MLT-701: PHLEBOTOMY FOR MEDICAL LABORATORY ASSISTANTS AND TECHNICIANS

Effective Term
Fall 2024

BOT Approval Date
12/14/2023

Discipline
MLT - Medical Laboratory Technician
Course Number
701

Course Title
Phlebotomy for Medical Laboratory Assistants and Technicians

Short Title
Phlebotomy

Credit Status (CB 04)
D - Credit - Degree applicable

Units

Lecture Units
3.00

Lab Units
1.00

Total Units
4

Hours

Lecture Contact Hours
48-54
Out of Class Hours Lecture
96-108

Lab Contact Hours
48-54
Out of Class Hours Lab
0.00

Total Contact Hours
96 - 108

Total Out of Class Hours
96 - 108

Total Student Learning Hours
192 - 216

Is this an existing Extensive Lab?
No

Do you want to propose this for Extensive Lab?

No

Distance Education

No

Catalog Description

This course provides the technical knowledge and practical skills to select and utilize appropriate clinical supplies to successfully perform venipuncture, capillary puncture and arterial draws. Topics covered in this course includes OSHA, HIPAA and CDC safety and compliance, blood and blood components, patient preparation, routine collection of blood and non-blood samples, specimen collection, labeling, processing, transportation, and chain of custody.

Attach Supporting Documents

11-1-21 CTE Deans Minutes.docx
MLT LMI 2020.pdf
Board Proposal for Associate Medical Lab Tech Degree.docx

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Requisites

Pre or corequisite(s)

Prerequisite or corequisite(s) (must be taken simultaneously if not taken before)
MLT-702 (with a grade of C or better).

Recommended Preparation

Recommended Preparation (note that students can enroll in the class even if they haven't take the recommended course)
AH-105
BIOL-100

Codes

TOP Code (CB 03)

1205.10* - *Phlebotomy

CIP Code

51.1009 - Phlebotomy Technician/Phlebotomist.

Student Accountability Model (SAM) Priority Code (CB 09)

C - Clearly Occupational

Noncredit Category (CB 22)

Y - Credit Course

Repeatability Code

No

Grading Option

Letter grade OR P/NP

Minimum Qualifications

Minimum Qualifications	And/Or
Health Care Ancillaries	Or
Health Services Director/Health Services Coordinator/College (Masters Required)	End

CSU Area(s)

IGETC Area(s)

Learning Objectives

Learning Objectives

Learning Objective
1. Demonstrate knowledge of the legal aspects associated with phlebotomy procedures by describing situations that may have letigation.
2.Evaluate the rationale for safety rules mandated for those working in the clinical laboratories.
3. Categorize the major constituents of blood and differentiate between serum, plasma and whole blood.
4. Assess appropriate phlebotomy needles and additives used in blood collection and list the order of draw when blood is collected using multiple tubes.
5. Critique the test request process and determine the procedure to follow for each test status designation.
6. Determine the pre-analytic variables that influence test results.
7. Validate the indications for performing capillary puncture on adults, children and infants.
8. Formulate the chain-of-custody procedure and identify the tests require such a procedure.
9. Investigate the correlation between culture, social, economic and environmental factors and patient's access to care and health seeking behaviors.
10. Examine the incidence of thalassemia among various ethnic groups and assess how culture, economics and environment can impact the rate of this disease in various groups.

Learning Outcome Information

Course Learning Outcomes

Learning Outcome
1. Students will select and utilize appropriate clinical supplies to successfully perform venipuncture and capillary puncture.
2. Students will utilize appropriate medical terminology in communicating with patients and medical staff.
3. Students will apply clinical knowledge in collecting, storing, aliquoting and distributing blood samples to various clinical laboratory departments.
4. Students will adhere to laboratory safety skills in handling and processing blood samples and other body fluids.
5. Students will adhere to HIPAA confidentiality and accuracy of patient information.
6. Engage in inclusive, respectful conversation with others.
7. Follow clinical laboratory instructions completely.

Program Learning Outcomes

Learning Outcome
1. Students will demonstrate competency and understanding of the fundamental principles of laboratory procedures.
2. Student will adhere to HIPAA confidentiality guidelines in reporting accurate and timely patient test results.
3. Students will develop skills in providing the highest level of patient care as defined by established standards.
4. Students will apply critical thinking skills in conducting clinical laboratory tests and reporting results to the clinicians.
5. Students will acquire the knowledge and skills necessary to pass the licensing exam and enter the workforce as professional laboratory personnel.
6. Students will demonstrate cultural awareness in communicating with patients, patient's family, laboratory staff and clinicians.

Institutional Learning Outcomes

Communication: The student will effectively express and exchange ideas through listening, speaking, reading, writing, visual works, and other modes of interpersonal expression.
Critical Thinking: The student will analyze problems, gather and synthesize relevant information, evaluate ideas, information, and evaluate alternative points of view to create, innovate and implement effective solutions.

Cultural Awareness and Humility: The student will demonstrate knowledge of and sensitivity toward individuals of diverse ethnicity, age, gender, sexual orientation, and religious affiliations, as well as toward those individuals with diverse abilities and socio-economic classes to respectfully interact with individuals of diverse perspectives, beliefs and values while being mindful of the limitation of their own cultural frameworks.
Information and Technology Literacy: The student will access, interpret, evaluate, and apply relevant information sources and digital media effectively, and in an ethical and legal manner.
Scientific Awareness: The student will apply the scientific method of inquiry to assess potential solutions for real-life challenges by employing science-based knowledge and methodologies in daily life.
Social Awareness: The student will recognize and analyze the interconnectedness of global, national, and local concerns, analyzing cultural, political, social, and environmental issues from multiple perspectives and appreciate similarities and differences among cultures.
Civic
Personal
and Professional Responsibility

Content

Course Lecture Content

Course Lecture Content

1. Healthcare Setting
   a. Healthcare delivery
   b. Healthcare Financing
   c. Clinical Laboratory Services
   d. Clinical Laboratory Personnel
   e. Interacting professionally with laboratory personnel of various culture
   f. Clinical Laboratory Improvement Act
2. Quality assurance and Legal Issues
   a. National Standard and Regulatory Agency
   b. Quality Assurance in Phlebotomy
   c. Documentation
   d. Risk management
   e. Avoiding lawsuits
   f. Patient consent
   g. The Litigation Process
3. Infection Control, Safety, First Aid, and Personal Wellness
   a. The chain of infection
   b. Infection control programs and methods
   c. Biosafety, electrical, radiation, and chemical safety
   d. CPR, shock, external hemorrhage
   e. Stress Management
4. Overview of the Human Body
   a. Medical terminology
   b. body positions, planes and cavities
   c. homeostasis and metabolism
   d. Cells, tissues and organs
   e. Body systems
5. The Circulatory System
   a. Heart structure and function
   b. Heart disorders and diagnostic tests
   c. Blood composition, type and specimen
   d. Blood disorders and diagnostic tests
   e. hemostasis and coagulation
   f. lymphatic system
6. Blood Collection Procedures
   a. Exploring individual bias towards patients of various ethnic background
   b. Seeing patients are individuals and treating them with empathy and respect.
   c. General blood collection equipment and supplies

   d. Venipuncture equipment
   e. Needles and Holder units
   f. Blood collection additives
   g. Order of draw
7. Venipuncture Steps
   a. Review and Accession of test requests
   b. Approach, identify and prepare patient
   c. Prepare equipment for venipuncture
   d. Safely perform venipuncture
   e. Discard collection units, syringes and transfer devices
   f. Label and process tubes
   g. Transport specimen to the laboratory
8. Types of Venipuncture and Special Populations
   a. Routine Venipuncture
   b. Butterfly venipuncture procedure
   c. Syringe venipuncture procedure
   d. Pediatric venipuncture
   e. Geriatric venipuncture
   f. Dialysis patients
   g. Long-term Care Patients
   h. Home Care Patients
   i. Hospice Patients
9. Pre-analytic Considerations
   a. Reference Ranges
   b. Basal State
   c. Physiological variables
   d. Problem sites
   e. Vascular access devices and sites
   f. Patient complications and conditions
   g. Procedure error and risk
   h. Specimen quality concerns
10. Capillary Puncture Equipment and Procedures
   a. Capillary puncture equipment
   b. Principles of capillary puncture
   c. Capillary puncture procedure
   d. Special capillary puncture procedure
   e. Capillary blood gases
   f. Neonatal bilirubin collection
   g. Newborn/Neonatal screening
   h. Routine blood film/smear preparation
   i. Thick blood smear preparation
11. Special Procedures
   a. Blood bank specimen
   b. Type, screen and cross-match
   c. Blood donor collection
   d. Blood culture
   e. Coagulation specimen
   f. Glucose tolerance test
   g. Lactose tolerance test
   h. Paternity/Parentage testing
   i. Therapeutic drug monitoring
   j. Toxicology Specimen
   k. Point of care testing
12. Computers and Specimen Handling and Processing

a. Elements of the computer
b. Laboratory information system
c. Computerized analyzers
d. Routine specimen handling
e. Special specimen handling
f. Specimen suitability
g. Centrifugation
h. Aliquot preparation

13. Non-blood Specimen Tests
    a. Specimen collection, labeling and handling
        i. urine
        ii. amniotic fluid
        iii. cerebrospinal fluid
        iv. gastric fluid/ gastric fluid analysis
        v. nasopharyngeal secretions
        vi. saliva
        vii. semen
        viii. serous fluid
        ix. sputum
        x. sweat
        xi. synovial fluid
        xii. buccal sample
        xiii. bone marrow
        xiv. breath samples
        xv. feces
        xvi. throat swab
        xvii. tissue specimen
14. Arterial Puncture Procedures
    a. Arterial blood gases
    b. Site selection criteria
    c. Arterial puncture sites
    d. ABG specimen collection
    e. Hazards and complications of arterial punctures
    f. Sample errors
    g. Criteria for ABG specimen rejection
15. Cultural competency and Workplace Diversity
    a. Culture
    b. Stereotype, Prejudice, Biases
    c. Workplace Diversity
    d. Discrimination
    e. Cultural competence in healthcare

Course Lab Content

1. Laboratory Safety Standards and Procedures
    a. Laboratory safety
    b. Disposal of biological and chemical waste
    c. Proper use of the Sharps container
    d. Personal protective equipment
    e. Proper hand washing
    f. Proper donning and removal of gloves
2. Specimen Collection
    a. Identify patient using proper procedure
    b. Prepare the patient for capillary blood collection
    c. Prepare the patient for venipuncture
    d. Apply tourniquet

e. Select venipuncture site
f. Select tubes according to laboratory requisition
g. Obtain blood using the following methods
    i. using the syringe method
    ii. using the butterfly method
    iii. using the multi-tube/tube holder method
h. Collect blood according to the order of draw and lab requisition
i. Complete the venipuncture and care of the patient
j. Label specimen
k. evaluate specimen for common collection error

3. Performing Laboratory Testing
    a. Perform hematocrit using the microcentrifuge
    b. Read and report hematocrit values
    c. Perform hemoglobin test using hemoglobinometer
    d. Calculate RBC count using the hemocytometer
    e. Calculate WBC count using the hemocytomer
    f. Prepare and stain a blood smear
    g. Perform a WBC differential count
    h. Perform the Erythrocyte Sedimentation rate
    i. Perform an Prothrombin Time test
    j. Perform the ABO blood typing test
    k. Perform the Rh blood typing test
    l. Perform a glucose test
    m. Perform a urinalysis
        i. physical evaluation
        ii. chemical evaluation

Methods of Instruction

Method

Lecture

Integration

PowerPoint lectures, complimented with audio visual materials in the form of video will be used to present concepts and procedures in phlebotomy.

Method

In-class Exercises

Integration

Case studies will be used to engage large and small group cooperative learning activities in solving or resolving issues related to phlebotomy, patient care, procedures and pre-analytic errors, while being mindful and respectful of each other's opinion, cultural difference and valued individual experience.

Method

Observation and Demonstration

Integration

Classroom demonstration of procedures used in phlebotomy and the medical laboratory will be used to prepare students for their own skills development and competency.

Method
Lab Activities

Integration
Hand-on lab activity provides students will the opportunity to practice procedures in venipuncture and to assess their own practice meta-cognitively in performing proper venipuncture and patient care. Prosthetics will be used in these activities.

Method
Work Experience

Integration
Students are expected to complete 120 hours of externship experience in preparation of licensure as a phlebotomist. This is a state requirement.

Methods of Evaluation

Method
Exams/Tests

Integration
Tests will be administered at the end of each module or major concept and will require critical analysis and synthesis of information presented in the lecture and textbook.

Method
Class Performance

Integration
Demonstration of proper blood drawing procedure, order of draw, tube processing, tube labeling and patient care will be followed by students' practice of those skill and demonstration of competency. Skills development and competency will be evaluated using a rubric created by the instructor and provided to the students prior to assessing students' performance of assigned skills. The rubric will assess student's pre-procedure preparation of materials, cultural awareness when interacting with the patient, proper introduction of self and identification of patient, competency in performing procedure, safety in discarding used materials, proper identification of tests from the requisition form to determine selection of blood draw tubes and specimen handling, and accurate testing and documentation of laboratory results.

Method
Group Projects

Integration
Case studies are used to create real life scenario of issues confronted in the laboratory and in the blood drawing procedures. Students will work in groups to analyze these case studies to determine the proper course of action. Group projects will be evaluated using a rubric created and discussed by the instructor and provided to students prior to assigning the project.

Method
Class Work

Integration
Class work includes group discussion of assigned case studies and presentation of findings as well as recommendation for improving or streamlining certain procedures. Group discussions will include cultural, social, political, economic and environmental impact on

patients' health seeking behaviors and expectation of health professionals. Students will be provided with a rubric by which their presentations will be evaluated.

Method
Oral Presentation

Integration
Students will prepare a oral presentation examining the incidence of thalassemia among people of Greek, Italian, North African, Sephardic Jew and Arab descent and predict how cultural, environmental, social, political, and economic condition of the patients can influence health seeking behavior, access to care, treatment options and prognosis among the different ethnic groups.

Assignments

Assignment Type
Writing

In-class and/or outside of class
In-class

Formative or Summative
Formative

Assignment
Each week, during laboratory activities, students will document procedures according to proper protocol which includes the patient's name, date of birth, time and date of the procedure, procedure used to obtain blood sample, processing of sample according to lab requisition and proper patient care.

Assignment Type
Writing

In-class and/or outside of class
In-class
Outside of class

Formative or Summative
Summative

Assignment
Evaluate the impact of culture, social, political, environmental and economic conditions on the development, progress, access to treatment, diagnosis and prognosis of certain diseases such as G6PD, sickle cell, hemoglobinopathy, and thalassemia.
Share your findings with the class either as a research paper or presentation.

Assignment Type
Reading

In-class and/or outside of class
In-class
Outside of class

Formative or Summative
Formative

Assignment

Consider two cultures that are represented locally in your area. Research and ask questions about their beliefs and practices. Examines how each culture responds to pain; how they deal with birth, death, illness, pregnancy, aging and the use of medication. Be prepared to share your findings in class during a group discussion.

Course Materials

Textbooks

McCall, R.E. Phlebotomy Essentials. (7th Edition). PA: Jones and Bartlett Learning, 2023. ISBN: 1284263487

Class Size Information

Class Size

30

Class Size Category

F - Individualized, skills#based instruction/field practice 30

Diversity and Inclusion

Explain how diversity and inclusion(e.g., gender, culture/race, sexuality, etc.) is infused into the course.

Interactive discussions will be used to address legal, ethical, and cultural issues in phlebotomy. Students will discuss how gender, culture/race and sexuality may influence patient care.

Describe how assignments, instruction, evaluation, course content, and interactions are contextualized for diverse learners promoting an equitable course.

Students are provided powerpoint presentation, video viewing, hands-on skills training and opportunity to work in pairs as they conducted simulated blood draw and patient care. Students will have the opportunity to assist, instruct, assess and provide feedback to each other concerning procedures practiced in class.

Each week, the students will work in small groups to highlight and present the contribution of various cultures to the development and advancement of science and medicine. This methodology is aimed at allowing students to interact and to connect personally and culturally with the material presented in the course.

Interactions

Explain how the course will incorporate student-to-student interaction.

Students will pair-share on issues related to content, procedures, methodologies and issues in health care and phlebotomy. Students will students will clarify understanding of these concepts by pair-sharing interactions. Example of an assignment includes describing the color coding used to identify the presence or absence of additives in blood collection tubes and name the additives, laboratory department, and individual tests associated with the various color-coded tubes.

Explain how the course will incorporate instructor-to-student interaction.

The instructor will provide direct instruction in the safe and accurate practice of blood collection. Prosthetic arms will be used for student practice and skills development in venipuncture, blood collection, order or draw and patient care.The instructor will guide the student in to proper performance of these skills and then assess the students skills development. The instructor will encourage the student to reflect on his/her own performance. The instructor will provide remediation when necessary.

Explain how the course will incorporate student-to-content interaction.

Students will use the content presented in class to demonstrate safe and correct procedure for withdrawing blood, processing specimen and performing several laboratory tests. Students will use their knowledge of the "order of draw" to select the proper tubes and order of draw for a physician request for a lipid panel, a CBC and coagulation tests.

Explain how the course will incorporate student-to-self interaction (metacognitive).

Students will be assessed on various laboratory skills, safety protocols and phlebotomy procedures and will reflect on their performance by writing a self evaluation of their performance.

Key: 2986