MDCA 1452 - Medical Assistant Laboratory Procedures MDCA1452.1H1 Course Syllabus

Description
Application of governmental health care guidelines. Includes specimen collection and handling, quality assurance and quality control in performance of Clinical Laboratory Improvement Amendments (CLIA)-waived laboratory testing.

Semester Offered
Fall and Spring semesters
Credits 4
Lecture Hours 3
Lab Hours 2
Extended Hours 0
Contact Hours 80
State Approval Code CIP 51.0801
Instructor Name Kimberly Bishop, RHIT, MLT(AMT), RMA(AMT)
Semester/Year Fall 2024

Meeting Time and Location
M: 9:05 AM to 11:00 am in HNS1310.

Alternate Operations During Campus Closure
In the event of an emergency or announced campus closure due to a natural disaster or pandemic, it may be necessary for Panola College to move to altered operations. During this time, Panola College may opt to continue delivery of instruction through methods that include, but are not limited to: online learning management system (CANVAS), online conferencing, email messaging, and/or an alternate schedule. It is the responsibility of the student to monitor Panola College's website (www.panola.edu) for instructions about continuing courses remotely, CANVAS for each class for course-specific communication, and Panola College email for important general information.

Student Basic Needs
Unexpected circumstances may arise, but Panola College offers various resources to support students. If you need mental health services or are facing challenges with transportation, affording class materials and supplies, or accessing food regularly—issues that may impact your class performance—please visit panola.edu/resources.

Class Attendance
Regular and punctual attendance of classes and laboratories is required of all students. When a student has been ill or absent from class for approved extracurricular activities, he or she should be allowed, as far as possible, to make up for the missed work. If a student has not actively participated by the census date, they will be dropped by the instructor for non-attendance. This policy applies to courses that are in-person, online, hybrid, and hyflex.

Attendance in online courses is determined by submission of an assignment or participation in an activity. According to federal guidelines, simply logging into a distance learning course without participating in an

academic assignment does not constitute attendance. Distance learning is defined as when a majority (more than 50%) of instruction occurs when the instructor and students are in separate physical locations. Students must engage in an academic activity prior to the course census date.

When an instructor feels that a student has been absent to such a degree as to invalidate the learning experience, the instructor may recommend to the Vice President of Instruction that the student be withdrawn from the course. Instructors may seek to withdraw students for non-attendance after they have accumulated the following number of absences:

Fall or spring semesters:

3 or more class meeting times per week - 5 absences

2 class meeting times per week - 3 absences

1 class meeting per week - 2 absences

The student is responsible for seeing that he or she has been officially withdrawn from a class. A student who stops attendance in a class without officially withdrawing from that class will be given a failing grade; consequently, the student must follow official withdrawal procedures in the Admissions/Records Office.

Please note: Health Science and Cosmetology courses may require more stringent attendance policies based on their accreditation agencies. Please see the addendum and/or program handbook for further information concerning attendance.

Pregnant/Parenting Policy

Panola College welcomes pregnant and parenting students as a part of the student body. This institution is committed to providing support and adaptations for a successful educational experience for pregnant and parenting students. Students experiencing a need for accommodations related to pregnancy or parenting will find a Pregnancy and Parenting Accommodations Request form in the Student Handbook or may request the form from the course instructor.

Artificial Intelligence (AI) Course Policy

Use of generated AI Permitted under some classroom circumstances with permission.

There are situations throughout the course where you may be asked to use artificial intelligence (AI) tools to explore how they can be used. Outside of those circumstances, you should not use AI tools to generate content that will end up in any student work (assignments, activities, discussion responses, etc.). In such cases for Option #2, no more than 25% of the student work should be generated by AI. Use of any AI-generated content in this course without the instructor's consent qualifies as academic dishonesty and violates Panola College's standards of academic integrity.

Instructional Goals and Purposes

The purpose of this course is to introduce Medical Assisting students to the physician's office laboratory. Included in this study will be venipuncture, quality control, quality assurance, waived testing, and lab safety.

Learning Outcomes

1. Demonstrate venipuncture and skin puncture technique.
2. Demonstrate compliance with Universal Standards and Precautions based on OSHA guidelines.
3. Perform CLIA- waived laboratory tests.
4. Label and handle all biologic specimens.
5. Use equipment including calibration, maintenance and troubleshooting.
6. Demonstrate quality assurance and quality control procedures.

Specific Course Objectives (includes SCANS)

After studying all materials and resources presented in the course, the student will be able to:
1. Chapter 1 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define and match key terms and abbreviations in this chapter.
b. List the reasons why laboratory tests are ordered, and describe how specimens are analyzed.
c. Describe the organization and function of medical laboratories.
d. Compare the advantages of performing laboratory tests in a physician's office laboratory versus an outside reference laboratory.

e. Identify the educational credentials of various personnel who work in laboratories.
f. Describe the necessary attributes required of the laboratory professional.
g. Identify and use laboratory requisitions and reports with proper documentation and confidentiality.
h. Interpret common metric system values used in laboratory test reporting.
i. Explain the categories of hazards found in medical laboratories.
j. Explain the steps involved in the "chain of infection."
k. Identify and apply the CDC's latest Standard Precautions for infection control and its recommendations regarding proper hand hygiene.
l. Perform a medical hand wash followed by application of PPE and proper removal of PPE.
m. Locate Internet sources for updates on CDC and OSHA recommendations regarding laboratory safety.
n. Explain the latest OSHA regulations regarding the Bloodborne Pathogens Standard and the Hazard Communication Standard.
o. Identify waste classified as biohazardous, and select appropriate containers for disposal.
p. Describe the proper actions that should be taken after exposure to bloodborne pathogens.
q. List and explain the safety rules that must be observed in the laboratory.
r. Identify and note the location of safety equipment, apparel, and safety manuals in the classroom laboratory.
s. Locate Internet sources for updates on OSHA regulations regarding laboratory safety.
2. Chapter 2 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define and match key terms and abbreviations in this chapter.
b. Explain the purpose of CLIA 1988 and its benefit to the patient, and do the following:
c. Cite the three levels of complexity listed in CLIA 1988.
d. Discuss Quality Control and its purpose.
e. Label the parts of the compound microscope and explain the functions of each.
3. Chapter 3 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define and match key terms in this chapter.
b. Demonstrate an understanding of the urinary system by:
i. Describing the structures and functions of the organs, the formation of urine, the significance of renal threshold, the flow of urine, and the composition of urine.
ii. Defining medical terms related to the urinary system and urinalysis.
c. Instruct the patient in the proper method of urine collection for voided urine, clean-catch midstream urine for bacterial studies, and timed urine specimens.
d. Recognize the ten dipstick urine tests and results that are considered "normal."
4. Chapter 5 Part 1 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define chapter key terms.
b. Identify proper specimen for hematology testing.
c. View blood smear slide and identify different RBC morphologies.
d. Describe the basic principles of hemostasis.
e. Describe the tests involved in the Complete Blood Count (CBC).
f. Identify red blood cell indices and explain their significance in determining anemia.
g. Describe and perform a manual hematocrit.
5. Chapter 5 Part 2 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Describe functions of different WBC.
b. View a blood smear and identify each type of WBC.
c. Observe abnormal(s) selected by your instructor.
d. Explain the significance of the white blood cell count and differential.
6. Chapter 6 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define chapter key terms.
b. Describe proper specimen collection and processing for various chemistry tests.
c. Explain the basic principles of glucose and fat metabolism.
d. Describe Beer-Lambert law and how it is used to measure chemical analytes.
e. Explain the importance of calibrations, QC, Westgard rules.
f. Match chemistry panels with tests performed.
g. Perform a blood glucose by glucometer.
h. Define the following as they apply to quality control: calibration, mean, reference range, control, Westgard rules, Levey-Jennings chart.
i. Know which system/disease the following chemistry tests apply to: BUN & Creatinine; Uric

Acid; Electrolytes (be able to list); Bilirubin, AST, ALT, GGT, ALP; Glucose; Tropnonin, CK-MB, LD, AST; Cholesterol: Total, Triglycerides, HDL, LDL
j. Explain the difference between plasma and serum.
k. Differentiate the different types of diabetes and the tests used in diagnosis (GTT, 2hr PP, FBG, HgbA1C, etc.)
7. Chapter 7 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define chapter key terms.
b. Explain the following immune concepts:
i. three lines of defense against invaders
ii. Differentiate between cell-medicated and humoral immunity
iii. Match the classes of immunoglobulins with their locations and/or functions
iv. List the four ways to acquire adaptive immunity.
c. Discuss the difference between in vivo and in vitro.
d. Give examples of direct and indirect immunology tests.
e. Describe mononucleosis, H. pylori, and HIV infections and how they are diagnosed.
f. Perform CLIA-waived immunology tests.
g. Explain the basic principles of ABO and Rh blood typing, and discuss the relationship between hemolytic disease of the newborn and Rh-negative status of the mother.
h. Explain how antibody titers are used.
8. Chapter 8 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define key terms.
b. Classify microorganisms into the categories of virus, bacteria, fungi, and parasites. Know the general characteristics of each category.
c. Describe proper collection and transportation of micro specimens.
d. Explain the importance of gram-staining and recognize gram-positive and gram-negative organisms.
e. Describe the following micro procedures and explain the purpose of each: throat swab specimen, gram stain of bacterial smear, wet mount, and cellulose tape procedure (pinworms).
f. List pathogenic bacteria, fungi, and parasites frequently seen in the physician's office.
g. Describe the diseases caused by group A Streptococci and influenza A/B.
9. Chapter 9 (1a-i, ii, iv, v. 1b-ii, iii, iv, v, vi. 2a-i, iii. 2b-i, ii, iv, v, vi. 2c-i, ii, iii, iv.)
a. Define key terms.
b. List the most common illicit drugs used the U.S. and describe the most widely used and abused legal drug (alcohol).
c. Identify the types of specimens commonly used for drug testing and explain why urine specimens are very useful and convenient for drug screening tests.
d. Describe the proper collection of urine and blood specimens for drug testing and monitoring.
e. Describe urine drug screening for addictive drugs of abuse.
f. Define therapeutic drug monitoring (TDM) and list examples of therapeutic drugs that may require monitoring.
g. Describe the 5 steps in pharmacokinetics and discuss the meaning of "drug half-life."
h. List the most common poisonous metals, and cite a source for each.

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.

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 will be measured by examination scores, oral discussions and/or presentations, case studies and internet research activities.

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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 are assigned and assessed during the semester and used to calculate the student's final grade.

Assignments

1. Chapter Quizzes (Chapters 1-3, 5-9)
2. Chapter Assignments (Chapters 1 & 7)
3. Attendance (Based on completion of assignments in a timely manner)

Assessments

1. Laboratory Assignments/Quizzes (Pre, During, and Post Lab)
2. Major Exam#1 (Chapters 1-3)
3. Major Exam #2 (Chapters 5-6)
4. Major Exam #3 (Chapters 7-9)
5. Comprehensive Final Exam (Chapters 1-3, 5-9)

Course Grade

The grading scale for this course is as follows:

- Major Exams (Covering Lecture and Laboratory Information) 40%
- Quizzes/Assignments + Attendance 20%
- Laboratory Assignments/Quizzes 25%
- Comprehensive Final Exam 15%
- Total: 100%

Texts Materials, and Supplies

Garrels, Marti and Oatis, Carol. (2019).Laboratory and Diagnostic Testing in Ambulatory Care, 4th edition. Elsevier. ISBN: 9780323532235

Required Readings

Garrels, Marti and Oatis, Carol. (2019).Laboratory and Diagnostic Testing in Ambulatory Care, 4th edition. Elsevier. ISBN: 9780323532235

Other

- Courses conducted via video conferencing may be recorded and shared for instructional purposes by the instructor.
- For current texts and materials, use the following link to access bookstore listings: https://www.panolacollegestore.com.
- For testing services, use the following link: https://www.panola.edu/student-services/studentsupport/academic-testing-center.
- 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 Charles C. Matthews Student Center or go to https://www.panola.edu/studentservices/student-support/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.
- Student Handbook: https://www.panola.edu/ (located on at the bottom under student)

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 timeline 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 databases 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.