages for administration by standard routes for adult and pediatric patients;
2. Demonstrate inventory handling and storage; and
3. Adhere to governmental health care guidelines and biohazard protocols.

Specific Course Objectives (includes SCANS):
After studying all materials and resources presented in the course, the student will be able to:

1. Safely and accurately administer medications by each route in a simulated lab environment. (SCANS 1. Ai, Aiii, Av, 1. Bii, Biii, Biv, Bv, Bvi, 1. Ci, Cii, Ciii, Civ, Cv, 2. Ai, Aiii, Bi, Bii, Biii, Biv, Bvi, Ci, Ei,)
   a. State the seven rights of medication administration.
   b. Recognize steps that are taken to avoid medication errors.
   c. Discuss and demonstrate medication documentation.
   d. Locate information on a medication label accurately.
   e. Identify the proper needle and syringe combination/size to use for specific patients.
   f. Recognize the components of prescriptions and medication orders.
   g. Differentiate the routes of drug administration and safe practices for each route.
   h. Identify landmarks for locating injection sites according to best practice recommendations.
   i. Recognize infection control procedures and use standard precaution guidelines (OSHA)
2. Identify how drugs are classified and used to treat multiple body systems. (SCANS 1. Ai, Bvi, Ci, Cii, Civ)
   a. Recognize drugs and drug categories related to treating specific body systems (Urinary, Gastrointestinal, Musculoskeletal, Respiratory, Cardiovascular, Hematologic, Gynecologic and Obstetric, Endocrine, Neurologic, Psychiatric, Dermatologic, Ophthalmic, Ear, Nose and Throat).
   b. Discuss drugs and drug categories used to treat multiple body systems (Analgesics, Anti-Infective Drugs, Vaccines).
   c. Recognize drugs have a chemical, generic, and trade name.
   d. Differentiate between prescription and over-the-counter drugs and controlled substances.
3. Understand the History and the Present Uses of Drugs. (SCANS 1. Ai, Bv, Bvi, 2. Ci)
   a. Identify drug legislation and agencies; describe the origin and content of various drug laws.
   b. Recognize the processes involved in drug design, testing, manufacturing, and marketing and the role of the FDA in regard to drugs.
   c. Learn the role of the DEA in regards to drugs listed as Controlled Substances or Schedule Drugs and what makes drugs be considered for this category.
   d. Differentiate between the various forms of drugs and the routes of administration.
   e. Recognize various sources that drugs are derived from, how they were made in the past and how they are made today.
4. Accurately calculate dosages for adult and pediatric patients. (SCANS 1. Ai, Aiii, Aiv, Av, Bii, Biii, Bii, Bv, Bv, Bvi, 2. Bi, Bii, Biii, Bvi, Ci, Cii, Ciii, Civ)
   a. Practice using the metric system (meter, liter, and gram) to calculate dosages.
   b. Perform weight-based dosage calculations (mg/kg).
   c. Perform dosage calculations using desired/have X quantity.
   d. Perform Dimensional Analysis (Factor-Label method) equations.
   e. Use Ratio-Proportion to solve dosage calculations.
5. Describe Specific Effects of Drugs (SCANS 1. Ai, Aiv, Bi, Bv, Bvi, 2. Aiii, Ci, Ciii)
   a. Differentiate between the local and systemic effects of drugs.
   b. Be able to discuss the steps of the drug cycle: absorption, distribution, metabolism, and excretion of medication (Pharmacokinetics).
   c. Recognize various reasons a drug might be contraindicated for a specific patient.
   d. Identify food-drug interactions, and drug-drug interactions.
   e. Recognize the effects of drugs and the mechanism of action (Pharmacodynamics).
   f. Define contraindications, adverse reactions, and allergic reactions. Know signs and symptoms of anaphylactic shock and recognize it is a medical emergency.
6. Be familiar with the body's immune response and types of immunity (SCANS 1. Ai, Aiv, Av, 2. Ci)
   a. Identify various components of the immune system
   b. Describe the four types of immunity.
   c. Discuss immunizations; how they are administered and diseases they are used to treat.

Course Content:
A general description of lecture/discussion topics included in this course are listed in the Learning Objectives / Specific Course Objectives sections of this syllabus.

Students in all sections of this course will be required to do the following:
1. Read assigned chapters
2. Answer assigned chapter review questions
3. Look up and categorize drug information
4. Perform mathematic equations/dosage calculations
5. Properly administer medications orally, percutaneously (simulated)
6. Demonstrate injection techniques satisfactorily (simulated)
7. Complete Chapter Exams
8. Complete Final Exam
**Methods of Instruction/Course Format/Delivery:**  Students are expected to demonstrate basic competency in reading, writing, oral communication, math, and computer skills. Students are expected to be an active learning participant by assuming accountability in preparing for each class by completing required readings and/or other learning activities as listed in each unit assignment. Proficiency may be measured by examination scores, oral discussions and/or presentations, case studies and internet research activities.

Students should use the Email within Canvas to communicate with the instructor. Using Canvas email gives you access to the instructor and other classmates without having to remember or type email addresses - you must select a name from the list. If you are not able to contact me using email in Canvas, you may use my Panola College email address, contact me by telephone, or stop by my office. I attempt to respond to all email within 24 hours. Please always include a subject line and your name in your email.

**Major Assignments / Assessments:**
The following items will be assigned and assessed during the semester and used to calculate the student's final grade.

**Assignments**
1. Read each assigned chapter (Chapters 1-21 & 23)
2. Chapter Review questions as assigned
3. Drug Cards
4. Dosage calculations practice/quizzes
5. Drug label quiz
6. Medication administration practice/procedures

**Assessment(s):**
1. Chapter Review responses
2. Class participation/discussions
3. Exams (over chapters 1-21, & 23)
4. Dosage calculation Exam
5. Medication administration procedures demonstrated/verbalized by student
6. Final Exam (comprehensive)

**Course Grade:**
The grading scale for this course is as follows:

- Attendance-5%
- Assignments -35%
- Skills-10%
- Exams -30%
- Final Exam -20%

**Texts, Materials, and Supplies:**
- Understanding Pharmacology for Health Professionals Fifth Edition, Copyright 2016
- Supplies are provided in lab

**Required Readings:**
- Understanding Pharmacology for Health Professionals Fifth Edition, Copyright 2016
- Any additional assigned reading

**Recommended Readings:**
- Medical Dictionary
- MA Notes (pocket reference)
- PDR.net
Other:

- For current texts and materials, use the following link to access bookstore listings: http://www.panolacollegestore.com
- For testing services, use the following link: http://www.panola.edu/elearning/testing.html
- If any student in this class has special classroom or testing needs because of a physical learning or emotional condition, please contact the ADA Student Coordinator in Support Services located in the Administration Building or go to http://www.panola.edu/student-success/disability-support-services/ for more information.
- Withdrawing from a course is the student’s responsibility. Students who do not attend class and who do not withdraw will receive the grade earned for the course.
SCANS CRITERIA

1) Foundation skills are defined in three areas: basic skills, thinking skills, and personal qualities.

a) Basic Skills: A worker must read, write, perform arithmetic and mathematical operations, listen, and speak effectively. These skills include:
   i) Reading: locate, understand, and interpret written information in prose and in documents such as manuals, graphs, and schedules.
   ii) Writing: communicate thoughts, ideas, information, and messages in writing, and create documents such as letters, directions, manuals, reports, graphs, and flow charts.
   iii) Arithmetic and Mathematical Operations: perform basic computations and approach practical problems by choosing appropriately from a variety of mathematical techniques.
   iv) Listening: receive, attend to, interpret, and respond to verbal messages and other cues.
   v) Speaking: Organize ideas and communicate orally.

b) Thinking Skills: A worker must think creatively, make decisions, solve problems, visualize, know how to learn, and reason effectively. These skills include:
   i) Creative Thinking: generate new ideas.
   ii) Decision Making: specify goals and constraints, generate alternatives, consider risks, and evaluate and choose the best alternative.
   iii) Problem Solving: recognize problems and devise and implement plan of action.
   iv) Visualize (“Seeing Things in the Mind’s Eye”): organize and process symbols, pictures, graphs, objects, and other information.
   v) Knowing How to Learn: use efficient learning techniques to acquire and apply new knowledge and skills.
   vi) Reasoning: discover a rule or principle underlying the relationship between two or more objects and apply it when solving a problem.

c) Personal Qualities: A worker must display responsibility, self-esteem, sociability, self-management, integrity, and honesty.
   i) Responsibility: exert a high level of effort and persevere toward goal attainment.
   ii) Self-Esteem: believe in one’s own self-worth and maintain a positive view of oneself.
   iii) Sociability: demonstrate understanding, friendliness, adaptability, empathy, and politeness in group settings.
   iv) Self-Management: assess oneself accurately, set personal goals, monitor progress, and exhibit self-control.
   v) Integrity and Honesty: choose ethical courses of action.

2) Workplace competencies are defined in five areas: resources, interpersonal skills, information, systems, and technology.

a) Resources: A worker must identify, organize, plan, and allocate resources effectively.
   i) Time: select goal-relevant activities, rank them, allocate time, and prepare and follow schedules.
   ii) Money: Use or prepare budgets, make forecasts, keep records, and make adjustments to meet objectives.
   iii) Material and Facilities: Acquire, store, allocate, and use materials or space efficiently.
Examples: construct a decision time line chart; use computer software to plan a project; prepare a budget; conduct a cost/benefits analysis; design an RFP process; write a job description; develop a staffing plan.

b) Interpersonal Skills: A worker must work with others effectively.
   i) Participate as a Member of a Team: contribute to group effort.
   ii) Teach Others New Skills.
   iii) Serve Clients/Customers: work to satisfy customer’s expectations.
iv) **Exercise Leadership**: communicate ideas to justify position, persuade and convince others, responsibly challenge existing procedures and policies.

v) **Negotiate**: work toward agreements involving exchange of resources, resolve divergent interests.

vi) **Work with Diversity**: work well with men and women from diverse backgrounds. Examples: collaborate with a group member to solve a problem; work through a group conflict situation, train a colleague; deal with a dissatisfied customer in person; select and use appropriate leadership styles; use effective delegation techniques; conduct an individual or team negotiation; demonstrate an understanding of how people from different cultural backgrounds might behave in various situations.

c) **Information**: A worker must be able to acquire and use information.

   i) **Acquire and Evaluate Information**.
   
   ii) **Organize and Maintain Information**.
   
   iii) **Interpret and Communicate Information**.
   
   iv) **Use Computers to Process Information**.

   Examples: research and collect data from various sources; develop a form to collect data; develop an inventory record-keeping system; produce a report using graphics; make an oral presentation using various media; use on-line computer data bases to research a report; use a computer spreadsheet to develop a budget.

d) **Systems**: A worker must understand complex interrelationships.

   i) **Understand Systems**: know how social, organizational, and technological systems work and operate effectively with them.
   
   ii) **Monitor and Correct Performance**: distinguish trends, predict impacts on system operations, diagnose deviations in systems' performance and correct malfunctions.
   
   iii) **Improve or Design Systems**: suggest modifications to existing systems and develop new or alternative systems to improve performance.

   Examples: draw and interpret an organizational chart; develop a monitoring process; choose a situation needing improvement, break it down, examine it, propose an improvement, and implement it.

e) **Technology**: A worker must be able to work with a variety of technologies.

   i) **Select Technology**: choose procedures, tools or equipment including computers and related technologies.
   
   ii) **Apply Technologies to Task**: understand overall intent and proper procedures for setup and operation of equipment.
   
   iii) **Maintain and Troubleshoot Equipment**: Prevent, identify, or solve problems with equipment, including computers and other technologies.

   Examples: read equipment descriptions and technical specifications to select equipment to meet needs; set up and assemble appropriate equipment from instructions; read and follow directions for troubleshooting and repairing equipment.